MAPPING THE SUPPLY CHAIN CATERING TO THE BASE OF THE PYRAMID IN SENEGAL

FINAL REPORT

12 JULY 2013

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ACRONYMS

ADEA	Agence de Developpement des Entreprises en Afrique
AFREA	Africa Renewable Energy and Access Grants Program
ASER	Senegalese Rural Electrification Agency
BOP	Base of the Pyramid
ECOWAS	Economic Community of West African States
ENDA	Energie Environment Développement
ERIL	Local Initiative for Rural Electrification
ESMAP	Energy Sector Management Assistance Program
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
IFC	International Finance Corporation
KTOE	Kilo Tons of Oil Equivalent
LA	Lighting Africa
LADM	Lighting Africa Development Marketplace
LED	Light Emitting Diode
MOE	Ministry of Energy
MFI	Microfinance Institution
MLM	Multi-level marketing
PEM	Multi-sectorial energy projects
PERACOD	Programme to Promote Rural Electrification and a Sustainable Supply of Domestic Fuel
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	GDP per capita
REEEP	Renewable Energy and Energy Efficiency Partnership
SPL	Solar Portable Lantern
SME	Small and Medium Enterprises
UEMOA	West African Economic and Monetary Union
USAID	United Sates Agency for International Development
USD	United States Dollar
VAT	Value Added Tax

CURRENCY EQUIVALENTS

Currency Unit = West African Franc (F CFA)

€1 = F CFA 655.957 (fixed rate)

EXECUTIVE SUMMARY

Situation: With 50% of population not having access to electricity (90% of whom are in rural areas), access to affordable, reliable lighting is limited in Senegal. Solar portable lanterns (SPLs) can provide for this lighting need in a sustainable way.

Complication: The current availability of solar products in Senegal that have undergone quality testing and met Lighting Africa's (LA) Minimum Quality Standards is relatively limited and restricted to urban areas. Although distribution is growing, growth is not at all at a pace that is sufficient to quickly cover the large need and potential market, nor does it focus on rural areas.

Question: What can we learn from the existing distribution of products that have had met LA's Minimum Quality Standards, lighting alternatives (including battery-powered torches, candles, petroleum lamps, and solar lamps that have not met LA's Minimum Quality Standards), or similar consumer products, that can enhance the availability of quality products? Specifically, are there any existing supply chain models or partners that new entrants could tap into?

Answer:
Like existing players, new players wishing to distribute solar lanterns in the Senegal market face three acute challenges:

- **Low awareness** of SPLs by both consumers and retailers, particularly in rural areas. Compared to East Africa, awareness of solar lighting technology is even lower, limiting incentives for distributors.
- **Low consumer affordability and access to finance** with high prices being largely driven by high tax rates and cheaper low quality 'imitation' products, possibly spoiling the market. Despite being the port of entry for West Africa (and thus having lower transportation costs), Senegal faces very high consumer prices, a great deal of which is tax driven – a combination of a 25% import tax and 18% VAT. At the same time, many cheap low-quality products, sometimes seemingly exact copies of brands that have met LA's Minimum Quality Standards, are available, which – in the case of a bad product experience – may distort people's trust in SPLs. Although the lighting alternatives people currently use do have high recurring costs and therefore, a SPL quickly pays off, few people have the upfront total purchasing amount available and they actively need to save/ take out a loan for it.
- **Low retailer affordability and access to finance:** retailers hesitate to stock SPLs because of the significant capital lock-in upfront, as is evidenced by the fact that certain distributors are now considering providing their retailers with credit lines to incentivize uptake.

Furthermore, a player seeking to achieve rural distribution directly faces the disincentives stemming from a high concentration of the population. Current distribution of SPLs focuses mainly on urban areas. This makes sense given the higher disposable income in cities, the intense need for awareness-building which is simply easier and more efficient to do in urban areas and the fact that rural distribution is less developed in general in Senegal than in a less concentrated country like e.g., Mali.

These challenges require a more innovative approach to distribution. Specifically, distribution strategies that integrate the following, should be prioritized in Senegal:

- A local network which integrates marketing, awareness-building and demonstrations into sales and distribution strategies

- Integrated product finance through select finance partnerships
- Distribution solutions, which will lower the consumer price. Certain distributors and distribution models are tax exempt under specific government schemes

Some existing distribution models of SPLs integrate some or all of the above characteristics, such as village-by-village demonstrations. The research found far fewer examples of successful integrated product finance, given the very limited formal practice of consumer finance in Senegal. Most of the promising models include cooperation with MFIs or local associations and particularly tap into the growth of *tontines* (saving and credit circles), which can be deployed for SPLs or can even be created dedicated to SPLs.

Over and above expanding the existing models, which use *loumas* (weekly markets) to build awareness and employ local structures to enhance the rural footprint, solutions that use the specific urban nature of Senegal, offer the most innovative potential. This is particularly relevant because many of the products owned in rural communities are bought and brought back to rural areas by urban connections. If a distributor can reach these urban connections in their urban context, it is likely to be much easier to efficiently organize education, awareness building, and possibly even consumer finance (although the need for consumer finance is less pressing in this scenario since the urban population typically has a higher disposable income).

Typical avenues to reach urban customers with an eye on 'trickling down' to rural areas, include:

- Tapping into existing, or building, a proprietary sales network which couples explanation/ education through demonstration, with sales. This is done by company-proprietary sales channels: company-trained salespeople who work on commission basis and typically only sell these products. Examples include Total Success World (pharmaceutical products), Forever Living Products (cosmetics) and Madar (cleaning products). These proprietary models address the challenge of trade finance by pre-financing the stock for their sellers, which does, of course, require significant working capital for the parent company. Some of these models go one step further in their incentive model, deploying Multi-Level Marketing (MLM). In this system, the sales force is compensated not only for sales they personally generate, but also for the sales of the other salespeople that they recruit. This recruited sales force is referred to as the participant's "downline", and can provide multiple levels of compensation. In Senegal, this approach is used by Forever Living Products (distributor of aloe vera products) and Winalite (distributor of innovative health products)
- Working with the organizations or groups where migrant workers meet. Many people living and working in Dakar, travel to their families in rural areas during holidays and often bring back electrical products or food. To popularize SPLs and educate consumers, a distributor could tap into the social circles where these groups meet. These include
    - Organizations for house-workers, such as Le Syndicat de travailleuses domestiques
    - Brotherhoods and the diaspora network, such as SOS CASAMANCE
    - Religious organizations, such as Mouride
- Using concerts of popular music and sporting events (especially wrestling) to build awareness. Working with the promoters, fan clubs, sporting and concert venues as channels
- Focusing initial sales on a number of specific professions, who both need the product themselves (because they work at night, often without grid connection), and are very visible. These include "night-sellers" (who use lanterns with batteries which they, on average, change every two days (600-750 CFA, or €0.91 - €1.14) leading to a minimum lighting cost of ~7200 CFA (~€10.98) per month), as well as tailors and workers in *dibiteries* (simple restaurants). From here, the product could popularize further and there may be an opportunity to position it as an electricity-saving option, even for those connected to the

grid (much like fans, which are considered to be an energy-saving alternative for ACs, and are currently almost a disposable commodity, usually replaced every year and sold on the side of the street like food items).

Once consumer awareness has been strengthened through initiatives such as those described above, it's critical for people to have access to the products at the places and moments where and when they are most inclined to make a purchase. These include:

- Major 'crossroads' of travel, such as:
  - Ferry harbors, which process ~2,400 passengers per week (~115,000 per year going to Casamance, and then mostly on to further villages). Lots of people come through these harbors in Dakar to sell agriculture products and return to their villages with useful products (Battery for TV, fan, possibly SPLs) when finished;
  - Travel stations (Gare routière or Gare de pompier), where hundreds of cars/ taxis and busses depart from. Passengers wanting to travel by those cars often need to wait at least 2 hours or more, before the car has a full load of paying passengers and is ready to depart. Many street sellers come and explain their products to the passengers while they wait;
  - Gas stations just outside Dakar. Similar to the d.light sales via Awango by Total, other gas stations could also carry SPLs.
- Typical shops where people buy their supplies before they travel, either virtually or in the "real" world:
  - Equipment shops in Dakar, where people typically buy radios/ batteries/ other electrical equipment to carry back to villages. If these shopkeepers can be convinced to put package deals together including SPLs, this could enhance consumer uptake;
  - Niokobok, an internet shop for urban Senegalese and the diaspora abroad. Currently, a handful of solar products are available via Niokobok at competitive prices, other products may be offered there as well.

To reduce the overall cost level, distributers should seek to tap into supply chains, which are tax exempt. Private sector companies working with the Senegalese Rural Electrification Agency (ASER) are exempt from import and VAT taxes, and benefit from a reduction on profit tax. Currently, none of the exempted companies distribute SPLs.

Like everywhere, the market can be supported by investing in some essential public goods. This may be particularly helpful in creating incentives for rural distribution. E.g., a reduction of tax rates or an expansion of ASER programs which incentivize rural distribution and presence could help advance rural activity.

Based on this, potential entry mechanisms to increase (rural) SPL footprint in Senegal, include:

- Build upon and expand existing rural efforts:
  - Continue to expand the current approach with high effort in local demonstrations in a village-to-village approach, combined with trade finance to resellers
  - Work with local cooperatives as commission-based sales channels to expand the rural footprint and make rural presence more continuous (and not only dependent on the one-off presence of sellers at the fair), financing the cooperatives' stock to avoid high risk/ working capital requirements for the cooperatives.
  - Work with local cooperatives, savings/ credit circles (tontines) to provide consumer financing
  - Work with local associations/ cooperatives and village elders to provide guarantees and safeguards for MFIs as a basis for consumer loans

- Tap into relevant urban networks with a particular focus on urban sellers sending/ bringing products 'home' to rural areas:
    - Build awareness through professional organizations, brotherhoods, political/ religious groups and some particular, very visible professions
    - Ensure availability at major travel hubs and typical shopping areas
    - Explore opportunities to cross-sell SPLs in existing urban proprietary commission-based sales networks
    - Build dedicated urban proprietary sales network of commission-based resellers, potentially deploying multi-level marketing to enhance sales.
- Further lobby for general tax exemption for solar products (to create a level playing field)
- Tap into supply chains which are tax exempt by working with ASER distributors and concession holders

STRUCTURE OF THE REPORT

- Chapter 1 covers the background and context. It includes:
    - Background on the Lighting Africa Program and this study
    - Further context on Senegal and the energy challenge in Senegal
    - Policy challenges and achievements for solar lighting
- Chapter 2 covers the current supply chain for Solar Portable Lanterns.
    - Beginning with the consumer, it describes where they can buy products
    - It then works up towards distributors and explains the two dominant distribution models currently in place in Senegal
    - It concludes by mentioning the challenges experienced with current distribution and the implications for success factors for distribution (further details on the challenges are found in annex 4)
- Chapter 3 covers the selection of "comparable" products and their lessons
- Chapter 4 draws conclusions and describes suggestions for distribution models
- The annexes include further details on:
    - Individual profiles of the key actors involved in the current distribution of SPLs
    - Individual profiles of the key actors deploying distribution models that SPLs could tap into or copy
    - A "phonebook" with contact information for a large set of actors involved in all steps of the distribution of solar lighting as well as in initiatives around the enabling environment – for ease of utilization, this phonebook is provided in Excel. The annex of this report includes a list of the key categories presented in the phonebook
    - Further details on the challenges experienced in current SPL distribution
    - An overview of SPL products, brands and prices currently available in Senegal
    - A description of the research approach, including a list of interviews conducted

1. BACKGROUND AND CONTEXT

LIGHTING AFRICA PROGRAM CONTEXT

The Lighting Africa (LA) program, a joint initiative between the International Finance Corporation (IFC) and the World Bank, works to address challenges to the "base of the pyramid" (BOP) population's access to modern lighting. It does this through a comprehensive set of initiatives aimed at mobilizing the private sector and accelerating the development of a robust market for off-grid portable lighting devices in Africa.

The LA program has been implemented in partnership with and funding from the Africa Renewable Energy and Access Grants Program (AFREA); the Asia Sustainable Energy Program (ASTAE); the Energy Sector Management Assistance Program (ESMAP); the Global Environment Facility (GEF); Italy; Luxembourg; the Netherlands; Norway; the Public-Private Infrastructure Advisory Facility (PPIAF); the Renewable Energy and Energy Efficiency Partnership (REEEP); and the United States.

Lighting Africa has an Africa-wide focus. Pilot geographies were Kenya and Ghana that account for approximately 7% of Africa's total off-grid population[1]. Since then the program has expanded to new geographies on the continent, including the Democratic Republic of Congo, Ethiopia, Liberia, Mali, Nigeria, Senegal, Burkina Faso and Tanzania. Additionally, in 2012 the IFC launched a Lighting Asia program that initially centered on India[2].

Thus far, Lighting Africa interventions have included creating market intelligence through targeted market research and publications; serving as a catalyst and forum for private market players via a website, workshops, conferences, and direct advisory activities; developing a quality assurance program through product testing and certification; advocating the market-enabling policy reform; and mobilizing financing for off-grid lighting market intermediaries and consumers. Additionally, the Lighting Africa program has included a separately funded Lighting Africa Development Marketplace ("LADM") component. To date the Lighting Africa program has enabled the sale of almost 1.4 million affordable, quality-assured off-grid lighting systems, benefiting an estimated 6.9 million people who lacked access to reliable electricity and a growth in sales of good quality lighting products of 120% in 2012 as compared to 2011[3].

LIGHTING AFRICA SUPPLY CHAIN STUDY: GOALS AND DELIVERABLES

The current Lighting Africa Senegal study sits within this Lighting Africa program context. The World Bank commissioned Dalberg to map the supply chains catering to the base of the pyramid (BoP) for solar portable lanterns (SPLs) in Senegal. The overall objective of this mapping exercise is to identify the points of leverage across the distribution chain to define the opportunities in getting SPLs to consumers in Senegal. This study seeks to provide insights on key players in solar lighting, capture distribution models, recognize opportunities to leverage existing networks and channels, identify success factors and lessons learned and define the distribution channels of comparative products that can represent a valid entry point for SPLs.

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[1] IEA, WBG, Dalberg analysis.
[2] Lighting Asia website ***http://www.lightingafrica.org/asia/***.
[3] The access to clean light computation is based on the assumption that one solar lantern serves one household, and that each household has five people. This calculation is currently under review to accommodate new market data. Lighting Africa Program Results by the Numbers.

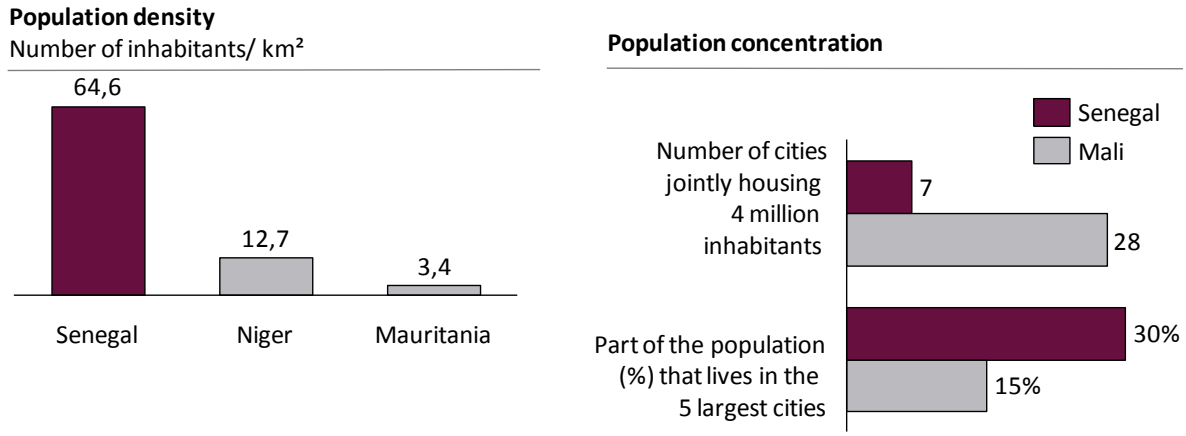
COUNTRY OVERVIEW AND KEY CHALLENGES

Senegal is divided into 14 regions: Dakar, Diourbel, Fatick, Kaolack, Kolda, Louga, Matam, Saint-Louis, Tambacounda, Thies, Zinguinchor, Kaffrine, Kedougou, and Sedhiou. The port of Dakar is third in terms of volume of traffic in the West African region, after Lagos and Abidjan, and the port is the key entry point for products destined for landlocked countries in West Africa, Mali in particular. Senegal's total population is estimated at 12.5 million inhabitants, with over 64% of its population below 25 years old[4]. Literacy is at 47%[5] in Senegal.

The population is divided into various ethnic groups the biggest of which are Wolofs, Diolas, Peuls, Sérères, Madingues, and Soninkés. French remains the official language but is only spoken by the literate minority. Wolof is most widely used in the country across the different ethnic groups, especially in urban areas.

42% of the Senegalese population lives in urban areas with an annual urbanization rate of 3.3%[6]. As is shown in figure 1 below, Senegal is both densely populated in general and is very concentrated/ urbanized in comparison to a number of other (West) African countries.

Figure 1: Concentration of population



Life expectancy is low, approximately 59 years[7]. Although substantial improvement has been made in public health, a number of challenges remain. Many health indicators such as infant mortality (72/1,000) and maternal mortality (401/100,000) are still high[8]. The Senegalese population also suffers from diseases such as malaria, diarrhea and other tropical infections.

Despite being one of the poorest countries in the world, Senegal recorded strong economic performance in recent years compared to other countries in the region, with an annual GDP growth rate of 3.1% in 2012. The country's GDP was USD 13.95 billion in 2012 with a GDP per capita of approximately USD 1,900 (PPP)[9]. By comparison Mali's GDP was USD 10 billion in 2012 with a GDP

[4] LIGHTING AFRICA – SENEGAL, Modèles et mécanismes d'implantation du program, 2013
[5] Agence Nationale de la Statistique et de La Demographie (ANSD), 2006
[6] Central intelligence Agency, 2013
[7] World Bank country profile, 2013
[8] The United States Global Health Strategy, Senegal Global Health Initiative Strategy
[9] Central intelligence Agency, 2013

per capita of approximately USD 1,100 (PPP). The fishing sector is the principal economic sector in terms of revenue in Senegal[10].

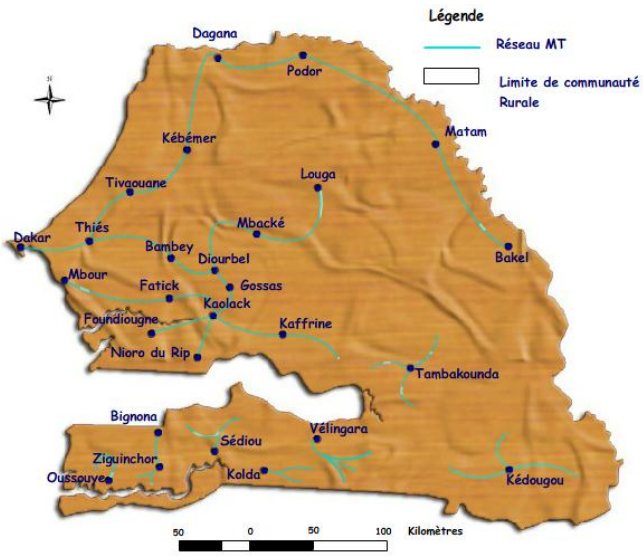
Energy (electricity, gas and other fuel expenditures) represents an important household expenditure in Senegal, second only to rent. While the share of housing expenses dedicated to energy is 17.1% at the national level, this goes up to 21.2% in Dakar. In rural areas the share goes down to 9.9%.[11] Households in urban areas experience frequent power cuts, but that doesn't result in lower electricity bills: after a power cut, the intensity of the electric current is much higher, which drives higher billing. Hence, bills are high more or less 'regardless of availability'. Furthermore, they still need to invest in back-up solutions, such as a power generator, lamps or candles for when electricity is cut.

In terms of political and economic performance, Senegal is one of the most stable countries in the West African region.

ACCESS TO ENERGY: THE POTENTIAL FOR SOLAR LIGHTING

Despite a slight improvement in access to electricity, Senegal still suffers from a serious energy shortage with 48% of households not having access to electricity. The main efforts to improve access to electricity have been concentrated in urban areas, as the power network in figure 2 shows (thin blue line). Currently about 10% of households in urban areas do not have access to electricity, compared to 76% of rural households. With 58% of the population living in rural areas, the group of people not having access to electricity represents over 5.5 million inhabitants.

