OFF GRID MARKET STUDY - ETHIOPIA

RETAIL AUDIT, PRODUCT EVALUATION & AFTER SALES SERVICE REPORT

PREPARED FOR: IFC/WORLD BANK GROUP
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