Figure 2: Map of Senegal electricity grid



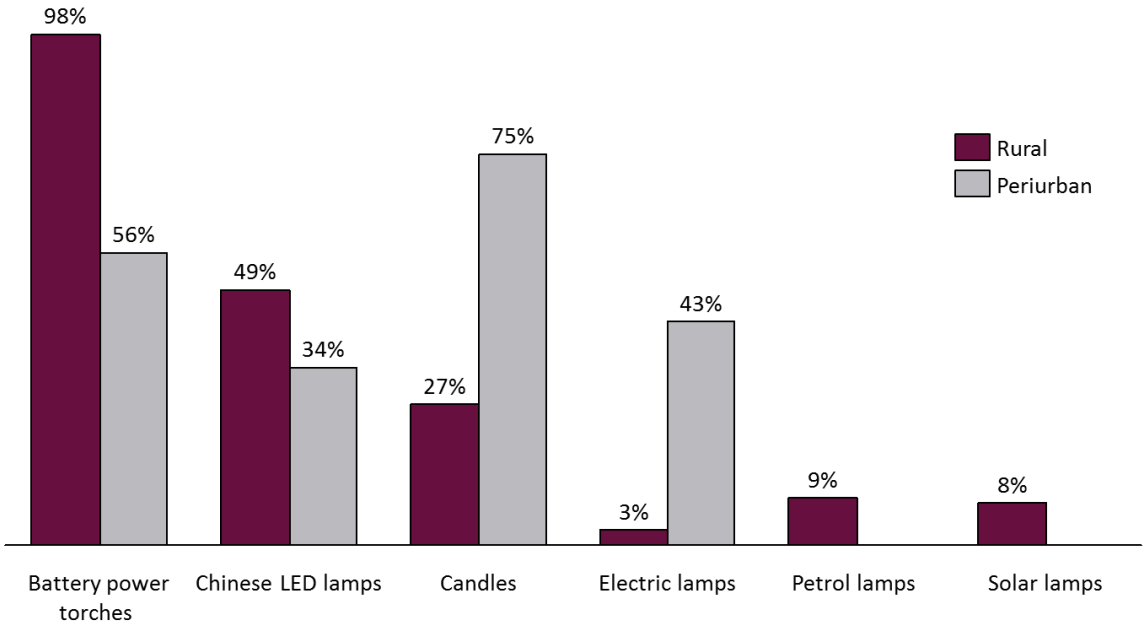
The national energy consumption is dominated by wood fuel (54%) and petroleum (41%) and the dependency on imports for these sources is large[12]. The price volatility of oil and the difficulty of ensuring a steady supply of oil products create an unsteady energy supply and as a result, a

[10] Market Study Focus on Senegal, Business Prospects and Opportunities for Mauritius, 2002
[11] ENDA Energy, Environment, Development Energy Security in West Africa The Case of Senegal- Final report, 2009
[12] Percentage based on KTOE (kilo tons of oil equivalent).

vulnerable economy. As a consequence, in the households, wood fuel fulfills 90% of energy needs.[13] Other types of energy sources used are hydropower, solar, wind, and geothermal.

More specifically on lighting, the steady reduction in the use of petrol lamps due to the high kerosene price in Senegal has increased the use of substitute products as is shown in figure 3. In peri-urban areas, candles are the most popular lighting source, followed by battery-powered torches. In rural areas battery-powered torches are by far the most popular, followed by low-quality solar "Chinese LED lamps." The use of quality solar lamps is limited.[14]

Figure 3: Share of source of lighting across rural and peri-urban areas



The price of alternative sources of lighting varies, as shown in table 1.

Table 1. Price of lighting sources

Product type	Purchase price	Price of energy source per 'batch'	Price of energy source per evening/ night
Battery-powered flashlights	1,000-3,000 F CFA (€1.52 - €4.57)	~ 400 F CFA (2 batteries) (~ €0.61 for 2 batteries)	~ 40 – 80 F CFA (~ €0.06 - €0.12)
Solar-powered flashlights	From 3,000 F CFA (from €4.57)	--	--
Kerosene lamps	From 3,000 F CFA (from €4.57)	75 to 100 F CFA (small glass of kerosene) (€0.11 - €0.15)	75 to 100 F CFA (€0.11 - €0.15)
Candles	Na	1,000 F CFA (20 candles) (€1.52)	200 F CFA/night (€0.30)

[13] Renewable Energy & Energy Efficiency Partnership (REEEP), Senegal country data base, 2013.
[14] Enquete ENDA, 2012, LIGHTING AFRICA – SENEGAL, Modèles et mécanismes d'implantation du program, 2013.

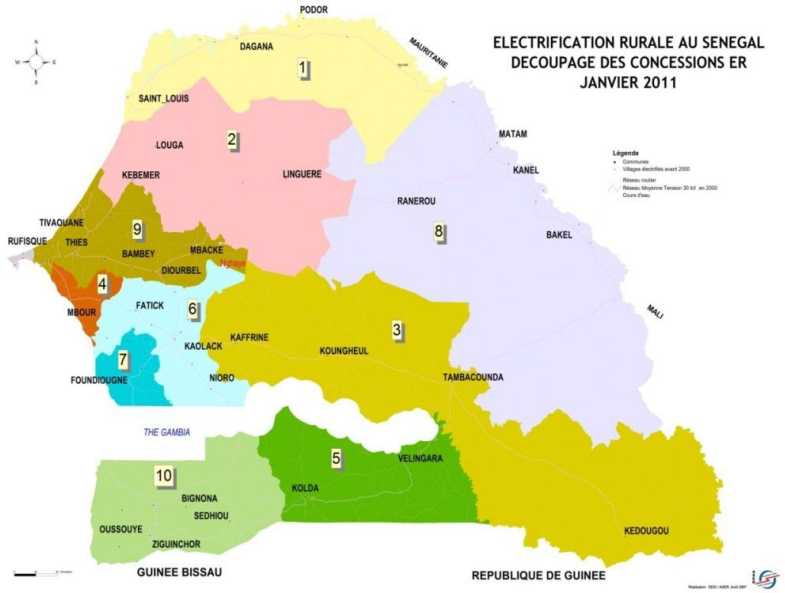
POLICY AND REGULATIONS

Senegal is a model of stability and democracy in West Africa. The country's strong economic reforms and support from the donor community have boosted its economy, resulting in a significant GDP growth over the past decade. Senegal is now focusing its national strategy on poverty reduction[15] through the implementation of several programs including rural electrification. The government's objective is to increase the rural electrification rate to at least 62% in 2022. This corresponds to providing electricity to 22,500 new households per year, compared to an average of 4,150 per year over the period 1995-2003. Renewable energy is being presented as a solution in the fight against poverty in rural areas. Conscious of the challenges in accessing electricity especially in rural areas, the Senegalese government has undertaken several actions to boost the renewable energy sector. Some of these actions include promoting the diversification of the sources of energy and the involvement of the private sector in the renewable energy sector. In this regard, the Senegalese Rural Electrification Agency (ASER) is providing technical assistance in three specific areas.

- Concessions: Ten exclusive licenses for private operators, co-founded by the government and donor community, with an obligation to develop an electricity distribution system and distribute solar photovoltaic kits to households in remote areas. Of the ten concessions, four still need to be assigned. Each concession covers the territory of several departments in the same region and needs to provide electricity to a precise number of households. The private operator has 3 years to develop the system and can exploit the concession for up to 25 years. Approximately 70% of the systems developed through the concessions are based on solar energy. The concessioner will sell the services and provide technical assistance to the clients.
- Electrification projects, by local initiatives for rural electrification (ERIL -- Electrification Rurale d'Initiative Locale): within the concessions local villages can collaborate with a private operator to carry out local initiatives to enhance the electrification systems. The private operator will need to develop a business plan illustrating the initiative and the capacity to finance it. The operating contract lasts 15 years. As part of these local initiatives a distribution of SPLs may be put in place to provide access to energy to households, which are currently not served by the concessions or ERIL projects or to complement existing services.
- Multi-sectorial energy projects (PEMs): projects aiming at providing access to energy as a tool to enable community development, business development, and poverty reduction by targeting sectors such as education, health, agriculture, livestock farming, rural water supply, telecommunications, and rural SMEs. For this purpose, an Inter-sectorial Committee comprising all relevant sectors has been created and coordinated by ASER.

[15] More details can be found in the Document Stratégique de réduction de la pauvreté (DSRP) which was first put in place with support from the World Bank and the IMF in 2006, and renewed thereafter

Figure 4: The ten concessions for rural electrification



Through an investment act dating from 2004, the government put in place significant incentives for private enterprises operating in the renewable energy sector with a special focus on rural electrification. For example, according to the Investment Act and the Income Tax Act, rural electrification operators were eligible for numerous fiscal incentives, such as VAT exemptions[16]. Taxation incentive measures also included import tax exception for all solar products.

However, the need to harmonize tax exemptions between the West African Economic and Monetary Union (UEMOA) and the Economic Community of West African States (ECOWAS)[17] has forced the government to reintroduce the import tax and VAT on all solar products. For private operators, these are now 25% and 18%, respectively. A decree is currently under review by the government to reintroduce some of the incentives; if approved it will reduce the import tax for solar products from 25% to 5%. This decree does not concern the private operators currently working with ASER under the three major axes listed above; these organizations are already exempt from import and VAT taxes, and benefit from a reduction on profit tax. That difference in taxation policy between ASER and non-ASER companies, leads to absence of a level playing field and fiscal disincentives for private sector distributors to enter or expand in the Senegalese market. The effect of import and VAT taxes is currently reflected in the price of SPLs as all products found on the market are distributed by private operators not working with ASER or other government agencies. The price of one SPL, for example is 18% more expensive in Senegal than in Mali. Mali, although also a member of UEMOA and ECOWAS, decided not to reintroduce the import tax on solar products.

In synthesis, despite the government's effort to set up a framework conducive to the development of the energy sector, solar solutions still have to face a number of challenges[18,19].

[16] De l'Electricité Verte pour Trente Cinq Mille au Sénégal, Fondation Energies pour le Monde, Ministère Délégué Chargé de l'Energie.

[17] There is currently an interest in harmonizing VAT amongst the West African countries. Therefore tax exemption will have to be negotiated in advance within the UEMOA and ECOWAS communities. In addition the UEMOA country members are aiming to agree on a common duty rate (Tarif Exterieur Commun) and two other complementary taxes of which the exemption should also be negotiated at a regional level.

[18] LIGHTING AFRICA – SENEGAL, Modèles et mécanismes d'implantation du program, 2013.

[19] Renewable Energy & Energy Efficiency Partnership (REEEP), Senegal country data base, 2013.

2. CURRENT SUPPLY CHAIN FOR SOLAR PORTABLE LANTERNS (SPLS)

RETAIL AVAILABILITY – WHERE AND FROM WHOM CAN CONSUMERS BUY SPLS?

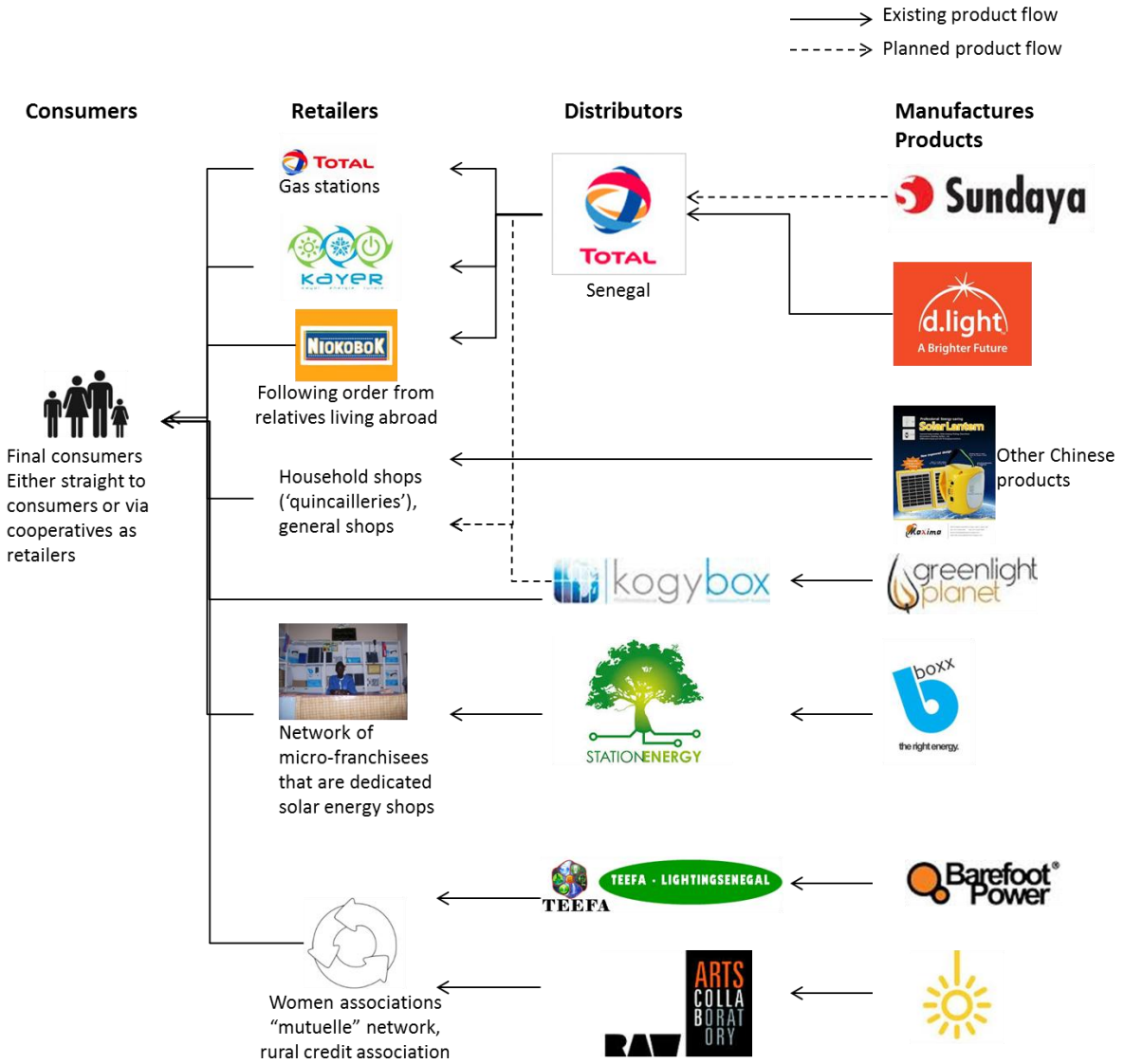
Solar portable products are available to customers through different types of actors:

- Dedicated solar energy shops in urban areas: the size of these shops varies and they only sell solar products including, SPLs, solar panels, solar pumps, and solar refrigerators. In terms of performance, this model seems to cover mainly urban and peri-urban areas with an unclear capacity to reach remote rural areas
- Household shops ('quincailleries'): located both in rural and urban areas, these shops sell household goods, from small accessories and appliances to materials for household works
- General shops: located both in rural and urban areas, these shops provide a wide variety of products, from household goods to groceries
- Gas stations: under the brand "Awango by Total", Total offers d.light solar lights through its service station networks; to cover the last mile to rural communities, the company is now working to create a reseller network and work with cooperatives
- Online: on the website ***www.Niokobok.com***, which targets the Senegalese Diaspora abroad and the urban population with family and friends in rural areas, a limited selection of SPL products can be bought from Senegal and abroad, which can either be picked up at the Dakar warehouse or delivered in the Dakar area.

EXISTING DISTRIBUTION MODELS FOR SPLS

Figure 5 below provides an overview of the current distribution models for SPLs in Senegal. Despite the relatively wide variety of retailers, there are only a few distributors. All manufacturers presented have an exclusive contract with importers, who distribute further down the chain. There is only one exception, in which the company's distributor has exclusivity of representation but not yet of sales. Although a variety of brands are available in similar shops, no one single shop sells multiple brands.

Figure 5: Overview of current distribution models for SPLs

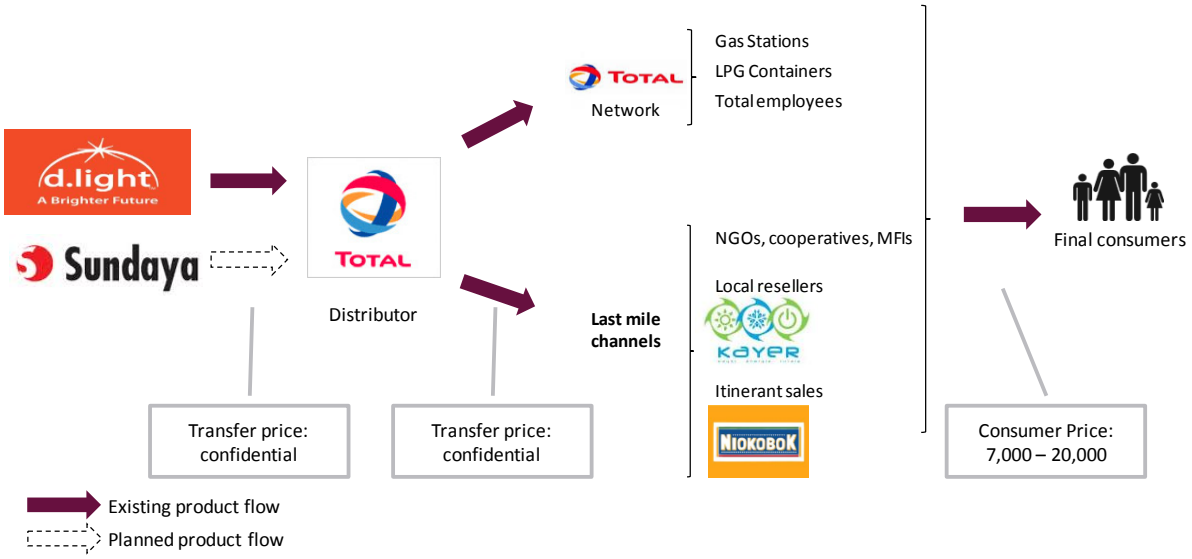


The existing distribution models reflect a whole range of different 'philosophies' of selling solar products, ranging from fully pull-driven models without any involvement in awareness-building, to 'integrated' models in which importers and distributors are pro-actively involved in building the market by engaging in awareness-building and finding finance solutions. On one extreme of the spectrum are the (cheap) Chinese alternatives, which are fully pull-driven – shopkeepers individually decide to stock them because they think they will sell. There's no awareness-building involved (neither with shopkeepers nor with consumers) and no finance provided. The other extreme of the spectrum is the model currently employed by KOGYBOX with representatives who personally travel to rural villages to demonstrate the product and educate consumers and shopkeepers on its use. The model deployed by Total (Awango) takes a middle position on this continuum – they invest in awareness building through billboards, TV ads and displays, but currently doesn't pro-actively go out to rural areas to further bring the product to the potential customers.

The different players are described in broad strokes below, while annex 1 contains more detailed profiling of the existing distributors/ suppliers.

Awango by Total

Figure 6: Overview of the distribution chain for Awango by Total



As part of their brand "Awango by Total", Total sells d.light solar lamps in Senegal in each of their 135 gas stations. They will expand their product range by offering additional SPLs at prices between 40,000 and 130,000 FCFA (€60.98 - €198.18).

The key characteristics of this model are:

- Importer, distributor and retailer all combined into one player
- Uses existing supply chain to gas stations, to distribute the lamps
- Actively involved in all key success factors to stimulate sales:
    - Consumer education, through brochures in all stations, billboards and TV ads
    - 'Salesmen' education – staff at each of the gas stations has been trained in giving information on the use and maintenance of the products
    - Trust-building with a 3-year warranty
    - Easy maintenance and after sales – customers can hand in their SPL at any gas station in case of problems, Total then replaces the lamp and sends the broken product back to the manufacturer

This model only reaches those consumers with access to the gas stations. To reach rural customers, Total is seeking to create a network of distributors who purchase the lamps from Total and use other channels to reach people who do not get to the gas stations. These distributors can include women's groups, community associations, cooperatives, rural retailers etc. A margin will be attributed to distributors to offset the costs of travel in rural areas and product marketing whilst guaranteeing the same price to final consumers, regardless of where they buy the SPL.

Whilst this planned expansion will mean a move away from the retailer role, Total envisions continuing to be closely involved in building consumer awareness through its structured network of partners with geographic representations across Senegal (e.g. distributors, hotels, micro-finance institutions). Additionally, they expect a more unstructured awareness building through individual retailers who buy and are educated at the point of sales, or social marketing organizations. Total has recently signed agreements with a variety of organizations to strengthen outreach and consumer awareness, more specifically:

- Two of the largest micro finance institutions in Senegal to work with Total to define consumer credit schemes to support purchasing of SPLs
- Kayer – Kayer will act as a reseller with a focus on rural distribution and cooperation with local associations and cooperatives
- A company to help build consumer awareness through social marketing activities
- Niokobok – this webshop will sell SPLs imported/ provided by Total to the diaspora

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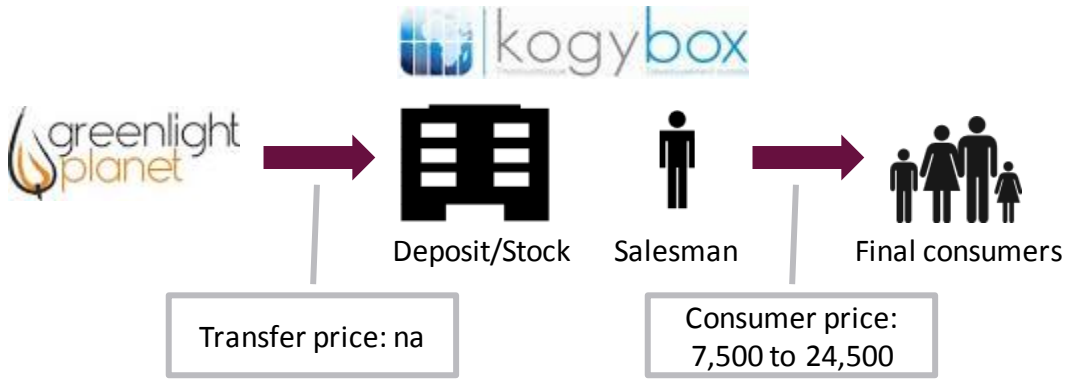
Box 1. "Total Access Solar" Program

In October 2012, **Total** created the brand "Awango by Total" as part of the program "Total Access Solar". The objective of the program is to contribute to the promotion of solar energy, and more specifically solar lamps among BOP populations. The program was tested in four pilot countries — Cameroon, Indonesia, Kenya and the Republic of the Congo — with 125,000 lamps and solar kits sold. Deployment is now being stepped up, with rollout proceeding through 2013 in eight more countries: Burkina Faso, Cambodia, Ethiopia, Haiti, Myanmar, Nigeria, Senegal and Uganda[20]. The line of products sold differs per country. In Senegal two models are being distributed, and the company aims to sell tens of thousands of lamps per year. With 3,500 service stations across Africa, the group hopes to sell 1 million lamps from now until 2015.

Kayer used to import solar lighting products from Kenya and has recently established a distribution partnership with Total to act as a Total reseller of d.light products in Senegal. Kayer created a partnership with a microfinance institution through a community association network that offers credit directly to consumers when they are members of the association. The non-member consumers need to pay cash. Despite the high demand the company is selling low volumes due to the consumers' lack of liquidity and the lack of working capital for the microfinance institution, whose funds are the consumer deposits, to provide additional credits. Kayer has been providing after-sales services to its clients and a one-year warranty on d.light products. Marketing through website, radio, rural market and local associations has been critical to build consumer awareness.

Kogybox

Figure 7: Overview of the distribution chain for Kogybox



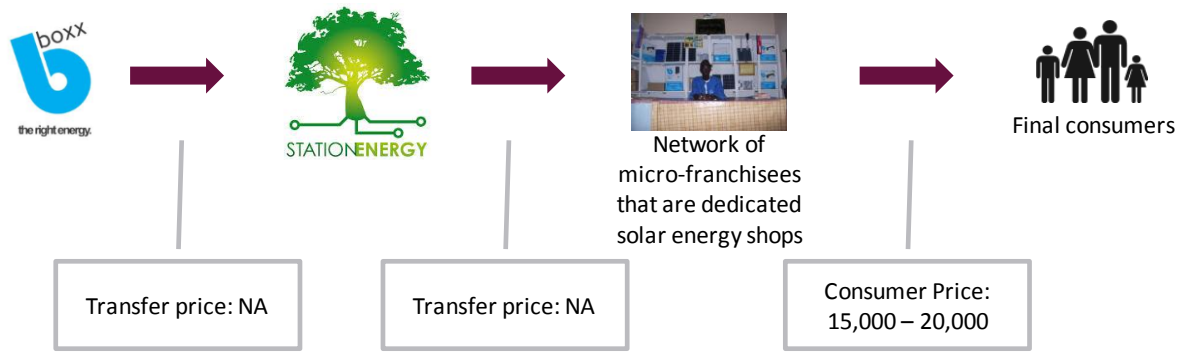
Kogybox is a very small player in the Senegalese market. It currently follows a very integrated model, but that may be driven by its small size as much as by an explicit choice – going forward,

[20] Total website.

there is a plan to employ resellers in a structured way. Given their experience in the field and the fact that they're convinced of the need to build trust and awareness, they're likely going to continue to be involved in awareness-building even when they grow. After selling more expensive products for two years for collective uses (e.g. medical centers, schools, mosques), the company recently signed an agreement with Greenlight Planet for the distribution of lamps in Senegal. Kogybox's representative is registered as a trader at the chamber of commerce in Dakar, the company is run as a pilot operation by its French holding company. The distribution network is based on two employees who travel across the country using public transport to reach the rural areas most in need and conducting education campaigns to build consumer awareness.

Station Energy Services

Figure 8: Overview of Station Energy Services distribution chain



Station Energy Services imports BBOXX products from China and sells through a network of franchiser dedicated solar energy shops all over the country. The company conducts a "marketing de proximité" and uses internet-based social networks such as Facebook to promote the products as well as word of mouth and physical networks. They build on the networks of their local franchises, to explain and promote the products. The sales force in the shops consists of qualified technicians trained by BBOXX who are able to provide after-sales support if required. The products are covered by a one-year warranty. Additionally, the company opened a repair center in Dakar to address the most complicated technical issues. The company faces difficulties in serving the demand due to consumers' lack of liquidity and franchiser shops' lack of working capital.

Teefa – Lighting Senegal

Teefa has the exclusivity for Barefoot products in Senegal, which it distributes through women's associations. The products are provided to women's associations who are then responsible for selling them to final consumers. TEEFA allows the associations to delay payment until they have sold the products, at which point the associations pay for the product by depositing money into a regional bank account to facilitate the payment process. Since the payments are delayed until after the final sale, TEEFA does not advise the associations to sell on credit to consumers, in order to prevent a further delay in reimbursement and the resulting cash flow issue. The products are covered by a one-year warranty and are replaced when there is a manufacturing default. In case of technical issues due to bad usage of product, the company replaces the product and shares half-price with the consumer.

Raw material company

Little Sun, "a solar powered artwork," is an initiative of Olafur Eliasson a Berlin based artist and Frederik Ottesen a Danish engineer. Because of its direct link to art, the Raw Material Company, an art center in Senegal, is the exclusive distributor of the Little Sun product in West Africa in partnership with ADEA (Agence de Developpement des Entreprises en Afrique". At the time of writing this report (July 2013), the Raw Material Company has just received its stock and aims to target rural area "mutuelle" networks, rural and women's associations, and rural credit associations by sending dedicated cars or vans each week to a specific region to sell solar lamps in villages. The company does not intend to sell on credit but rather proposes a competitive product at a competitive price to the rural population and provides incentives through the sales margin. It also intends to provide a 20% credit to distributors that have proven that their distribution model works. The products are covered by a 10-year integrity warranty.

Although solar products are available rurally, **coverage is far from complete**. So far, no organization seems to have been able to successfully reach the rural eastern part of Senegal. Total is currently exploring alternative and innovative solutions to reach the last mile of consumers. The involvement of NGOs has been important to build awareness**;** but they have mainly been involved in specific pilot projects, such as the project by SunnyMoney, the social enterprise of SolarAid.

SunnyMoney (Solar Aid) participated, in collaboration with the Global Village Energy Partnership, ASER, the Ministry of Education, and the World Bank, in a pilot project for the distribution of solar lamps in schools and the creation of "light libraries". The pilot project had three objectives: (i) raise awareness of solar portable lamps, (ii) expose consumers to the products, and (iii) to understand market conditions and opportunities. Based on an initial market assessment and set of criteria (e.g. poverty level, electrification rate, population density), Solar Aid selected 58 schools in the regions Kofi and Kaolack. The pilot project distributed five different models of SPLs at different prices, for a total of 4,798 lamps. Each school received approximately 80 lamps, appointed a person responsible for managing the system (e.g. deciding to whom the lamps should be given, collecting the returns and ensuring the functioning of the lamps) and a committee to oversee the project. Each student could rent a lamp for one or more nights by paying a small fee. Intense marketing and education campaigns addressed to school-teachers, parents, and the local community were an integral part of the project. Initial findings indicate that a big demand has been unlocked, with the vast majority of parents indicating they want to buy a lamp themselves. Given the short timeline of the product, actual sales at the time of writing this report (July 2013) have not yet started and, thus, there's no proof yet of actual buying behavior in Senegal having changed following this project. SunnyMoney has indicated concerns with product availability – now that demand has been unlocked, actual sales may fail to pick up very quickly if local supply is limited. This experience calls for a close integration of awareness-building and sales, either through a partnership between retailers/ distributors and the awareness-building party such as an NGO *or* by realizing awareness-building directly by the retailer/ distributor.

CHALLENGES EXPERIENCED BY SPL DISTRIBUTERS

Existing players in Senegal face three main challenges, which have a direct impact on success factors for distribution:

- Low awareness from both consumers and retailers, particularly in rural areas. Compared to East Africa, awareness on solar lighting technology is even lower in Senegal, limiting incentives for distributors. While initiatives such as the Total Awango initiative have helped strengthen awareness in urban areas this hasn't reached rural communities yet. When another distributer switched brands, the village they previously successfully provided multiple lamps to, needed them to return and demonstrate the new product. The village's existing positive experience with solar lighting and trust in this distributor were insufficient to convince them to buy the new brand without first seeing and trying it.
- Low consumer affordability and access to finance with high prices largely driven by high tax rates, while cheaper low quality 'imitation' products risk spoiling the market. Despite being the port of entry for West-Africa (and thus having lower transportation costs), Senegal faces very high consumer prices, ~25% of this consumer price is tax driven – a combination of 25% import tax and 18% VAT. For example, the consumer price is almost 50% higher than in Kenya, whilst PPP income levels (GDP/ capita) are only 15% higher in Senegal than in Kenya. At the same time, many cheap low-quality products, sometimes seemingly exact copies brands that have met LA's Minimum Quality Standards, are available, which – in the case of a bad product experience – may distort people's trust in SPLs. Although the lighting alternatives people currently use do have high recurring costs and, therefore, an SPL quickly pays off, few people have the upfront total sum available and they actively need to save/ take out a loan for it. Dedicated savings is currently hardly present given the low awareness.
- Low retailer affordability and access to finance: retailers hesitate to stock SPLs because of the significant capital lock-in upfront, as is evidenced by the fact that certain distributors are now considering providing their retailers with credit lines to incentivize uptake.

Annex 4 provides further details on these challenges

IMPLICATIONS FOR SUCCESS FACTORS FOR DISTRIBUTION

These challenges require a more innovative approach to distribution. Specifically, distribution methods need to adopt the following:

- Integration of marketing and sales. Face-to-face/ door-to-door selling approaches that incorporate below the line sales techniques are likely to be more successful in Senegal given the relatively nascent nature of the market. The strong concentration of population in urban areas and the importance of urban buying patterns for rural availability (people living in cities buying products and bringing them to rural areas) offers the opportunity to focus awareness-building and demonstrations on specific urban groups and ensuring product availability for sales at major transport hubs.
- Distribution solutions that will lower consumer price, either by creating a total tax exemption for all solar products or by deploying certain existing distributors and distribution models which already are tax exempt under specific government schemes.
- Integration of financing. Consumers see largely the upfront price so the point of sale needs to be pre-financed or consumers need to be supported to save for the purchase. For retailers, financing that allows them to recoup revenues from final sales first, will reduce the need for working capital and the resulting hesitation to stock SPLs.

3. LESSONS LEARNED FROM THE DISTRIBUTION OF COMPARABLE PRODUCTS AND HIGH-POTENTIAL DISTRIBUTION OPTIONS

IDENTIFICATION OF COMPARABLE PRODUCTS AND HIGH-POTENTIAL DISTRIBUTION OPTIONS

In exploring options to learn from in order to enhance the SPL footprint, 2 different approaches were taken: one focusing on the products and the other focusing on the distribution channels.

When looking at things through the product lens, 3 types of products were identified to look into in more depth:

- Products that are already highly available in rural areas. Whilst their distribution channels are not directly accessible for SPLs to tap into because they don't suffer from the same limitations of low awareness and ability to pay, they do offer interesting insights into existing options to tap into once awareness reaches a tipping point and SPLs become a "mass product"
- Products that have characteristics which are similar to SPLs (in terms of high need for awareness-building and high upfront costs) – in this category, improved cookstoves have been closely studied, which offer lessons that can be applied to SPLs directly
- Products which have one or more of the characteristics identified as "key success factors for distribution" – again offering lessons which can be applied for SPLs directly

When focusing on the distribution channels, opportunities to efficiently build awareness, which can be followed by sales efforts, were of particular interest. Given the particular nature of the strong concentration of population, with many urban inhabitants bringing products to rural regions, opportunities to address specifically those urban groups who have strong ties to rural areas and build awareness with them were closely examined.

PRODUCT LENS – "USUAL SUSPECTS" OF PRODUCTS WITH AN EXISTING HIGH RURAL PRESENCE

DESCRIPTION OF THE PRODUCTS

This category contains 2 categories:

- Cheaper products, such as lighting alternatives (battery-powered torches)
- More expensive products which are being bought either by the rural population themselves or by their urban connections, such as mobile phones

DISTRIBUTION MODELS

The cheaper products are sold in the villages themselves, by a variety of local shops and at weekly *loumas* (regional markets). Retailers independently make the decision to stock these products. They mainly travel to urban centers to purchase their stock and finance it themselves. Depending on their location, they either travel to Dakar or other urban areas, or they may supply from neighboring countries, such as the Gambia or Mauritania, if located in adjacent regions (e.g. Kaolack, St-Louis). Shopkeepers need to travel to towns because distributors generally do not distribute to rural areas due to transportation costs and bad road conditions. The majority of wholesalers that supply Dakar, its suburbs, and other regions of Senegal in dairy and other food products (rice, oil, detergents, etc.)

are located in the city center. Wholesalers sell to semi-wholesalers in Dakar's markets and regions, retailers and processors, or they work in partnership with a big *'baol baol*"[21] businessman.

Two specific examples give an idea of how distribution for such "mass products" work. One soft-drink company has a large store in each region where the local retailers can buy the products. LPG gas is delivered to intermediate-size storage centers. Trucks transport the LPG gas from the storage centers to retailers, as well as to private and professional customers. LPG gas is easily available to consumers through cylinder sales points such as commercial stores or service stations close to their locations. Depending on the willingness of these intermediate centers to diversify their portfolio, they may present a viable opportunity for SPL distribution once awareness has grown and has moved the SPL market passed a tipping point to be a "mass product" market.

In line with general practice, retailers may decide to grant consumer credit or allow payment in installments based on trust.

The more expensive products are largely bought in urban centers and brought back to the villages. Sometimes, rural retailers bring the products from the urban centers to resell locally – either on explicit customer demand or backed by a firm faith in the local market. As for the cheaper products, retailers finance them themselves and can choose to extend credit to customers. The workings of these distribution chains reinforce the finding that physical distribution is not the limiting challenge – if the demand-pull exists, distribution will follow suit.

IMPLICATIONS/ LESSONS LEARNED FOR SPLS

Tapping straight into the distribution models for the **cheaper, omni-present products**, is not currently an option for SPLs. As revealed by shopkeepers who sell the lighting alternatives, barriers of both access to finance and lack of retailer awareness keep them from stocking these products in the absence of extensive awareness-building and credit solutions.

Whilst SPLs can learn from and tap into the urban-to-rural model as will be seen through the distribution lens, they cannot tap straight into the existing distribution chain for **more expensive products** like mobile phones which benefit of a pull from consumers for their recognized usefulness and status. As long as consumer awareness has not been strengthened, there will not be a consumer pull/ direct demand for SPLs.

PRODUCT LENS – PRODUCTS THAT HAVE CHARACTERISTICS WHICH ARE SIMILAR TO SPLS

A limited number of products have similar characteristics to SPLs – high upfront costs, low awareness and non-trivial technology for which no local maintenance capacity exists. Improved cookstoves were mentioned during interviews as a valuable comparable product for awareness building for which experience in Senegal is available. An in-depth look at the PERACOD – GIZ cookstove project (Programme to promote rural electrification and a sustainable supply of domestic fuel - Deutsche Gesellschaft für Internationale Zusammenarbeit) is included below.

DISTRIBUTION MODELS

The insights on distribution models for improved cookstoves illustrated below are based on interviews with GIZ.

[21] Traditionally, this refers to having a heritage from the Baol Baol kingdom. Today, it refers to a certain type of businesspeople – mainly informal traders. Those that have grown from owning and/ or operating small informal shops/ stalls, to owning bigger shops or even chains of shops are referred to as big baol baol.

Table 2. Distribution of improved cook stoves (foyers ateliers)

Timeline	From 2005
Key partners	PERACOD - GIZ, ENDA (Energie Environment Développement), manufacturers of improved cook stoves, women's associations/ cooperatives

Description of the distribution model	**Distribution model**
	• The chain consists of local cookstove producers (blacksmiths, tinsmiths ceramists), distributors (women's groups, associations), and consumers (households)
	• The manufacturer of improved cookstoves receives a contribution in the form of capital to run their business
	• Model in rural areas: Women's associations and cooperatives buy and distribute the improved cookstoves in their community. PERACOD - GIZ provide working capital to enable women's associations and cooperatives to sell the cookstoves in a format/scheme that suits their members
	• Model in large cities: products are sold and the payment is split across multiple days to align to the fragmented income patterns of many households in Senegal. The daily collection poses some challenges (e.g. human resources needed, time consuming)
	Payment System
	• The consumer prices are between 2,000 and 7,000 F CFA (€3.05 -€10.67)
	• The price structure throughout the distribution chain is not yet well defined and not aligned everywhere
	• In the majority of the cases, the payment is made in cash.
	• Another model that corresponds to the fragmented household income in Senegal is to collect daily installments. This model is only in place in cities and has the disadvantage of a laborious collection system
	Awareness
	• Distribution driven strongly by local awareness efforts using local fairs and associations:
	  ○ Manufacturers of improved cookstoves receive technical and entrepreneurial training
	  ○ Communication, awareness by local women's associations and cooperatives, and participation in local fairs are an important component of the program to guarantee uptake

Outcomes	More than 260,000 improved cookstoves have been distributed throughout Senegal. Of these, approximately 35% have been sold in rural areas. The distribution model has been replicated in Mauritania, Benin and Burkina Faso.
Lesson learned	**Successes** • Both women's groups and producers of improved cookstoves improved their income • Positive environmental impact through a better use of coal and wood **Challenges/ Lessons learned** • Financial viability seems to be limited due to the donor support manufacturers receive to start the business • Awareness is still a challenge, there is the need to invest in continuing to build awareness and explaining the value of the products. The

	challenges arose early in the process when it came to knowledge of the product
	• Limited consumer finance to support purchasing
	• Challenges with the product itself:
	  ○ Improved cookstoves have a duration of only 2 years
	  ○ There is no formal warranty structure

PRODUCT LENS – PRODUCTS WHICH HAVE ONE OR MORE OF THE CHARACTERISTICS IDENTIFIED AS "KEY SUCCESS FACTORS FOR DISTRIBUTION"

As the products differ for each of the success factors, this section will follow the structure of those 3 success factors. Across the different models, a mix of products emerges, including existing successful SPL models, the improved cookstoves as described in the previous section, and higher-end cosmetics, pharmaceutical products and cleaning products.

INTEGRATION OF MARKETING AND SALES

Several products such as pharmaceuticals, cosmetics, electronics, and household cleaning products are sold successfully "door-to-door" with combined marketing/ demonstrations and sales. The models differ between rural and urban areas, though. The door-to-door sales model is either carried out by independent ambulant salesmen (for cheaper, lower quality products that don't need demonstrations) or by a commission-based company-trained proprietary sales force (e.g., pharmaceuticals). The second option may represent an opportunity for SPLs, but the model's availability is limited in rural areas.

Figure 9: Overview of available face to face/ door-to-door distribution models

	Rural	Urban
Type of product	• Cheap and low quality products • Electronic products. E.g: batteries, torches ,radio	• Pharmaceuticals, cosmetics, electronic, household cleaning products, drinks, children's toys
Companies/ organizations	• Products are sold by ambulant salesmen (selling a variety of products) or informal companies	• Limited number of formal enterprises. • Many products are sold by individual sellers or informal companies
Price range	• Variety of price depending of the product sold • Minimum price: Battery (FCFA 300/ €0.46), torches (FCFA 1,000 / €1.52), radio (FCFA 3,000/ €4.57)	• Cleaning products from F CFA 100 to 5,000 (€0.15 - €7.62) • Pharmaceuticals / cosmetics have different prices but are generally not expensive and do not exceed 20,000 F CFA (€30.49)
Marketing activities	• Presence at the weekly rural market (Louma) • Explanation of the product usage	• Demonstration to show the product's use, characteristics, quality and advantages • During school holidays the companies use students to promote the products, particularly during festivities or sales • Promotion of specific products to incentivize purchasing
Payment methods	• Payment only by cash	• Payment only by cash
Warranty and after sales support	• No warranty and after-sales support in the majority of cases	• Only formalized companies offers warranty and after sales support • In this case the clients address the issue directly to the company and not to the seller
Advantages	• Opportunity to become aware of/experience products they did not know before • Savings on transportation costs	• Opportunity to become aware of/experience products they did not know before • Access to not-self explanatory products whose awareness of is limited • Savings on transportation costs (limited)
Challenges	• Not adapted to rural consumers' cash flow context • Door-to-door only works during weekly rural markets when people are prepared to buy • Quality of products is relatively low	• Mostly informal market • General perceptions that products sold door-to-door are of low quality

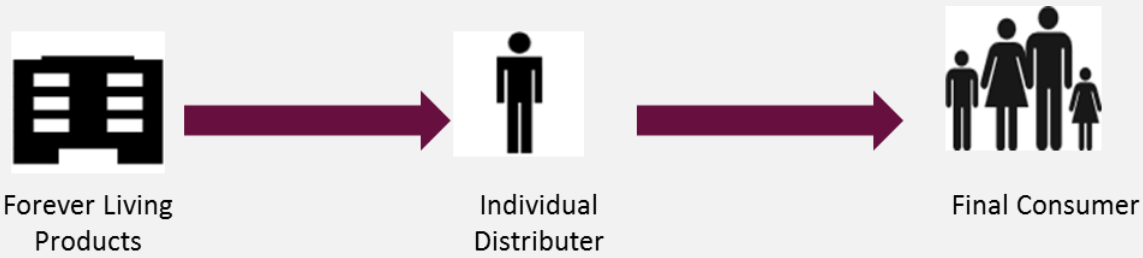
Examples of this model include Total Success World (for pharmaceutical products), Aloe Vera/ Forever living products (for cosmetics) and Madar (cleaning products). These proprietary models not

only provide opportunities for education and demonstration, but some also address the challenge of trade finance by pre-financing the stock for their sellers (which does require significant working capital for the parent company). These models are at present only applied in urban areas. Products do 'trickle down' from there into rural areas. These sellers are usually dedicated to a particular product or range of products but one of the companies, Forever Living Products has shown to be willing to consider selling SPLs (any product that doesn't cannibalize on the existing range can be included). In general distributors recruit the sellers through advertisements (radio, posters) and train them on the different techniques of sales and distribution.

Box 2: Examples of door-to-door models in Senegal

Forever Living Products: A cosmetics company

- structured as a multi-level marketing company
- the world leading producers and distributors of aloe vera products - gels, tablets, cosmetics
- Any individual who would like to become a distributer registers with the company and goes through a training on the company's products
- The distributor then purchases "packages" from the company which contain a variety of the products
- The distributor is free to sell to consumers
- Established training materials, marketing plan and bonus/remuneration structure – incentivize distribution *"The harder you work, the more money you make"*
- Sales staff gets products at wholesale prices, and earns up to 43% when they sell them at retail prices
- In addition:
    - Personal Bonus of up to 18% for sponsoring each new Distributor and helping them make sales
    - Group Volume Bonus of up to 13% on each team member as distributors develop into Assistant Supervisors, Supervisors, and Assistant Managers
    - Leadership Bonus for every manager in the downline, starting at a 2% bonus and going as high as a 6% bonus depending where they are positioned in the organization



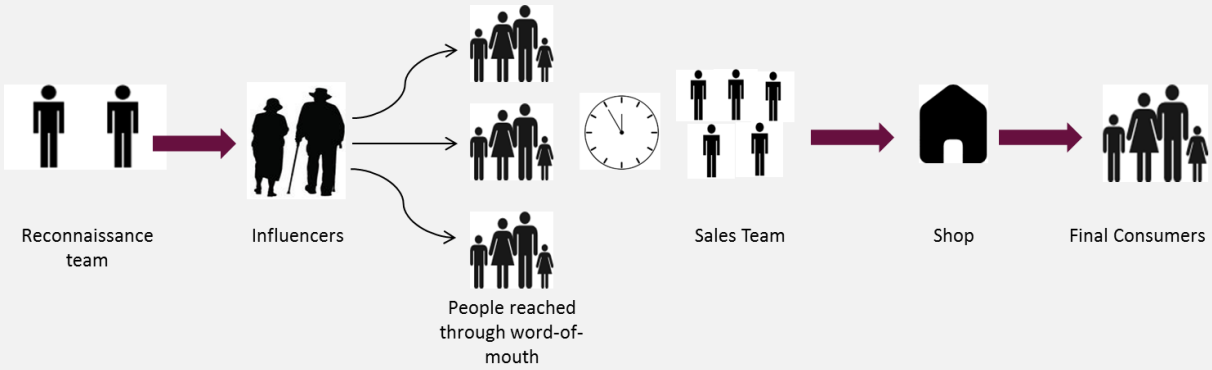
At the rural level, demonstration typically takes place at *loumas*, but the presence of more expensive and higher quality products, such as SPLs, is limited. The need to show and explain the quality and advantages of SPLs makes it suitable for e.g., representation by rural associations/ cooperatives. They are present rurally, don't need to make a full-time living out of SPL sales (which is difficult to do in rural areas due to low volumes, or conversely, high travel/ transport need) and can often tap into existing structures for awareness-building and financing.

An example of such a commission-based network of trained sales staff, is an agent-led model where women are trained to go into villages and sell, which has been really successful in India. They

successfully tap into the importance of word-of-mouth by focusing first on village influencers which they seek to convert to customers.

Box 3: Door-to-door model – lessons from India

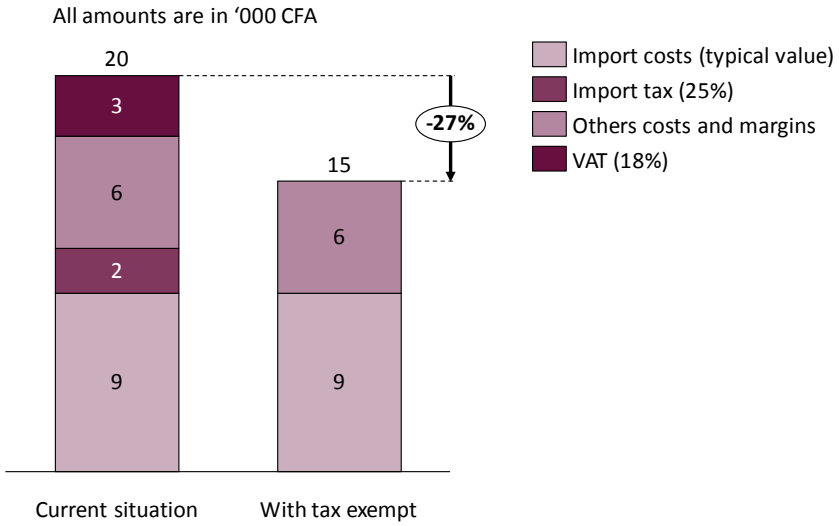
- The distributor found that although they had radio/print advertisements of the SPL products, people could not understand how the product worked. So they came up with a new distribution model:
  - They would deploy a reconnaissance team to the region of choice, the team would target a small number of influencers in that community (at a ratio of ~ 3 influencers for a village of 1500)
  - Once they had sold the SPL to those targeted customers, the team would leave the village for a few weeks so that those targeted customers could create a buzz through word-of-mouth in their social networks about their positive experience with the solar lamp
  - After several weeks the team returns with a larger team, a bigger splash and testimonials from happy customers to set up a show in the village



DISTRIBUTION OPTIONS WHICH REDUCE CONSUMER PRICE

As illustrated in the figure below, taxes make up ~25% of the consumer price (import tax of 25% on a typical import value of 40-50% of consumer price and a 18% VAT at the very end of the supply chain).

Figure 10: Cost build-up for a solar lantern and the effect of tax



The reduction of import tax would reduce the prices and would be likely to increase demand for SPLs once the consumers become aware of their existence and benefits. With total tax exemption, solar portable lamps could be ~ 25% cheaper. Exemption of import tax alone would reduce the price by ~10%.

There are essentially 2 different routes to achieving a reduction in costs through tax benefits: a general tax exemption for solar products (as is in place in many other African countries such as Mali and Kenya) or the utilization of an existing channel that is tax-exempt. On the former, an active discussion is taking place in government with specific proposals for targeted tax reduction or exemption on the table. The remainder of this section discusses the opportunities for the latter.

Companies distributing solar portable lamps could seek opportunities to work with the ASER scheme using ASER-qualified companies as last mile distributors.

Private sector companies working with the Senegalese Rural Electrification Agency (ASER) under either one of the schemes listed below are already exempt from import and VAT taxes, and benefit from a reduction on profit tax.

- **Concessions**: Ten exclusive licenses for private operators, co-founded by government and the donor community, with an obligation to develop an electricity distribution system and distribute solar photovoltaic kits to households in remote areas
- **Electrification projects by local initiative** (Projects ERILs): within the concessions, local villages can collaborate with a private operator to carry out local initiatives to enhance the electrification systems
- **Multi-sectorial energy projects** (PEMs): projects aiming at providing access to energy as a tool to enable community development, business development, and poverty reduction by targeting sectors such as education, health, and agriculture

None of the private sector players associated with ASER and benefiting from the tax exemption are currently distributing solar lamps, but a number of them have expressed an interest in distributing

them, provided that it fits in with their current service offering and it's appropriately regulated (one of them requested fixed consumer prices to regulate the market).

INTEGRATION OF PRODUCT FINANCE

Perhaps counter-intuitively, affordability is still a challenge for consumers. Although SPLs clearly provide savings in the longer term because they avoid the recurring costs that the lighting alternatives entail (where continuously new kerosene, candles or batteries need to be bought), few consumers have the total, relatively higher upfront purchase amount ready without dedicated savings or a loan. The need for trade finance is more obvious – since SPLs aren't cheap, retailers will need to have sufficient finance to pre-finance their own stock.

Opportunities to integrate finance into distribution will enhance access to consumer and trade finance and thus, product uptake by retailers and consumers alike. This can be achieved through a variety of means, including different credit/ loan options, postponed payment/ an extended payment term, the opportunity to pay in installments, and support to saving for the purchase.

In Senegal, no standard opportunities exist for consumer credit, payment in installments or postponed payment with shops or MFIs (they do exist with commercial banks, but only under specific conditions which are met by few (rural) BoP consumers). An exception that stands out, is TEEFA. They allow the associations that resell their SPLs, to delay payment until they sell to final customers, which is an interest-free and risk-free trade financing tool.

That said, a variety of more informal opportunities do exist. The figure below gives an overview of existing credit practices and opportunities. It must be noted that the research has not been able to identify existing successful distribution models that SPLs can simply tap into and the development of these opportunities will continue to require a significant effort. The remainder of the section details the opportunities further and provides examples.

Figure 11: Overview of current options for credit, payment in installments or postponed payment in Senegal

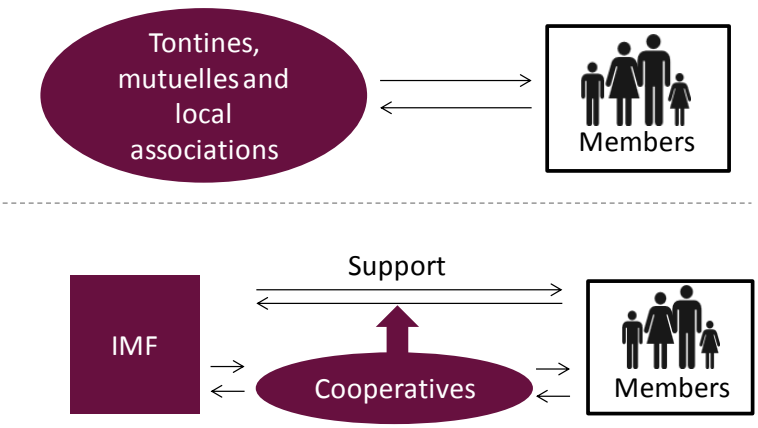
		General practice on consumer credit in Senegal	Current practice with respect to SPLs in Senegal
Financial sector	Shops	• No standard system for consumer credit , payment in installments or postponed payment • Shop may decide to grant either of the above options on an individual trust-basis	• Occasional trust-based credit, payment in installments or postponed payment • Shops more likely to provide any of the above options to consumers if the shop itself is backed by trade credit from supply chain or if supported by NGO investment
	Informal	• Well-established practice of credit and saving circles, both for predefined goals and 'general' saving instruments	• Examples of use of savings circles for SPLs • No dedicated circles for SPLs yet

	MFIs	• Can provide credit to buy products, but only if product has a 'commercial objective' (e.g., if people use phone charger to set up shop on a local market to charge phones)	• Isolated examples of consumer loan for commercial use
			• Use is limited due to :
			  • Low willingness to participate from MFIs due to high risk
			  • High interest charged

	Commercial banks	• Consumer credit available for a small subset of potential customers	• No practice of credit for SPLs

Given this low availability of formal credit structures with shops, MFIs and commercial banks, partnerships with local structures are needed to integrate finance in distribution. Essentially 2 options for this exist, which are illustrated and described below.

Figure 12: Options for cooperation with local structures to integrate financing



Tontines and mutuelles[22] locally organize savings and credit circles. These could be key partners in increasing the affordability of SPLs. Once awareness has been built and consumer demand for SPLs has grown, dedicated savings and credit circles for SPLs can be set up. Until then, existing circles could be deployed for SPLs. They could also provide credit directly to their members, using membership contributions and the means of their organization. This is often done by **local associations and cooperatives,** which pre-finance the purchase of sold lamps and are repaid by the members[23]. Their broad availability and well-established networks are a key asset to tap into for integrated product finance.

The second option is to work with **microfinance institutions** to provide loans to consumers for the purchase of goods. There is a keen interest from them, but the actual implementation of a credit scheme hardly takes place due to

- Limited cash flow
- Lack of knowledge of the products
- Lack of knowledge of potential consumers/clients

Local associations and cooperatives can help to build knowledge of potential consumers/ clients and guarantee their solvability. Alternatively, they can be the direct clients of the MFI, which reduces both the burden of transactions costs (as it's a bigger loan) and the default risk for the MFI (who then lends to an established local organization rather than a set of individuals unknown to them). The cooperative/ association can on-lend to their members – a scheme which is similar to the direct lending described above, but can be enhanced by MFIs if the cooperatives/ associations have insufficient funds on their own to put these schemes in motion.

A good example of this practice is Kayer. Kayer was initiated by a Senegalese peasant organization in order to demonstrate that rural areas can be considered as commercial targets to give poor households alternative energy. Kayer created a partnership with an MFI through a community association network that offers credit directly to consumers when they are members of the association. It works with tontines and local structures in all 82 villages they're active in and has worked with CREC (Coopération Rurale d'Epargne et du Crédit de Cayer) in providing the MFIs with much-needed lending capital.

There are emerging examples of direct cooperation with MFIs, without the 'intermediation' of cooperatives and associations. All of these examples are new and as yet unproven.

A final option is to build on experiences from micro- finance institutions elsewhere. For example, one company in Uganda, has set up a scheme in which (existing/ present) MFIs finance household goods and/ or to top up existing loans to enable SPL purchases. They have partnered with select distributors. This channel, while not widespread, can be explored for reaching certain geographies within Senegal – again, most likely to be successful for existing/ present MFIs.

[22] Mutuelles are local associations, often providing some sort of semi-formal or informal financial services such as saving/ credit circles.

[23] It combines features of a group annuity and a lottery. Each subscriber pays an agreed sum into the fund, and thereafter receives an annuity. As members die, their shares devolve to the other participants, and so the value of each annuity increases. In Francophone cultures, particularly in developing countries, the meaning of the term "tontine" has broadened to encompass a wider range of semi-formal group savings and microcredit schemes.

Box 4: Innovative financing model in Uganda

- Systems are sold on a 12-month hire-purchase agreement. Once the full payment is made the ownership is transferred to the customer
- A 25% down payment is required (this is around the figure that farmers can typically afford). The system is installed in 14 days. The credit can be additional to a pre-existent MFI credit to reduce transaction costs
- Inspections are carried out at 30 days and 3 months after the system installation
- As people are often suspicious of solar power systems, due to bad experiences with poor quality, a warranty provides assurance for their investment
- It is easy to upgrade to additional power (i.e. from 40W to 80W) by signing on another 12-month agreement to cover the cost of the upgrade with payments being slightly lower than the initial 12-month agreement. This stimulates on-time payment and offers reassurance that the customer has a proven credit record

DISTRIBUTION CHANNEL LENS – URBAN FOCUS

As is widely recognized and again explained in this report's section on challenges, there is still a very strong need for awareness-building, among both consumers and retailers. This awareness-building needs to have a strong 'experiential' component, where consumers can see, experience and try the products (brochures, posters and ads will help, but are not sufficient). As a result, awareness building is labor intensive and costly.

A potentially efficient and effective way, is to build awareness with the appropriate *urban* groups, given the strong dynamic of people in urban areas buying products for and bringing them to their rural contacts (be it urban groups in Senegal itself or the diaspora abroad). The remainder of this section examines (1) opportunities to build awareness within the right urban groups and (2) suitable distribution channels/ sales points.

BUILDING AWARENESS AND INCREASING PRODUCT AVAILABILITY IN URBAN AREAS TO FACILITATE RURAL DISTRIBUTION

To build awareness with the appropriate urban groups in an efficient way, one needs to first identify the groups and second, identify where they meet. This section covers 3 different avenues to meet/ expose people to the products:

1. Professional organizations, brotherhoods and religious groups
2. Hugely popular wrestling events and concerts
3. Highly visible professions who both can put solar lighting to good use themselves and are visible in the city street life, thus exposing a lot of their customers to the advantages of solar lamps. These include e.g., night sellers, dibiteries (simple eateries) and tailors

Professional organizations, brotherhoods and religious groups

These organizations represent an opportunity to reach out to a large population from different social and economic backgrounds and build awareness on the use and benefits of SPLs. Some of these organizations, such as SOS Casamance, have already participated in enhancing awareness and distribution of solar products and expressed their interest, during the interviews, to replicate the projects in other regions.

UNSAS, ADF, Papa Dia Production, ONCAV and Institute Francais were also interviewed. They all expressed a willingness to further explore opportunities to support awareness building among consumers. The other organizations mentioned in this section were not directly interviewed – information on them comes from desk research. They could also represent interesting opportunities.

Table 3: Overview of Professional organizations, brotherhoods and religious groups identified as potential partners

Category	Organization	Contact details (as of July 2013)
Organizations of workers	Union Nationale des syndicats Autonomes du Sénégal (UNSAS)	Tel: (221) 33 867 55 13 Email: ***unsas@orange.sn***
	Syndicats des travailleuses domestique du Sénégal	Tel : 33 867 55 13 s/c UNSAS Madame Famaye Ndoye Port. : (221) 77 568 26 86 Email: faelt1@hotmail.com
	Confédération Nationale des Travailleurs du Sénégal (CNTS)	7, avenue Lamine Guéye BP 937 Dakar Tél : (221) 821 04 91 Fax : (221) 821 77 71
Organizations of brotherhoods	SOS CASAMANCE	Address: Maison des Association – 15 Passage Ramey 75018 Paris Tel : +33 142232020/+33 671 85 74 23 Email: ***soscasamance@hotmail.com*** Web site : ***http://www.soscasamance.org/***
	Association pour le Développement du Fouta (ADF)	Tel :(221) 77 538 85 14 / (221) 33 867 49 36 Email: ***fotiyous@orange.sn***
	Association d'aide au développement de Bokidiawé	***h_wague@yahoo.fr***
Religious organizations	Tidjane	Tel: (221)765381818 / (221) 766823619 Fax: (221)2218269212 Email: aliounediop14@hotmail.com RUE 17 X 18 MEDINA DAKAR, SENEGAL ***http://tidjaniya.populus.org*** ***http://moustarchidine.com/*** ***http://moustarchidine.com/***
	Madjmahou Noureyni Univesite Cheick Anta Diop	Tel : 775334650 Email : info@mourides.com Major event: Grand Magal de Touba Organizing committee: ***18safar1313h@gmail.com*** / ***http://magal-touba.org*** Web site : ***http://www.mourides.com***
	Layene	***http://www.layene.sn*** ***http://layene.populus.org*** E-mail: ***diop_61@hotmail.fr***

Box 5: Example – Organizations of workers

UNSAS (Union Nationale des Syndicats Autonomes du Sénégal)
President: Mademba Sock
Tel : 33 867 55 13 s/c UNSAS
Email: ***unsas@orange.sn***
niangdial@yahoo.fr
Date of creation: Established in April 2012
Mission: Work towards improving work and living conditions of working masses in Senegal
Frequency of meeting (Executive Secretary): Twice a month
Outreach: Confederation regrouping a number of unions including:

- Syndicat Autonome des Enseignants du Supérieur/ SAES
- Syndicat National des travailleurs des Postes et Télécommunication/ SNTPT
- Syndicat Unique des travailleurs de l'Electricité/SUTELEC
- Syndicat Unique des Travailleurs de la Santé et de l'Action sociale/SUTSASUnion Démocratique des Enseignants du Sénégal/ UDEN
- Union des Travailleurs Libres du Sénégal /UTLS- Fron
- Syndicat des travailleuses domestiques du Sénégal

Box 6: Example - Organizations of brotherhoods

Name : SOS CASAMANCE
President: ***Ahmadou Sylla - Ahmadousylla77@hotmail.fr***
Mrs. Fambaye Mdoye, Coordinator
Contact information:
Maison des Association – 15 Passage Ramey 75018 Paris
Tel : +33 142232020/+33 671 85 74 23
Email : ***soscasamance@hotmail.com***
Date of creation: 2006
Web site : ***http://www.soscasamance.org/***
Geographic focus: Based in France, focus on supporting the rural population living in Casamance through its diaspora.
Potential outreach: SOS Casamance is working together with a number of diaspora associations of other regions in Senegal (e.g Fouta and Kedougou). Other regional and rural associations in Senegal are also members of SOS Casamance
Number of members: 60 active members
Activities: As part of a pilot program (2010-2011) SOS Casamance collaborated to promote the use of solar energy amongst the rural population. The program targeted schools, health centers and households. A number of schools and health centers were equipped with solar bulbs and solar kits. Individuals also received solar torches and lamps. The association is thinking to replicate the program and include the installation of solar panels.
http://www.soscasamance.org/images/stories/docs/pdf/plaquette_SOSCASAMANCE_2.pdf
About Casamance: The Casamance region is located in the south of Senegal, with a population of 800,000 inhabitants, in an area of 29,000 square kilometers. Its entire economy depends on agriculture, fishing and tourism.

Box 7: Example - ADF

Association pour le Développement du Fouta (ADF)
Contact : El Hadji Oumar SY, Tel :(221) 77 538 85 14 / (221) 33 867 49 36
Email : ***fotiyous@orange.sn***
Date of creation : 2007
Number of members: 20
Frequency of meeting : Monthly, every first Sunday of the month
Activities: The association actively participates in the improvement of the Fouta community's living and economic conditions. It works to raise awareness on health prevention and health access. It fights against rural exodus and creates opportunities to increase employment.
About Fouta: The Fouta region is located in the north of Senegal and has about 2 million inhabitants. The region is one of the most populated in Senegal. The major ethnic groups are Peul and Toucouleur. The population essentially lives from agriculture (rice and millet) and livestock.

Example – Religious organizations
There are three important religious organizations in Senegal: Mouride, Tidjane, and Layene. They have a strong influence on the population and can bring together a significant number of people.

Each of these organizations is led by what they call a "Marabout"; although getting in touch with the caliph "Marabout" is difficult, his spokesman, generally an intellectual, is more approachable.

These organizations organize religious events that bring together millions of people. These events generally are opportunities for companies to promote their products and raise public awareness through stands and demonstrations. Some of the most important events are:

- Ceremonies Gamou, Tivaoune (Tidjane) and Touba (Mouride) to celebrate the birth of the prophet
- MAGAL, event for the Touba community as described in box below. The event occurs each year
- Layene has an annual event that brings together people from the different Layene communities

Box 8: description of specific religious group/ event for potential partnership

Religious group: Mouride
Name of the Caliph: Cheikh Sidi Al Moukhtar Mbacke
Porte-parole: Serigne Bassirou Abdou Khadre
Contact information:
Tel: 775334650
Email : ***info@mourides.com***
Organizing committee: ***18safar1313h@gmail.com*** / ***http://magal-touba.org***
Web site : ***http://www.mourides.com***
Major event : Le grand Magal de Touba
About the event: The event is a pilgrimage in commemoration of the departure in exile of the founder of the Mouride community. It is also a source of great pride for all the Mouride community. The event lasts approximately 1 week and participants tend to spend a large amount of money during this period
Potential outreach: The town of Touba has a total population of 529,176 inhabitants. However, the participants attending the event are millions of Senegalese and diaspora
Frequency: annually; the last Magal event occurred in Touba in January 2013
Opportunity: During the Magal event all the big companies are represented, especially those providing essential products for users such as telecom, electricity and water. In addition the event is a commercial opportunity for companies to promote and mass-market their products. The most common distribution model during the Magal event is to create partnerships with regional wholesalers that have their own distribution network and sales force and that are well known in Touba. Shops, stands, and street vendors conduct business 24-hours a day during the event. The three last days are when the retailers and people from the neighborhood regions or villages buy a maximum of products to bring back to the villages. Products during the Magal event are generally sold at a discount.
Further conversations are needed to explore the opportunity to promote SPLs during these events.

Sporting and music events

Sporting events, particularly wrestling, are very popular in Senegal and wrestling events in Dakar attract large crowds. These can be leveraged to build awareness on solar products (as is frequently being done for other products and occasionally already for solar products).

The wrestling season in Senegal generally runs from December to July, with events occurring each weekend. The events last three to four hours each and generally take place in stadiums such as Demba diop (Capacity 15000) and Iba Mar Diop (Capacity 5000), that are filled to capacity. Several companies sponsor these events and benefit from exposure and increased awareness of their products and services through TV advertising, displayed posters, flyers, and use of logos. The sponsoring company can adjust their exposure depending of their interest. Advertising and awareness campaigns can be conducted before, during and after the event.

Table 4: Contact details for wrestling events

Category	Organization	Contact details
Wrestling events	Aziz production	AZIZ Ndiaye, Manager Tel: 77 644 30 82
	Papa Dia Production	Papa Dia , Manager Tel: 77 544 17 17

Box 9: description of Papa Dia production

Papa Dia Production
Contact: Papa Dia
Tel : (221) 77 544 17 17
EMAIL: ***papediaproduction@gmail.com***
Partnership: partnered with a solar company for the promotion of Solar Home Systems (SHSs) during wrestling events
Mission: Organize wrestling events, promote and contribute to the Senegalese culture, help people improve their life
Frequency of event: throughout the wrestling season
About the event: People come from all over the country, Fatick, Kaolack and other regions of Senegal including remote villages to watch the events. The wrestling competition is generally organized at Iba Mar Diop stadium in Dakar (Capacity 5000). The advertisement is done via radio, television, flyers and posters. The winners receive a solar home kit and free installation. During the event, the solar company did an exposition of its product and organized product demonstrations during the breaks with the support of the company's technicians
Future plans: Plans to organize two other events next year with the same partner
Other: Mr. Papa Diop is keen to organize similar events with companies distributing solar portable lamps

Various other sporting events are organized, especially during holidays.

Table 5: Overview of a selection of relevant sporting events

Category	Organization	Contact details
Football events	National level: ONCAV (Organisme National de Coordination des Activités de Vacances)	Monsieur Kane Amadou, Président Email : ***douganabe@yahoo.fr Minutes*** Tél. : 77 700 23 23 Abdoulaye Cissé, Secrétaire permanent Blaye6c@yahoo.fr Tel : (221) 77 57 26 167 B.P : 15 775 Dakar Fann
Swimming events	Federation Senegalaise de Natation et de Sauvetage	***http://fsnat.com*** Tel: (221) 33 864 56 45 76 669 65 39 Tour de l'Oeuf-Point E BP 417 Dakar Dakar Tel & Fax 221 76 864 5320 Dr. Mohamed Diop, president Email: ***drmohameddiop@yahoo.fr***

Box 10: Description of Traversee Dakar-Goree

Traversee Dakar-Goree:
About the event: The Dakar-Goree swimming competition started in 1986. The event is organized by the national swimming federation and occurs each year. People wait for the swimmers on the other side of the river (in Goree). Companies that have signed a partnership agreement with the organizing committee can promote and distribute (for free) their products during the event. Opportunities exist to design sponsorship agreements with the organizer depending on the interest of the company.
Participants: approximately 700 competitive swimmers (25 to 50 years old) and approximately 1,500 participants
Outreach: The event brings together a mix of people irrespective of social classes; participants also come from other regions of Senegal. The event is broadcasted on Senegalese television and radio.
Other collaboration: The United Nations collaborated with the organizers last year as part of their awareness campaign to promote sports.

Concerts are events that bring together a large amount of people from different backgrounds and social levels. Generally, artists initiate the organization of their concerts and are sponsored by big institutions.

The French institute in Dakar organizes approximately 100 spectacles, 10 expositions, and 100 cinema projections annually, in addition to a number of conferences and debates.

The institution organizes exhibits and trade fairs on its premises and has already partnered with private companies for specific events.

Table 6: Contact details for Institut français

Category	Organization	Contact details
Concerts, etc.	French institute INSTITUT FRANÇAIS SÉNÉGAL	Amadou Sene, Responsible culturel ***Amadou.sene@institutfrancais-senegal.com*** ***http://www.ifdakar.org/*** 89 rue Joseph T. Gomis BP 4003 DAKAR Tél : (221) 33 823 03 20 Fax : (221) 33 821 26 19

Highly visible professions

Highly visible professions who both can put solar lighting to good use themselves and are visible in the city street life, thus exposing a lot of their customers to the advantage of solar lamps, could be an important channel to build consumer awareness. These include e.g., night sellers, dibiteries (simple eateries) and tailors.

Box 11: Overview of night sellers

Night sellers
Presence in Dakar: Score Sahm, Niary Tally, Jet d'eau, Gas stations, bus stations, gas/petrol stations
Type of product sold: shoes, fruits, food, drinks, meals (mostly women)
Potential outreach: Night sellers have access to the population living in the neighborhood, to people returning back from work, and night travelers
Personal need: Night sellers need lamps to illuminate their selling space and better indicate their presence. Many of them currently use battery-powered torches when public electrification is not present, or work under public lights when these are available

ENHANCING PRODUCT AVAILABILITY AT SUITABLE DISTRIBUTION CHANNELS/ SALES POINTS

Once awareness among these urban populations/ diaspora has been built, the products need to be available at the times and the places where people buy products to take home to the rural areas. This section addresses 2 different avenues to that aim:

1. Presence at the major transport crossroads
2. Presence at shops where these products are being bought, either physically or through the internet

Presence at the major transport crossroads

The Aline Sitoe Diatta Shuttle connects Dakar to Casamance twice a week, on Sundays and Thursdays. The trip lasts 15 hours. Each ferry can transport over 500 passengers, 28 vehicles and approximately 40 crewmembers. The ferry harbor is a suitable place for selling products to both urban inhabitants travelling to the rural areas and to rural inhabitants travelling back home after they've sold their (mainly agricultural) wares in the city.

Table 7: Contact details for harbor authorities

Category	Organization	Contact details
Ferry harbor authorities	COSAMA	Tél. : 33 991 72 00 / Fax : 33 991 72 01 (Gare Maritime de Ziguinchor) Tél. : 33 821 29 00 / Fax : 33 821 29 01 (Gare Maritime de Dakar) Tél. : 33 821 34 34 / Fax : 33 821 34 40 (Siège) 1, Bd de la libération x Rue du Port BP : 41 36 Dakar / Sénégal Email : ***cosama@orange.sn***

There are two inter-urban **bus stations** in Dakar. Distributors of electronic products work together with street sellers to reach out to passengers waiting for their buses.

The biggest inter-urban bus station, Pompier, has 820 scheduled daily departures and 20,000 passengers transiting daily. Food and drink stalls, car washes and car repair shops, shoe makers and shiners, cigarettes stalls, and other small businesses are located on the premises or in the immediate proximity of the station.

Table 8: Contact details for road transportation authorities and organizations

Category	Organization	Contact details
Road transportation	Syndicat des transporteurs Gora Khouma/Confédération Nationale des Travailleurs du Sénégal – FC S.G syndicat transport routier	33 842.5.90 / 33 842.60.55 cntsfc@yahoo.fr
	CETUD (Manage only city transport in Dakar)	Route du Front de Terre Dakar BP 17 265, Dakar Liberté,Sénégal cetud@cetud.sn +221 33 859 47 20/+221 33 832 56 86 ***http://www.cetud.sn*** Mr Mbengue, Chargee de communication
	Direction des Transports Routiers (Manage inter-urban transport)	Avenue André Peytavin X Corniche - BP 2083 - Dakar tél: (+221)33 842 36 43 Directeur : Dramé SECK Kane Diao : Charge de la plannification/ Tel : (221) 77 644 85 03/Email : mkdiao22@yahoo.fr

Make the product available and visible in stores frequented by the diaspora

There are no dedicated shops were urban people go to buy products to bring back to their families in rural areas. Generally, they wait to buy electronic products at the bus station just before their departure or they go in advance to the market to purchase them.

The petrol stations around the bus stations represent an additional entry point, one chain, Total, is already distributing SPLs.

The webshop, Niokobok, is another important platform to reach out to the urban (foreign) diaspora who can buy products for their relatives living in rural areas. The website is currently selling one brand of SPLs and will soon add another to its product portfolio.

DISTRIBUTION CHANNEL LENS – RURAL FOCUS

An obvious entry point for rural awareness-building are the *loumas*. These markets, which often have a strong regional function and attract people from a large geography, are a good place to reach large groups of people at a moment and location where they're willing to make (bigger) purchases.

Additionally, it makes sense to identify specific target groups in rural areas which are likely to be interested in solar lamps, to focus awareness-building in an efficient way. In Senegal, activities such as fishing and livestock are big contributors to the economy and their rural associations may have a particular interest in solar lighting. Rural organizations were interviewed to assess their interest in SPLs and they confirmed their interest in and need for SPLs. The interviewees recognized the advantages of SPLs, such as increased security and savings in lighting expenses.

Table 9: Contact details for organizations in fishery and livestock

Category	Organization	Contact details
Fishery	Fishermen in the village of Ndangane Sambou (Fatick region)	El Hadli Fode Fall (221): 77 624 72 12 Ablaye Thiam: 77 730 42 38/77 925 96 25 Badara Thiam: 77 602 24 44 Doudou Thiam: 77 630 65 42 Badou Sarr:77 177 43 52 Arfang Thiam: 77 440 60 39 Lamine Thiam: 77 528 52 78
Livestock	Directoir National des Femmes en Elevage (Kaolak region)	President : Mrs Oumou Khaïri Diallo Email: ***dinfelsenegal@yahoo.fr*** Tel: (221) 77 571 47 71

4. CONCLUSIONS AND SUGGESTIONS FOR DISTRIBUTION MODELS

Learning from the existing distribution, the challenges faced, and comparable products, potential entry mechanisms to increase (rural) SPL footprint in Senegal, include the following:

- Build on and expand existing rural efforts:
  - Continue to build on the current approach with high effort in local demonstrations in a village-to-village approach, combined with trade finance to resellers. Here *loumas* offer essential opportunities for demonstrations and sales, as do specific target groups such as the cooperatives of fishermen.
  - Work with local cooperatives as a commission-based sales channel to expand the rural footprint and make the rural presence more continuous (and not only dependent on the one-off presence at the fairs), financing the cooperatives' stock to avoid high risk/ working capital requirements for the cooperatives. The model of allowing cooperatives to delay payment until after final sale, may go a long way in overcoming retailer hesitation (although it does require significant working capital from the distributor and enhances their risk).
  - Explore various opportunities to provide consumer financing:
    - Work with local cooperatives and savings/ credit circles (tontines) to provide consumer financing as direct loans to their members from their own funds
    - Work with savings/ credit circles to deploy existing circles for SPL purchases
    - Work with savings/ credit circles to set up new circles for SPL purchases
    - Work with local cooperatives and associations to get new MFIs to engage in providing consumer loans:
      - By providing guarantees
      - By acting directly as the MFI loan-taker
    - Work with existing MFIs to either convince them to provide loans based on the cost-saving attributes (rather than the income-generating attributes) of SPLs or to top up existing loans (to limit the burden of transaction costs)

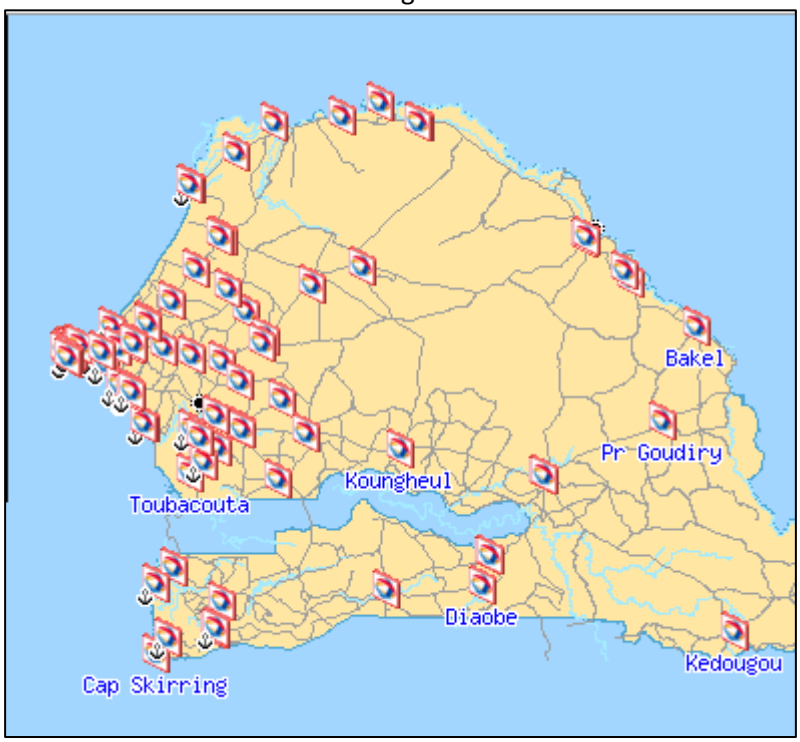
- Tap into relevant urban networks with a particular focus on urban sellers sending/ bringing products 'home' to rural areas:

    - Build awareness through a variety of avenues (for a number of which this report identifies direct 'willing' go-to opportunities and key players):
        - Professional organizations
        - Brotherhoods and the diaspora network
        - Religious groups and events
        - Large sporting (wrestling) and music events
        - Specific very visible professions such as night sellers, dibiteries and tailors
    - Ensure availability at major travel hubs and typical shopping areas, including
        - The ferry harbor
        - Road/ bus stations
        - Gas stations on the periphery of major towns
        - Relevant webshops such as Niokobok
    - Explore opportunities to cross-sell SPLs in existing urban proprietary commission-based sales networks (with a particular opportunity with Forever Living Products)
    - Build own urban proprietary sales network of commission-based resellers, potentially deploying Multi-Level Marketing to enhance sales.

- Further lobby for general tax exemption for solar products (to create a level playing field)
- Tap into supply chains which are already tax exempt by working with ASER distributors and concession holders

Once awareness has been built, other distribution networks can be tapped into, such as the regional distribution centers/ wholesalers which are currently being deployed in e.g., the LPG and soft drink distribution chains. For SPLs, these models can either be directly tapped into if the players are open to broadening their product range, or similar models can be built.

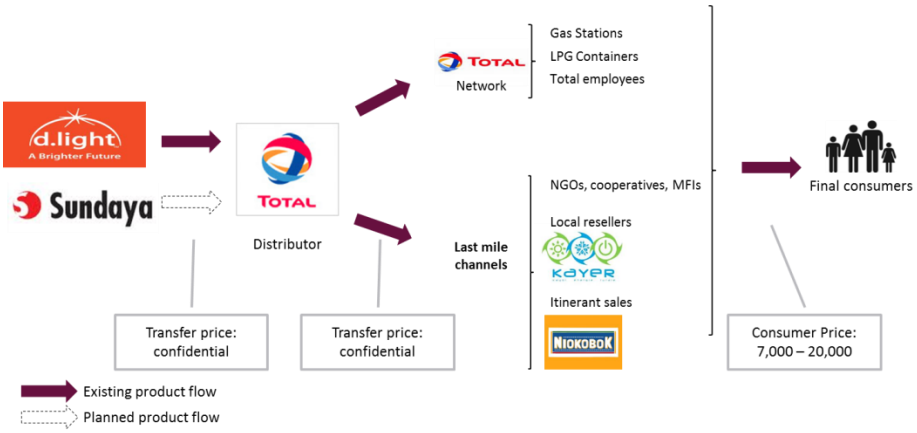
ANNEX 1. INDIVIDUAL PROFILES OF THE KEY ACTORS INVOLVED IN CURRENT DISTRIBUTION OF SPLS

Overview	
Name of the entity	Total
Type of entity	Multinational oil and gas company
Key role	Although Total is primarily an oil and gas company, they are looking to become leaders in alternative energies as well. In Senegal they have signed an exclusive agreement with d.light to distribute d.light products at Total petrol stations
Location/Geographical focus	• 135 stations around Senegal and ~3500 stations around Africa 
Maturity	Present in Senegal since 1954, Total is the largest distributor of petroleum products in the country. **"**Awango by Total" has been active in Senegal since October 2012 in solar lamp distribution
History and development	Total launched "Awango by Total" in October 2012 as part of the program "Total Access To Solar" (TATS) to enable off-grid, low-income communities to meet some of their energy needs. Awango by Total is active in Senegal, Burkina, Cameroon, Kenya, Asia etc.

Distribution model

Outline of distribution model

- Total is the importer, distributor and retailer in one
- Uses the existing supply chain of gas stations in order to distribute the lanterns



Credit/ financing scheme

- None at the moment – the cooperation with Kayer will start to include that as Kayer works with local cooperatives and MFIs

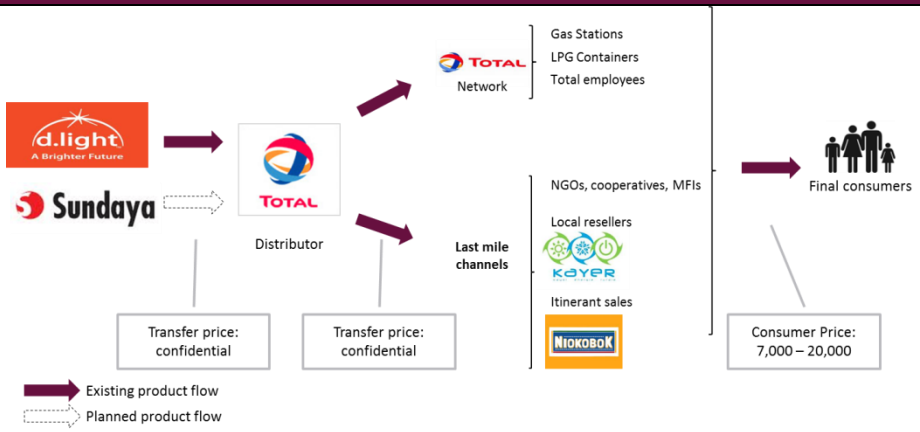
Warranty and maintenance

- Easy maintenance and after sales – customers can hand in their SPL at any gas station in case of problems, Total replaces the lamp and sends the broken product back to the manufacturer
- Trust-building with a 2-year warranty

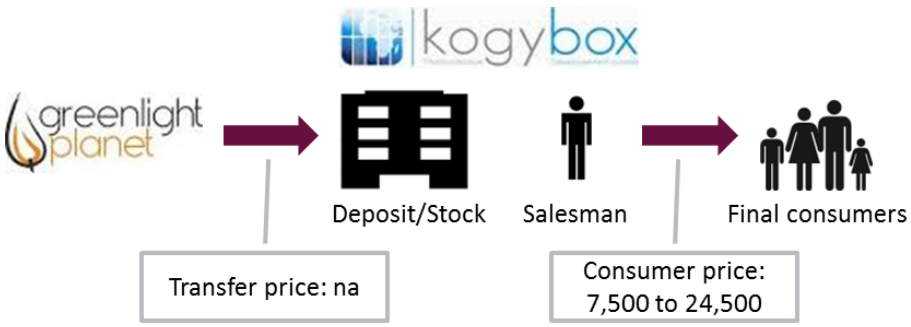
Involvement in awareness building

- Consumer education, through brochures in all stations, billboards and TV ads
- 'Salesmen' education – staff at each of the gas stations has been trained in giving information on the use and maintenance of the products

Contact	
Contact person	- Cedric GUILLEMOT, Sales Manager - Dieynaba BEYE, in charge of AWANGO by Total
Contact details	Km 3 Bd du centenaire de la Commune de Dakar. Bp: 355 Dakar Senegal (221) 33 839 54 41/33839 54 54 ***www.total-senegal.com*** Cedric Guillemot, Directeur Commercial Réseau: ***cedric.guillemot@total.sn*** Dieynaba Keita Beye, Direction Commerciale Spécialités, Chef de Service Développement Solaire: ***dieynaba.beye@total.sn***
Quote	Cedric Guillemot: *"One of the important points about solar lamps in Senegal relates to the duties and taxes imposed on imports. The VAT is currently 18% and the duties are 25%. The tax represents at least 30% of the total retail price. A tax exoneration would go a long way to reducing the retail price"*

Overview	
Name of the entity	Kayer
Type of entity	Local Private Sector Company
Key role	KAYER provides a complete range of solar lanterns, solar home kits for off-grid or connected sites and financial solutions to its customers through its mutual.
Location/Geographical focus	Tivaouane, Kébémer, Louga, Mbour, Gossas, Fatick, Matam, Bambey, Diourbel, Thiès, Linguère
Maturity	Kayer Rural Energy (KAYER), created in October 2006, is a company with a social and environmental mission.
History and development	• KAYER was initiated by a Senegalese peasant organization in order to demonstrate that rural areas can be considered as commercial targets to give poor households alternative energy • Kayer started the distribution of SLPs in 2010 buying them directly in Kenya
Distribution model	
Outline of distribution model	
Credit/ financing scheme	• Kayer created a partnership with an MFI trough a community association network that offers credit directly to consumers when they are members of the association. • The non-member consumers need to pay cash.
Warranty and maintenance	• Provides a one-year warranty on d.light products
Involvement in awareness building	• Marketing through website, radio, rural market and local associations has been critical to build consumer awareness.
Strategic considerations	
Challenges faced	• Despite the high demand the company is selling low volumes due to the consumers' lack of liquidity and the lack of working capital for the microfinance institution, whose funds are the consumer deposits, to provide additional credits
Ambitions and strategic plans	• Kayer is seeking a financial partner that will provide a credit line to support the microfinance partner

Contact	
Contact person	Alassane Dieng Managing Director
Contact details	Web Site: http://www.kayer.sn Tél. : (221) 33 955 55 00 Mobile : (221) 77 630 10 89 Ngaye Diagne, Ngaye Méckhé, Thiès, Sénégal BP 43 Ngaye Méckhé, Thiès, Sénégal Email : dieng.assane@gmail.com ***Infos@kayer.sn*** Skype: assane.dieng654
Quote	**"***We sell a fair amount of our solar products on credit through our mutual network, but they lack funds to support the complete consumer demand .***"**

Overview	
Name of the entity	Kogybox
Type of entity	Private sector. The representative is registered as a trader at the chamber of commerce in Dakar; the company is run as a pilot operation by its French holding company. Will move to formal status once potential and success of approach is proven
Key role	Importer and distributor of solar portable lamps. Focuses exclusively on SPLs – no other products in portfolio
Location/ Geographical focus	Senegal, experience in the village of Diana near Tambacounda
Maturity	• In Senegal since 2011 • Company still informal and very small which seems to limit growth potential given heavy time investment needed in building awareness • Kogybox parent family has been active since 2010
History and development	**Kogybox** started two years ago selling more expensive solar portable products. The lamps were mainly sold for collective uses such as medical centres, schools, and mosques. This provided insufficient volume for growth leading to a switch to a different brand. The company signed an agreement in June 2013 with Greenlight Planet for the exclusive distribution of Sun King solar portable lamps in Senegal.
Distribution model	
Outline of distribution model	• Kogybox sells to customers in rural areas through the one employee who travels across the country using public transportation (the second employee is in Dakar)  • In the future, the company aims to set up a network of retailers across the country
Credit/ financing scheme	• No credit is currently provided. Where possible, Kogybox seeks to work with NGOs for financing – currently very much on an ad hoc basis
Warranty and maintenance	• 1-year warranty on Greenlight Planet products • The products are replaced if needed – but the consumer may need to wait as one of the two salesman need to be physically where the consumer is to replace the product

Involvement in awareness building	• Strongly convinced of the need to build awareness and educate
	• Kogybox started distribution through:
	  ○ A broad mailing
	  ○ Personal visits, to the village of Diana and any place where they are asked to come

	• Despite positive experience with their new lamps, Kogybox found they need to return to these villages to show them the new products and 'convert' them to Sun King.
	• Materials
	  ○ Leaflets – detailed brochures per product
	  ○ Personal visit to demonstrate (there are frequent requests to leave demos behind for further familiarization, but Kogybox cannot afford to do that)

Strategic considerations	

Challenges faced	• Heavy burden of the import taxes
	• General lack of awareness of solar products in rural areas
	• Lack of finance
	  ○ For consumers: "People want the lamps, but cannot afford them"
	  ○ For potentially interested resellers: "Those who have the means, won't sell our products (they have many other things to sell) and those who are interested, don't have the means"
	• Limited resources to be invested in building the distribution model (only two employees, no car, so full reliance on public transport)
	• Small company with limited means and contacts with large potential partners
	• Limited stock available due to conditions (they use public transportation, therefore, the number of lamps they can transport is limited)

Ambitions and strategic plans	Kogybox is passionate. The sales rep responds to phone calls of interested potential customers or resellers – without an underlying expansion plan in terms of numbers or location <u>Number of products</u>: • Sales rep, when pressed, mentioned an ambition of ~ 40 lamps per year <u>Geography</u>: • Rural area (where they see biggest need and their own competitive advantage compared to e.g., Total) • No specific geographic focus <u>Business model:</u> • Once the business is more established, they may decide to develop a network of resellers to guarantee outreach, presence and local support, as well as a network of technicians for maintenance. Unclear whether this further maturity is expected to come for current very light model

Contact	
Contact person	Oumar Samaké, Manager and representative of KOGYBOX in Senegal
Contact details	Tel: + 221 77 525 98 08
Quote	On access to finance[24]: • consumers: « The people want quality, but they don't have the means » • resellers : « Those who have the means, aren't interested, those who are interested, don't have the means » • Competition : « The low-quality Chinese products are everywhere. [The good quality] products aren't in the villages »

[24] The original quotes: "Les gens veulent bien, mais ils n'ont pas les moyens" ; « Ceux qui ont les moyens ne le font pas, ceux qui sont intéressés n'ont pas les moyens » ; « Les produits Chinois de basse qualité, il y en a partout. Les produits D.light par Total, il y en a pas dans les villages »

Overview	
Name of the entity	Raw Material Company in partnership with ADEA (Agence de Developpement des Entreprises en Afrique)
Type of entity	Art Center, commercial orientation
Key role	Promote solar energy in rural area
Location/Geographical focus	Senegal
Maturity	November 2012
History and development	Little Sun, a solar powered artwork, is an initiative of Olafur Eliasson a Berlin based artist and Frederik Ottesen a Danish engineer. Because of its direct link to art, the Raw Material Company, an art center in Senegal, is the exclusive distributor of little sun product in West Africa in partnership with ADEA
Distribution model	
Outline of distribution model	• Just received their stock still in the implementing phase • Target rural area "mutuelle" network, rural and women's associations, rural credit association • Intend to have cars that go each week to a specific region to sell solar lamps in villages
Credit/ financing scheme	• The company does not intend to sell on credit but rather proposes a competitive product at competitive price to the rural population • Provides incentives to the population through sales margins • Intends to provide a 20% credit to distributors that have proven that their distribution model works
Warranty and maintenance	• 10-year integrity warranty • 3-year panels warranty • Product certified by Germany and the European Union, and meets Lighting Africa's Minimum Quality Standards
Involvement in awareness building	• Currently trying to develop a partnership with ENDA to raise consumer awareness • Intends to participate in *Loumas* in rural areas and big religious events such as Magal and Gamou • Is having a convention with the national agency of eco villages that has a network of 14,000 villages in Senegal
Strategic considerations	
Challenges faced	• Tax regulation is the biggest challenge
Ambitions and strategic plans	• Intend to sell 40,000 to 50,000 lamps per months in Senegal in the short/middle term • Intends to sell at a regional level as well

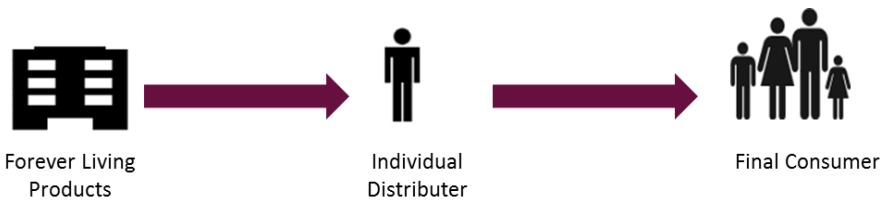
Contact	
Contact person	Mrs. Kap Kouoh NHP Mr. Youssouf Ndiaye, in charge of marketing and sales
Contact details	Raw Material Company 4074 bis Sicap Amitie 2 BP 22170 Dakar, Senegal TEL:(221) 33 864 02 48 Mob: (221) 77 647 66 50 Email: ***Info@rawmaterialcompany.org*** ***www.rawmaterialcompany.org*** ADEA (Agence de Developpement des Entreprises en Afrique) 6,cite COMICO VDN Imm. Ibrahima Toure 1D Tel : (221) 33 827 27 19 Email : ***yndadea@orange.sn*** / ***adeasenegal@orange.sn*** ***www.adeafrance.org*** / ***www.eurafric.org*** Dakar, Senegal
Quote	Youssouf Ndiaye: "The current taxation system constitutes our biggest challenge in entering the Senegalese market and impact on the final price."

Overview	
Name of the entity	**TEEFA – LIGHTING SENEGAL**
Type of entity	Commercial company but with a social orientation
Key role	Promote the access to solar products in rural areas at low cost
Location/Geographical focus	Thies, Ziguinchor, Kaolack, Tambakounda, Matam. Reach Guinea through the Guinean diaspora in Senegal
Maturity	Started 2011 end of year
History and development	TEEFA created a partnership with an NGO, TOSTAN that linked them with their network of women associations and trained women on solar products usage
Distribution model	
Outline of distribution model	• Distributes solar lamps through women's associations • Has exclusivity for Barefoot products in Senegal. The duration of the exclusivity has not been determined • Orders Barefoot products directly from the manufacturer and pays the transport cost to Senegal • Sold about 3,000 lamps since the beginning of their activity in 2011, of which 1,000 were sold in 2012 • Provides lamps to women's associations that paid for the product in a regional bank account. The associations sell to final consumers
Credit/ financing scheme	TEEFA allows associations postponed payment. Since associations delay the payment until they sell lamps, TEEFA does not advise them to sell on credit to consumers to prevent the delay in reimbursement and the resulting cash flow issue
Warranty and maintenance	• One year warranty • Lamps are replaced when there is a manufacturing default • In case of technical issues due to bad usage of product, the company replaces the product and shares the cost 50-50% with the consumer
Involvement in awareness building	• Trains women's associations in partnership with TOSTAN • Runs periodic awareness campaigns and demonstrations in rural areas
Strategic considerations	
Challenges faced	• Access to remote region • Low purchasing power
Ambitions and strategic plans	• Sell about 1 million lamps per year • Increase awareness and sales in rural areas • Develop an effective distribution network • Open TEEFA shops in rural area
Contact	
Contact person	**Oury Bailo I Dialo, Secretaire General Adjoint**
Contact details	Rue 15 X 2 Bis Medina Dakar Republique du Senegal Tel: (221) 77 592 87 94 Email: ***Diallo.ob@lightingsenegal.com*** Web: www.lightingsenegal.com
Quote	« Accessing to remote regions is probably one of our big challenge due to the quality of roads»

ANNEX 2. INDIVIDUAL PROFILES OF THE KEY ACTORS WITH DISTRIBUTION MODELS THAT SPLS COULD USE

Many of the key actors are already profiled in chapter 3, particularly when it comes to reaching urban customers. The table below provides additional details for Forever Living Products.

Overview	
Name of the entity	Forever Living Products
Type of entity	Private sector
Key role	Forever Living Products are the world's leading producers and distributors of aloe vera products - gels, tablets, cosmetics
Location/Geographical focus	9.5 million distributors in over 145 countries Offices in Western Africa: Senegal, Ivory Coast, Ghana, Togo, Nigeria
Maturity	Founded in 1978
History and development	A multi-level marketing company that sells aloe vera-based drinks and bee-derived cosmetics, nutritional supplements, and personal care products.
Distribution model	

Outline of distribution model	• Forever Living Products is structured as a multi-level marketing company
	• Any individual who would like to become a distributer registers with the company and goes through a training on the company's products
	• The distributor then purchases "packages" from the company, which contain a variety of the products
	• The independent distributor is free to sell to any consumer
	• Established training materials, marketing plan and bonus/remuneration structure – incentivize distribution *"The harder you work, the more money you make"*
	• New distributors are recruited directly by the current distributors – *Network marketing*
	• Sales staff gets products at wholesale prices, and earn up to 43% when sell them at retail prices
	• In addition:
	  ○ Personal Bonus of up to 18% for sponsoring each new Distributor and helping them make sales
	  ○ Group Volume Bonus of up to 13% on each team member as distributors develop into Assistant Supervisors, Supervisors, and Assistant Managers
	  ○ Leadership Bonus for every manager in the downline, starting at a 2% bonus and going as high as a 6% bonus depending where they are positioned in the organization
	 

Credit/ financing scheme	• None, the payment is cash
Involvement in awareness building	• The awareness building is mainly done through *word of mouth* • The network of the distributor is an important asset to ensure awareness building
Detailed facts	
Size	
Number of employees	• Approximately 30,000 independent distributors between Senegal, Mali, Mauritania, Guinea Bissau, Guinea and Gambia
Product lines and price	A variety of aloe vera-based drinks and bee-derived cosmetics, nutritional supplements, and personal care products
Strategic considerations	
Opportunities going forward	Distributors can sell other products as long as these products do not compete with forever living products. There is an opportunity to explore a collaboration with Forever Living Products network for the distribution of SPLs
Contact	
Contact person	Country Manager: Biram Fall Marketing Manager: Oumar Sall
Contact details	Phone: (+221) 869 3940 Fax: (+221) 820-6691 Email: ***bfall@foreversenegal.com*** Email: ***osall@foreversenegal.com***

ANNEX 3. THE 'PHONEBOOK'

Based on extensive desk-based research and through leveraging our networks of existing contacts, the team has elaborated a detailed contact list of key players at every stage of the supply chain for solar portable products in Senegal.

Group	Organization	Role played in the value chain	Contact person/ Position	Geographical Reach	Email	Address
Donor	UNDP Senegal	Promotion of solar energy	Mr. Boubacar OUALY Regional Energy-Poverty Program	Dakar, Senegal	bouba.oualy@undp.org	UNDP Regional Centre Dakar Office: +221 33 869 06 33 Mobile: +221 77 529 43 29
Donor	PERACOD/GIZ	Promotion of sustainable rural electrification and supply of sustainable improved cook stoves	Mansour A. Dahouenon, Conseiller Technique Principal	Dakar, Senegal	mansour.dahouenon@giz.de	Routes des peres Maristes prolongee Hann-Maristes, Rue HB 422 Villa Nº lot 1A B.P. 3869 DAKAR Senegal Telephone: (221) 338 326 471 Fax: (221) 338 326 479 Port.(221) 77 529 87 03 www.peracod.org

Education	Primary School Keur Mamou Ndary (Bibliotheque Solaire s/c Sonny Money)	Distributors solar lamp Dlight	Mr. Sane, Director	Kaolack, Senegal		
Education	Primary School Gapakh	Distributors solar lamp Dlight and Marathoner	Mr. Aboulaye Deme	Kaolack, Senegal		

Governm ent	Ministry of Energy (MOE)	The MOE is responsible for the preparation and implementation of the sector policy defined by the Government of Senegal (GoS), the development of the national electrification plan, and standards applicable to the sector. The Ministry grants licenses and concessions upon the advice of the Commission of Energy Sector Regulation.	Boukacar Mbodje conseiller technique Energies Renouvellables Efficacites Energetique	Dakar, Senegal	boub_mb@yahoo.fr	Building administratif, 4eme etage B.P: 4021 Dakar Boukacar Mbodje conseiller technique Ministere 77 325 34 34 (221) 33 823 43 20 (221) 33 823 57 89

Government	Senegalese Agency for Rural Electrification (ASER)	ASER is a public corporation of MOE, with technical and financial autonomy. ASER is responsible for promoting and developing rural electrification nationwide, with the exception of the SENELEC concession areas.	Cheikh Wade (Responsable Energie Renouvelable(221) 77 637 88 34) El hadji SYLLA , Chef de Projet EnR Agence sénégalaise (A.S.E.R) Tél : +221 76 664 74 36 / +221 77 332 14 54 SKYPE : mampa04)	Dakar, Senegal	syllaelhadji@yahoo.fr	Ex-camp Lat Dior. corniche Ouest, Dakar, Sénégal BP 11131 Dakar, Sénégal Tel: (221) 33 849 47 17 Tel: (221) 77 637 88 34 Site web : www.aser.sn
Government	The Inter-ministerial Committee on Renewable Energy (Comité Interministériel sur les Energies Renouvelables, or CIER)	It has been charged, among other tasks, with coordinating the policies for integration of renewable energy and the grid code. Their finalization will assure more coherence in integrating renewable energy into the interconnected grid.	Mr. Niane Directeur de L'Energie((221) 77 333 26 57 / 77 565 87 50)	Dakar, Senegal	papeniane@yahoo.fr	15, boulevard de la republique 1er etage, Immeuble Sar BP: 4021 Dakar tel: (221) 33 889 60 03

NGO	ENDA Energie Environment Développement	ENDA is an NGO that advises and conducts studies for public and international institutions on energy and environmental issues. ENDA also own some programs that aim to promote renewable energy and protect the environment	Secou Sarr (Directeur , 76 667 57 99) Mr. Ndour (77 538 85 22)	Dakar, Senegal	enda.energy@orange.sn secousarr@endatiersmonde.org secou.enda@hotmail.com	54 rue Carnot BP 3370, Dakar – Sénégal (Derriere centre culturel Francais, Pres de la mosquee) Tél : (+221) 33 822 24 96 / 882 59 83 Fax : (+221) 33 821 75 95 - URL : www.endaenergie.org
NGO	Global Village Energy Partnership	Supports and advises SME energy enterprises in poor rural and periurban areas in Mali	Jasmien Bronckaers (Mali Program Manager) Skype: jazzymien	Senegal	info@gvepinternational.org jasmien.bronckaers@gvepinternational.org	GVEP - Senegal GVEP International Sacré Coeur III, Villa 75 B Close to the yellow bakery Dakar, Senegal Telephone: +221 33 827 18 45
NGO	VILLA SOLAIRE (NDEF LENG)	Installer and service provider of solar solutions	Alioune Ndong	Different region of Senegal	ndong.aliou@yahoo.fr	(221) 77 457 22 88

NGO	SolarAid/SunnyMoney	Distribution of solar portable lamps in 58 schools, awareness building	Kat Harrison, Social Impact & Research Manager/Senegal Programme Manager/Gestionnaire du Programme Sénégal Twitter: @Sunrise_Kat Blog: sunrisekat.tumblr.com	Dakar, Fatick, Kaolack and other regions of Senegal	Kat Harrison <Kat.Harrison@solar-aid.org>	www.solar-aid.org Current mobile (Senegal)/Numéro: +221 771 823 756 Office phone (UK): +44 (0)20 7278 0400 Skype: kat.solaraid
Private sector	KAYER	Importer, distributor, retailer and provider of solar service solutions: Solar lamp, solar kit, batteries, solar panel	Dieng Assane, Gerant Skype: assane.dieng654	Thies,Tivaouane, Kébémer, louga, mbour, Gossas, Fatick,matam, bambey, diourbel, Thiès, linguère - Senegal	dieng.assane@gmail.com Infos@kayer.sn	Web Site: http://www.kayer.sn Tél. : (221) 33 955 55 00 Mobile : (221) 77 630 10 89 Ngaye Diagne, Ngaye Méckhé, Thiès, Sénégal BP 43 Ngaye Méckhé, Thiès, Sénégal

Private sector	Service de l'Energie en Milieu Sahelien (SEMIS)	Market research Agency	Bocar Sada Sy Directeur General Tel:(77 638 45 29)	Dakar, Senegal	niangsoda@yahoo.fr (GM Assistant) dgsemis@semis.sn / b.sadasy@semis.sn -	Espace Résidence Hann Maristes - N°1421 BP 652 - Dakar RP - CP 18524 Tél: (221) 33 832 73 97 - Fax : (221) 33 83 26 189 www.semis.sn
Private sector	Sahel Energie Solaire	Distributor, installer: Solar equipments, installation and maintenance, PV and hybrid	Amadou Coulibaly, Manager	Senegal Mali (zones Kayes et Yelimane) Gambie (frontière) Guinée-Bissau (frontière Sénégal) Mauritanie (Trazza et zone côtière)	sahelensol@hotmail.com	Mobiles : (221) 77 547 78 56, (221) 77 246 99 00 127, SOFRACO, Thiès, Sénégal
Private sector	AfriWatt	Distributor and Retailer: Commercialize solar moduels, accessoires, solar water heater provider and installer of individual water pomps	Papa Nalla Sow, Administrateur (+ 221) 77 953 36 41	Dakar, Senegal	E-mails : afriwatt@orange.sn afriwatt@cyg.sn papanala.afriwatt@gmail.com	Service technique : Foula Baldé Tél. : (221) 33 822 70 90 Fax: (221) 33 823 26 36 Mobile : (221) 77 953 36 41 BP 5618, Dakar, Sénégal 2, avenue Lamine Guèye, Dakar, Sénégal

Private sector	STATION ENERGY SOLAIRE	Distributor and retailer: Commercialize solar lamps, solar panels from BBOX, generator and other associated solar equipment	Ousmane Diop, General Manager	Dakar, Senegal	ousmane.diop@station-energy.com	Station Energy Senegal 299 cite RST - THIAROYE AZUR - Dakar Senegal Tel : 77 379 61 76 Tel BUR : 33 854 70 70 Skype : dioous www.station-energy.com
Private sector	KOGYBOX	Retailers: Commercialize Solar lamps from Green Light	Oumar Samaké, Manager and representative of KOGYBOX in Senegal	Different region of Senegal	commercial@kogybox.com Samake08@hotmail.com	+ 221 77 525 98 08

Private sector	TOTAL (AWANGO)	Importer, Distributor and retailers: Solar lamp Dlight S10 & S250/300	Cédric Guillemot Directeur Commercial Réseau Total Sénégal (00 221 77 631 05 18) • Dieynaba Beye, responsable services Awango	Different region of Senegal	cedric.guillemot@total.sn dieynaba.beye@total.sn	Km 3 Bd du centenaire de la Commune de Dakar. Bp: 355 Dakar senegal (221) 338395441/338395454 www.total-senegal.com

Private sector	Schneider BiBBOP program	Provider of solar solutions	Ninon Tollard, Program Manager BIBBOP Program Schneider Electric (Skype: ninon-t numéro de portable : 00 221 77 740 41 80)	Dakar, Senegal	ninon.tollard@schneider-electric.com	Tél. : (221) 33 824 65 65 Mobile : (221) 77 569 16 46 4023, Sicap Amitié II, Dakar, Sénégal BP 15952, Dakar, Sénégal

Private sector	TAO (Tenesol Afrique de l'Ouest) SUNPOWER	Service provider solar solution, Does not sell solar lamps	Boubacar SOW, Directeur de filiale	Different region of Senegal	bsow@sunpowercorp.com	Tél. : (221) 33 859 65 65 Fax : (221) 33 832 39 45 Km 3, boulevard du Centenaire de Dakar, Sénégal BP 286, Dakar, Sénégal
Private sector	Raw Material Company	Distributor of Little sun lamps	Mrs. Kip Couch NHP Mr. Youssouf Ndiaye, in charge on marketing and sales	New in the market and have not yet started	Info@rawmaterialcompany.org yndadea@orange.sn adeasenegal@orange.sn	Raw Material company 4074 bis Sicap Amitie 2 BP 22170 Dakar, Senegal TEL:(221) 33 864 02 48 Mob: (221) 77 647 66 50 Info@rawmaterialcompany.org www.rawmaterialcompany.org ADEA (Agence de Developpement des Entreprises en Afrique) 6,cite COMICO VDN Imm. Ibrahima Toure 1D Tel : (221) 33 827 27 19 Email : yndadea@orange.sn / adeasenegal@orange.sn www.adeafrance.org / www.eurafric.org

						Dakar, Senegal
Private sector	TEEFA LIGHTING SENEGAL	Distributor of Barefoot lamps		Different region of Senegal	Diallo.ob@lightingsenegal.com	Rue 15 X 2 Bis Medina Dakar Republique du Senegal Tel: (221) 77 592 87 94 Web: www.lightingsenegal.com

Private sector	GSERM	Installer and electricity provider: Providse 50 w and 80 w solar kits Decentralized rural electrification with PV system in the region of Anambé B. Transformation of mini diesel farm in hybrid biodiesel system / PV	A. Khassim Diakite Directeur General	Cover the south region of senegal	diakmohamed@gmail.com	Dieuppeul IV Tel: (221) 33 824 32 07 (221) 77 523 50 06
Private sector	ENERCOM	Retailer and installer: Inverter, solar panel, batteries, regulator, lamps, phone charger	Gueye Fatou Gaye	Dakar, Senegal		Immeuble Rose Mermoz Tel: 33 825 49 68
Private sector	TOP ENERGIE (Two shops)	Distributor and retailer: Inverter, Regulator, batteries, solar panel	Mr. Gaye Pape C. Sire Diouf (Saler)	Dakar, Senegal		Sacre Coeur 3 Castor Tel: (221) 77 705 26 84
Private sector	ENERGECO	Distributor and retailer: Solar panel, water pump, air conditioner	Loum Aida	Dakar, Senegal		Sodiba Tel: (221) 33 824 78 65 (221) 77 635 47 31

Private sector	WADE & FRERES	Engineer services, No longer operating in the solar sector	Ismael Ba, Directeur	Dakar, Senegal		Sacre Coeur Tel: (221) 33 867 58 20 (221) 77 638 94 71
Private sector	SAUDEQUIP Electric	Service provider: Mines, Travaux publics, Energy, Hyster, Atlas Corpo	Alphonse Ndiaye, Responsible Energie	Dakar, Senegal		Route de Rufisque Tel:(221)33 832 06 83
Private sector	NRJ & Solaire	Retailer and repair: Solar panel, batteries, Inverter, lamps, torch, regulator, solar water heat, solar television, solar air conditioner, solar fridge	Massar Sarr	Dakar, Senegal	nysolaire1@gmail.com	NRJ/Solaire Derkle cite ASECNA Nº1 face station Total Tel: (221) 33 850 15 55
Private sector	EQUIP PLUS	Distributor and installer: Water pump, solar panel, inverter, batteries, regulator	Yaya Ly, Head of hydraulic and electric department	Dakar, Senegal		Route de Rufisque Tel: (221) 33 832 32 32 / 832 03 87
Private sector	SOLAR CITY	Retailer and installer: Solar solution, solar lamps, solar kits, solar torches, phone recharger	Andre Coly, Technical Director	Dakar, Senegal		Comico VDN Tel: (221) 33 825 14 14

Private sector	BUSNESS FORCE	Distributor, retailer, installer: Solar lamps, solar torches, solar kits, batteries, water heat, inverter	Mbaye (saler)	Dakar, Senegal		Avenue Lamine Geuye, x Rue Marchand Tel:(221) 77 971 11 22
Private sector	SOREXCRIM	Distributor and retailer: Solar lamps, solar torches, solar battery for mobile phone, solar kit Quincaillerie, Plumbing, cleaning equipment, electric inverter, farming equipment	Mamadou Ndiaye, Manager	Dakar, Senegal	modou332@yahoo.fr sorexchim@orange.sn	37, Avenue Lamine Gueye, Dakar- Senegal Tel: (221) 33 822 33 74 Fax: (221) 33 823 74 02
Private sector	DJIMAQ ENERGIE	Distributor and retailer: Solar lamps, solar panels, solar torches, solar batteries Farming equipment, generator, inverters	Mame Adama Diouf, Manager	Dakar, Senegal	worldsolar24@gmail.com	69, Avenue Lamine Gueye, BP:21107 Dakar Senegal Tel: (221) 338210094 (221) 77 734 90 50

Private sector	ELEKTRON SENEGAL	Distributor and retailer: Solar kit, regulator, batteries, solar bulbs, solar television, solar water heater	Moustapha KEBE	Dakar, Senegal	elektonsen@gmail.com	34, Avenue Lamine Gueye Dakar en face du Theatre Tel:(221) 33 821 53 80 (221) 77 800 79 63
Private sector	Paroisse Village Niakhar	Retailer: Solar lamps	Abbe Jean Marie Doug	Fatick, Senegal		Tel: (221)77 514 84 58
Private sector	Quincaillerie	Retailer: Former retailer of solar lamps - he is seeking for a distributer to restart the business again	Semou Faye	Fatick/Village de Niakhar-Senegal		Tel:(221) 77 640 96 68
Private sector	Quincaillerie Khadim Rassol	Retailer: Solar lamps	Moctar Gueye	Fatick/Eoscal - Senegal		Tel:(221)77 556 87 88
Private sector	Quincaillerie Senghor et Frere	Retailer: Solar bulb	Ousmane Senghor	Fatick/Escal-Senegal		Tel:(221)77 806 27 35/77 715 66 09
Private sector	Quincaillerie Touba Khelcom	Retailer: Solar panel, batteries, Inverter	Modou Mactar Samb	Fatick/Escal-Senegal		Tel:(221)77 414 55 01
Private sector	Quincaillerie Gene Sant Serigne Saliou	Retailer: Solar bulb	Moussa Doug	Fatick/Escal-Senegal		Tel:(221)77 279 88 98
Private	Quincaillerie	Retailer:	Mactar Ka	Fatick/Escal		Tel:(221)77 541 51 10

sector	Touba	Solar lamps		– Senegal		
Private sector	GIE Ngaraf	Distributor: solar lamps ,solar television	Ibra Dieng	Dakar, Senegal		fass pres du bureau HLM tel:(221)776397025/776 093027
Private sector	Touba Solar	Distributor and Retailer: solar lamp,solar pannel,batteries,inverters	Mme Diop gerante	Dakar, Senegal		Mariste non loin de la BICiS
Private sector	SATECH	solar pannel,inverter,batterie, mini kit,spot solar,chargeur,lecteur mp3		Dakar, Senegal		Patte D'Oie cite al amal tel:776449522
Private sector	Solar COM	Installer Solar farm Distributors generators, batteries		Dakar, Senegal	solarcom@orange.sn	Residence El Hadji Mouhamed Habib Sy Scat Urbam Mariste 1 Lot NºW007 BP: 22620 Dkar Tel: (221)338590029 Fax: (221) 33 832 56 04
Private sector	SOS ENERGIE	Retailer: batteries,inverters,solar panel,regulator,solar heater,solar refrigirator,fan solaire	Khadim Diop gerant	Dakar, Senegal		Plateau Taul Bial x Noel Balley tel:779501832/774128386

Private sector	IGOL	Retailer	Abdoulaye Diallo	Dakar, Senegal		Castors pres de la pharmacie tel: 707146986
Private sector	NS RESIF	Distributor and installer charger, batterie, kit solaire ,solar lamp	Mamadou Kane Directeur General	Dakar, Senegal		Sodida tel:772678282
Private sector	OPROST ENERGIE	Distributor and installer: solar panel, regulateur,inverter	Abdoul Aziz Diop	Dakar, Senegal		Grand-Yoff
Private sector	OKM MBAYE & FRERES	Distributor and Retailer: Bulbs,batteries,solar panel,refrigerator,congelateur	El Serigne Mbaye	Dakar, Senegal		Plateau rue la PERINE
Private sector	QUINCAILLERIE LANSAR	Distributor and retailer: solar lampe,solar panel,batteries, inverters	Younouss Loum gerant	Dakar, Senegal		Avenue Lamine Gueye tel:(221) 77 544 63 34
Private sector	SATECH	Distributor and retailer: Inverters,solar panel,battries,mini kit solaire, spot solaire,lamps LED RGB 3w,tube LED 9w,spot LED(6*1w;5*1w,12*1w)	Youma Thioube	Dakar, Senegal		Mariste non loin de la BICiS tel:(221)33 835 90 90

Private sector	ESM Electrique	Retailer: solar panel,regulator,batteries, inverter,	Ousmane Sylla	Dakar, Senegal		Liberte 5
Private sector	Quincailerie Etoile	Retailer.	Mouhamed Tall	Kaolack,Senegal		tel: (221) 77 105 41 30 / (221) 33 941 76 31
Private sector	Quincaillerie Qinou Mady	Retailer: Solar equipementc	Arouna Diaw	Kaolack, Senegal		tel: (221) 77 578 51 02 / 33 941 49 48
Private sector	TOTAL (Retailer)	Retailer: Dlight lamps	Papa Ndao	Kaolack, Senegal		tel:(221) 77657 33 00
Private sector	GIE Serigne Mourtada Mbacke	Retailer: kit solaire avec chargeur,lampe, battery,	Fatou Gueye	Kaolack, Senegal		tel:(221) 77 640 54 96
Private sector	Touba Taif	Retailer: solar panel,solar lamp, battery,onduleur,regulateur	Sidi Toure	Kaolack,Senegal		tel:(221) 77 932 08 54
Private sector	Quincaillerie Keur Khadim	Retailer: battery,solar lamp,solar panel,inverter	Matar DIOP	Kaolack, Senegal		tel:(221) 77 656 25 22
Private sector	WADE & FRERES	Retailer: regulateur, batrrey, solar lamp, onduleur,	Modou Wade	Kaolack, Senegal		tel:(221) 70 560 25 79/(221) 33 941 26 06

Private sector	UAVDN	Retailer solar products	Adama Faye(responsable)	Niakhar,Fatick, Senegal		tel:(221) 77 324 46 60
private sector	ENERGIE-R	Distributor and Retailer and assembleur: batteries, solar lamp	Sinthiou Pame	Dakar, Senegal	pamoul@gmail.com energierdakar@gmail.com	tel:(221) 77 747 28 23 / (221) 33 835 68 78
Private sector	SEEE	Installer/Distributors: Solar electrification , solar pupms, Solar farms, solar installation for companies and individual	Issa KONE, Agency Manager Madame Sane	Dakar, Senegal	seee@orange.sn	Rue 6XJXG Point E - BP: 7570 Dakar Medina tel:(221) 77 638 29 77 / (221) 33 825 46 33
Private sector	Saloum Electronique	Retailer: charger portable, regulator, inverter	Elhadji Gaye	Dakar, Senegal		Grand-Yoff: tel:(221) 77 525 21 29 / (221) 77 072 38 35
Private sector	Beta Energie Afrique	Distributor: solar panel, onduleur, inverters, battery, accessoires solaires	Mr Gaye	Dakar, Senegal	sahide@betaenergy.sn	
Private sector	Sen Technologie Power	Distributeur	Mme Gueye	Dakar, Senegal		tel:(221) 33 823 62 14

Private sector	Senegal Technologies	Distributor: solar product (including lamps, torches and bulbs: vitron and solex brand), onduleur, regulateur, battery, alarm, video surveillance, telecom	Papen SENE	Dakar, Senegal	papesene8@gmail.com	Derkle Darou Salam Villa 12 Tel: (221) 33 850 15 30 / 33 864 49 85 Port. Resp.:(221) 77 631 78 19
Private sector	Fisher group	High potential client	El Hadli Fode Fall (221): 77 624 72 12 Ablaye Thiam: 77 730 42 38/77 925 96 25 Badara Thiam: 77 602 24 44 Doudou Thiam: 77 630 65 42 Badou Sarr:77 177 43 52 Arfang Thiam: 77 440 60 39 Lamine Thiam: 77 528 52 78	Thies, Senegal		Ndangane Sambou Village
Private Sector	Directoir National des Femmes en Elevage	High potential client	Mme Oumou Khaïri Diallo	Kaolack, Senegal	dinfelsenegal@yahoo.fr	Tel: (221) 77 571 47 71

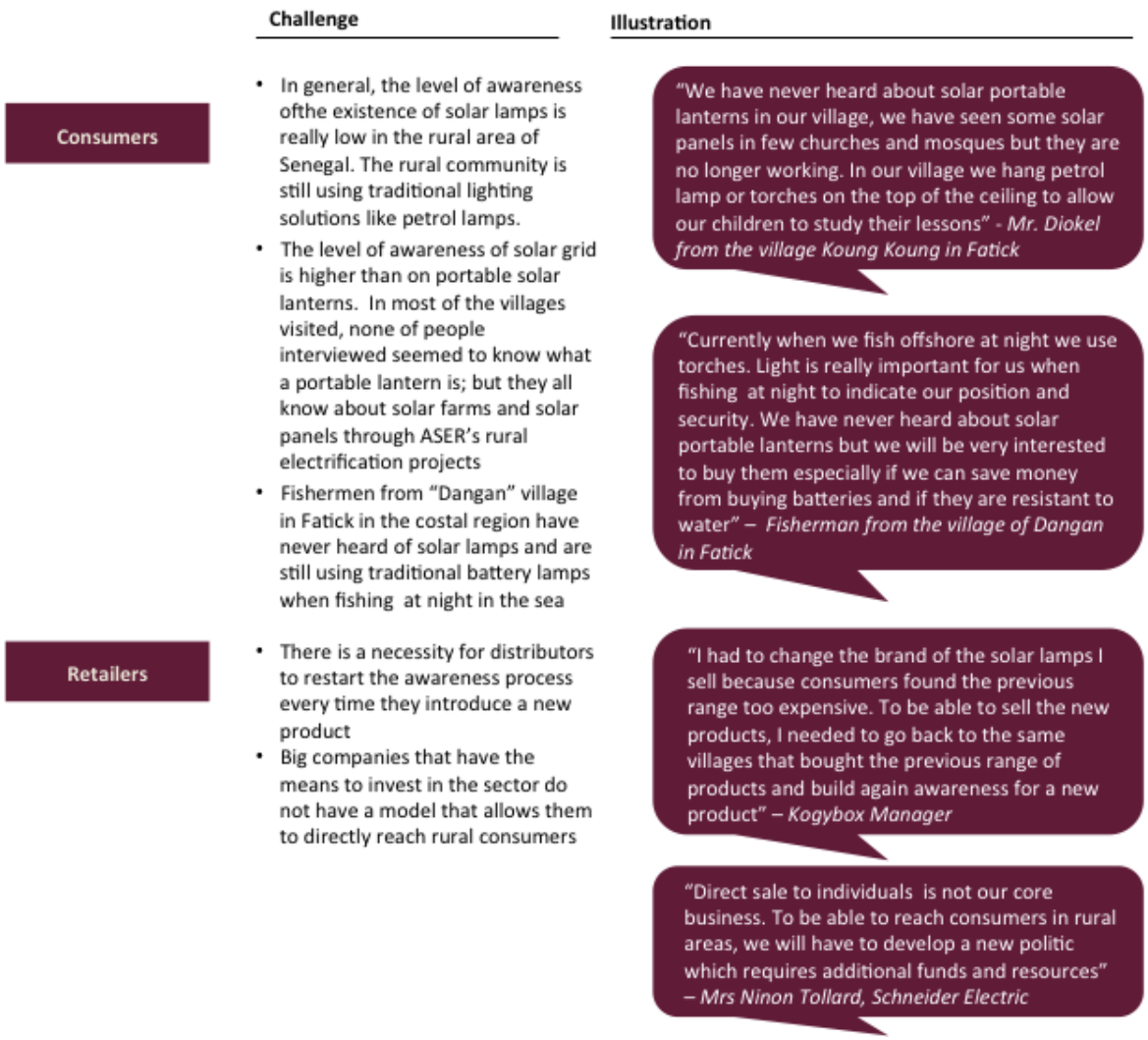
Private sector	Forever Living Products	Distributors of Aloe Vera Products	Country Manager: Biram Fall Marketing Manager: Oumar Sall	Senegal, Mali, Ivory Coast, Ghana, Togo, Nigeria, Mauritania, Guinea Bissau, Guinea and Gambia	bfall@foreversenegal.com osall@foreversenegal.com	Phone: (+221) 33 869 3940 Fax: (+221) 33 820-6691

For the larger and/ or (future) influential players we integrated the initial list of contacts with relevant data points to complement the understanding of the market players.

ANNEX 4. FURTHER DETAILS ON THE CHALLENGES EXPERIENCED IN CURRENT SPL DISTRIBUTION

Low awareness of SPLs by both consumers and retailers is particularly true in rural areas. Compared to East Africa, awareness on solar lighting technology is even lower limiting incentives for distributors.

Figure 13: Interview findings on awareness for consumers and retailers



Low consumer affordability and access to finance with high prices being largely driven by high tax rates, and cheaper low quality 'imitation' products possibly spoiling the market.

Despite being the port of entry for West Africa (and thus having lower transportation costs), Senegal faces very high consumer prices, a great deal of which is tax driven by a combination of 25% import tax and 18% VAT.

From a wide range of interviewees, we heard about both the challenges of affordability and access to finance for consumers due to high tax and low quality products.

Figure 14: Interview results on affordability and access to finance for consumers and retailers

	Challenge	Illustration
Consumers	• Given the lack of access to consumer credit for consumer, higher prices for portable solar products drive demand towards cheaper and low quality Chinese alternatives	"We already heard about the solar lamp but we do not know where to find good quality lamps at a reasonable price . We are really interested in buying solar lamp but we will need credit for that. Solar lamp will be extremely important for us for many reasons including: security, to be able to extract milk early in the morning and watch over livestock at night" - *Mme Oumou Khaïri Diallo president of DINFEL association (Le Directoire national des femmes en élevage)* "High tax on solar energy makes it difficult for people in rural area to buy products" – *Global Village Energy Partnership*
Retailers	• All importers/ distributors mentioned the current tax system as a major obstacle for the further development of the distribution of solar portable lanterns. Furthermore, the large majority of retailers mentioned either tax system directly or product price/ affordability	"A key incentive for the promotion of solar lamps in Senegal would the exemption from customs duties and VAT. Today VAT is 18% and custom duties 25% representing at least 30% of the sale price. An exemption will allow us to considerably lower the price" – *Mr. Cedric Guillemot, Total* "Taxation makes the product more expensive. The more taxes there are, the more the products will be expensive" - *Station Energy Services*

The existing practice of consumer credit is very informal. A number of options can be tapped into, but none of them will be able to build on a strong existing practice.

Figure 15: Overview of current credit practices

		General practice on consumer credit in Senegal	Current practice with respect to SPLs in Senegal
Financial sector	Shops	• No formal consumer credit system (no standard installment-based payment option) • Shop may grant credit on an individual trust-basis	• Occasional trust-based credit • Shops more likely to provide credit if back by trade credit from supply chain or if supported by NGO investment
	Informal	• Well-established practice of credit and saving circles, both for predefined goals and 'general' saving instruments	• Examples of use of savings circles for SPLs • No dedicated circles for SPLs yet

	MFIs	• Can provide credit to buy products, if the client has a steady revenue that will allow him to reimburse the credit and has an account in the IMF
		  • If you are an employee in a company, you possess an account in the MFI and have your employer pay your wages straight on to your current account.
			• Isolated examples of consumer loan for commercial use
			• Use is limited due to :
			  • Low willingness to participate from MFIs due to high risk
			  • High interest charged

	Commercial banks	• Consumer credit available for a small subset of potential customers: • You are an individual and you have an account in the bank, you can justify you have enough revenue to reimburse the credit within the allocated time and can you can provide a warrantee or caution	• No practice of credit for SPLs

Low retailer affordability and access to finance: retailers hesitate to stock SPLs because of the significant capital lock-in upfront

Figure 16: Interview findings on retailer affordability and access to finance

ANNEX 5. OVERVIEW OF AVAILABLE SPL BRANDS AND PRICES[25]

Name of product	Retail price F CFA (€s)	City/ Village	Area (urban/rural)
Met Lighting Africa's Minimum Quality Standards			
Greenlight Plane (Sun King – ECO)	7,500 (€11.43)		Rural
Greenlight Plane (Sun King – SOLO)	10,500 (€16.01)		Rural
Greenlight Plane (Sun King – PRO)	24,500 (€ 37.35)		Rural
d.light S10	7,000 (€10.67) 6,500 (€9.91)	Dakar Fatick	Urban Rural
d.light S250	20,000 (€30.49) 19,500 (€29.73)	Dakar Fatick	Urban Rural
SCHNEIDER ELECTRIC	30,000 (€45.73)	Dakar	Urban
IVT	30,000 (€45.73)	Dakar	Urban
STECA 220 -240 V	25,000 (€38.11)	Dakar	Urban
Little Sun *(distribution had not yet started at the time of writing)*	7,500 to 8,000 (€11.43 - €12.20)		Urban and rural
Sundaya U1, 2, 3 and 4 *(distribution had not yet started at the time of writing)*	40,000 - 130,000 (€60.98 - €198.18)	Dakar	Urban

[25] At the time of writing, July 2013

Name of product	Retail price F CFA (€s)	City/ Village	Area (urban/rural)
Have not been tested, or did not meet LA's Minimum Quality Standards			
PHLIGHT	5,000 (€7.62)	Fatick	Semi-Urban
Maxima 3W (Chinese product, looks very much like d.light S250/ S300	2,500/5,000 (€3.81 / €7.62) 5,000 (€7.62)	Dakar Fatick	Urban Semi-Urban
LED IBRIGHT	2,500 (€3.81)	Kaolack	Semi-urban
Britex	1,500/2,500 (€2.29 / €3.81)	Dakar	Urban
POOKIN	5,000 (€7.62)	Dakar	Urban
SOLARTEX	300/700/1,000 (€0.46/1.07/1.52)	Dakar	Urban
SKYPEN	1,500 (€2.29)	Dakar	Urban
NOKIA (Chinese)	2,000 (€3.05)	Dakar	Urban
LEU LIGHTS	2,300 (€3.51)	Dakar	Urban
Longlife	1,000/3,000 (€1.52 / 4.57)	Fatick	Semi-urban
Unknown Chinese brand	900/1,000/1,500 (€1.37/1.52/2.29) 3,000 (€4.57)	Dakar Fatick	Urban Semi-urban
KANY	1,000/1,500 (€1.52/2.29)	Kaolack	Semi urban
Orbiteck	2,000 (€3.05)	Kaolack	Semi urban

ANNEX 6. DESCRIPTION OF THE RESEARCH APPROACH, INCLUDING A LIST OF INTERVIEWS CONDUCTED

Data collection and definition of issues were based on document review, field research and interviews.

DOCUMENT REVIEW

The first phase was focused on web-based research and identifying and reviewing existing data and reports. A review of existing literature, previous studies on the off-grid electrification market, and available statistical studies on Senegal was undertaken.

FIELD RESEARCH

This initial desk review was complemented by on-the-ground field research targeted at the supply chains for solar powered lighting products and comparable goods targeted toward the BoP. Local surveyors who collected data in the field were instrumental in the execution of this field research.

The team conducted key interviews on the ground and stayed close to the data collection. A variety of instruments were used – most notably questionnaires, interviews and observation. To enhance quality and comparability, standard approaches and an accompanying data collection manual for use by the field enumerators was developed.

Necessarily, driven by the relatively short duration of this effort, field research could not be conducted in the entire country. The focus of the field research was on:

- *Kaolack* - a semi-urban area not in the immediate proximity of Dakar; solar lamp distribution projects have been carried out in some of the villages in the region (Thiombi, Ndiago, Ndiebel, Wack Ngouna, Kaymor, Keur Maba Diakhou). The region is the main peanut trading and processing center of the country
- *Fatick* - a rural area; the region is characterized by intense agriculture and by a fishery industry. Part of the rural community has been exposed to solar products.

These two regions have been chosen for their diversity across a few dimensions:

- Rural *versus* semi-urban area
- Economy based on agriculture *versus* economy based on secondary industry
- Presence *versus* absence of electrification projects
- Presence *versus* absence of solar lamp distribution projects

INTERVIEWS

Nearly 100 total interviews were undertaken.

71 interviews were undertaken with government representatives, donors, manufacturers, importers/distributors, and retailers across Dakar, and in the regions of Kaolack and Fatick. In addition, approximately 20 interviews were conducted with consumers. Most of them were face-to-face interviews, the remaining were conducted over the telephone or Skype. A full list of interviews (excluding the consumer interviews) is included below.

Nr.	Group	Organization	Role played in value chain
1	Donor	UNDP Senegal	Promotion of solar energy
2	Donor	PERACOD/GIZ	Promotion of sustainable rural electrification and supply of sustainable improved cook stoves
3	Education	Primary School Keur Mamou Ndary (Bibliotheque Solaire s/c Sonny Money)	Distributors of solar lamps
4	Education	Primary School Gapakh	Distributors of solar lamps
5	Government	Ministry of Energy (MOE)	The MOE is responsible for the preparation and implementation of the sector policy defined by the Government of Senegal (GoS), the development of the national electrification plan, and standards applicable to the sector. The Ministry grants licenses and concessions upon the advice of the Commission of Energy Sector Regulation.
6	Government	Senegalese Agency for Rural Electrification (ASER)	ASER is a public corporation of the MOE, with technical and financial autonomy. ASER is responsible for promoting and developing rural electrification nationwide, with the exception of the SENELEC concession areas.
7	Government	The Inter-ministerial Committee on Renewable Energy (Comité Interministériel sur les Energies Renouvelables, or CIER)	It has been charged, among other tasks, with coordinating the policies for integration of renewable energy and the grid code. Their finalization will assure more coherence in integrating renewable energy into the interconnected grid.

Nr.	Group	Organization	Role played in value chain
8	NGO	ENDA Energie Environment Développement	ENDA is an NGO that advises and conducts studies for public and international institutions on energy and environmental issues. ENDA also owns some programs that aim to promote renewable energy and protect the environment
9	NGO	Global Village Energy Partnership	Supports and advises SME energy enterprises in poor rural and peri-urban areas in Senegal
10	NGO	VILLA SOLAIRE (NDEF LENG)	Installer and service provider of solar solutions
11	NGO	Solar Aid/SunnyMoney	Distribution of solar portable lamps in 58 schools, awareness building
12	Private sector	KAYER	Import, distributor, retailer and provider of solar service solutions: Solar lamps, solar kits, batteries, solar panels
13	Private sector	Service de l'Energie en Milieu Sahélien (SEMIS)	Market research agency
14	Private sector	Sahel Energie Solaire	Distributor and installer: Solar equipment, installation and maintenance, photovoltaic and hybrid
15	Private sector	AfriWatt	Distributor and Retailer: Commercial solar modules, accessories, solar water heaters, provider and installer of individual water pumps
16	Private sector	STATION ENERGY SOLAIRE	Distributor and retailer: solar lamps, solar panels, generators and other associated solar equipment
17	Private sector	KOGYBOX	Retailers: Commercialize solar lamps
18	Private sector	TOTAL (AWANGO)	Importer, Distributor and retailer:
19	Private sector	Schneider BiBBOP program	Provider of solar solutions
20	Private sector	TAO (Tenesol Afrique de l'Ouest) SUNPOWER	Service provider of solar solutions, Does not sell solar lamps

Nr.	Group	Organization	Role played in value chain
21	Private sector	Raw Material Company	Distributor of solar lamps
22	Private sector	TEEFA LIGHTING SENEGAL	Distributor of solar lamps
23	Private sector	GSERM	Installer and electricity provider: Provides 50 and 80 w solar kits. Offers decentralized rural electrification with PV system in the region of Anambé B. Transformation of mini diesel farm into hybrid biodiesel / PV system
24	Private sector	ENERCOM	Retailer and installer: Inverters, solar panels, batteries, regulators, lamps, phone chargers
25	Private sector	TOP ENERGIE (Two shops)	Distributor and retailer: Inverters, Regulators, batteries, solar panels
26	Private sector	ENERGECO	Distributor and retailer: Solar panels, water pumps, air conditioners
27	Private sector	WADE & FRERES	Engineer services, no longer operating in the solar sector
28	Private sector	SAUDEQUIP Electric	Service provider: Mines, Travaux publics, Energy, and the brands, Hyster, Atlas Corpo
29	Private sector	NRJ & Solaire	Retails and repairs: Solar panels, batteries, inverters, lamps, torches, regulators, solar water heater, solar televisions, solar air conditioners, solar refrigerators
30	Private sector	EQUIP PLUS	Distributor and installer: Water pumps, solar panels, inverters, batteries, regulators
31	Private sector	SOLAR CITY	Retailer and installer: Solar solutions, solar lamps, solar kits, solar torches, phone rechargers
32	Private sector	BUSNESS FORCE	Distributor, retailer, installer: Solar lamps, solar torches, solar kits, batteries, water heaters, inverters
33	Private sector	SOREXCRIM	Distributor and retailer: Solar lamps, solar torches, solar batteries for mobile phone, solar kits

Nr.	Group	Organization	Role played in value chain
			Quincaillerie, Plumbing, cleaning equipment, electric inverter, farming equipment
34	Private sector	DJIMAQ ENERGIE	Distributor and retailer: Solar lamps, solar panels, solar torches, solar batteries, farming equipment, generators, inverters
35	Private sector	ELEKTRON SENEGAL	Distributor and retailer: Solar kits, regulators, batteries, solar bulbs, solar televisions, solar water heaters
36	Private sector	Paroisse Village Niakhar	Retailer: Solar lamps
37	Private sector	Quincaillerie	Retailer: Former retailer of solar lamps seeking for a distributer to restart the business again
38	Private sector	Quincaillerie Khadim Rassol	Retailer: Solar lamps
39	Private sector	Quincaillerie Senghor et Frere	Retailer: Solar bulbs
40	Private sector	Quincaillerie Touba Khelcom	Retailer: Solar panels, batteries, Inverters
41	Private sector	Quincaillerie Gene Sant Serigne Saliou	Retailer: Solar bulbs
42	Private sector	Quincaillerie Touba	Retailer: Solar lamps
43	Private sector	GIE Ngaraf	Distributor: solar lamps ,solar televisions
44	Private sector	Touba Solar	Distributor and Retailer: solar lamps, solar panels, batteries, inverters
45	Private sector	SATECH	solar panels, inverters, batteries, mini kits, spot solar, chargers, mp3 players
46	Private sector	Solar COM	Installer: Solar farm Distributors: generators, batteries
47	Private sector	SOS ENERGIE	Retailer: batteries,inverters,solar panels,regulators,solar heaters, solar refrigerators, solar fans

Nr.	Group	Organization	Role played in value chain
48	Private sector	IGOL	Retailer
49	Private sector	NS RESIF	Distributor and installer of chargers, batteries, solar kits, solar lamps
50	Private sector	OPROST ENERGIE	Distributor and installer: solar panels, regulators, inverters
51	Private sector	OKM MBAYE & FRERES	Distributor and Retailer: Bulbs, batteries, solar panels, refrigerators, freezers
52	Private sector	QUINCAILLERIE LANSAR	Distributor and retailer: solar lamps, solar panels, batteries, inverters
53	Private sector	SATECH	Distributor and retailer: Inverters, solar panels, batteries, mini solar kit, spot solar, LED lamps RGB 3w, LED tube LED, spot LED
54	Private sector	ESM Electrique	Retailer: solar panels, regulators, batteries, inverters
55	Private sector	Quincailerie Etoile	Retailer
56	Private sector	Quincaillerie Qinou Mady	Retailer: Solar equipment
57	Private sector	TOTAL (Retailer)	Retailer: solar lamps
58	Private sector	GIE Serigne Mourtada Mbacke	Retailer: solar kit with charger, lamp, battery
59	Private sector	Touba Taif	Retailer: solar panel, solar lamp, battery, regulator, inverter
60	Private sector	Quincaillerie Keur Khadim	Retailer: battery, solar lamp, solar panel, inverter
61	Private sector	WADE & FRERES	Retailer: regulator, battery, solar lamp, inverter,
62	Private sector	UAVDN	Retailer of solar products
63	private sector	ENERGIE-R	Distributor and Retailer and installer: batteries, solar lamp
64	Private sector	SEEE	Installer/Distributors: Solar electrification , solar pupms, Solar farms, solar installation for

Nr.	Group	Organization	Role played in value chain
			companies and individuals
65	Private sector	Saloum Electronique	Retailer: portable charger, regulator, inverter
66	Private sector	Beta Energie Afrique	Distributor: solar panel, regulator, inverters, battery, solar accessories
67	Private sector	Sen Technologie Power	Distributor
68	Private sector	Senegal Technologies	Distributor: solar product (including lamps, torches and bulbs), inverter, regulator, battery, alarm, video surveillance, telecom
69	Private sector	Fisher group	strong potential client
70	Private Sector	Directoir National des Femmes en Elevage	strong potential client
71	Private sector	Forever Living Products	Distributors Aloe Vera Products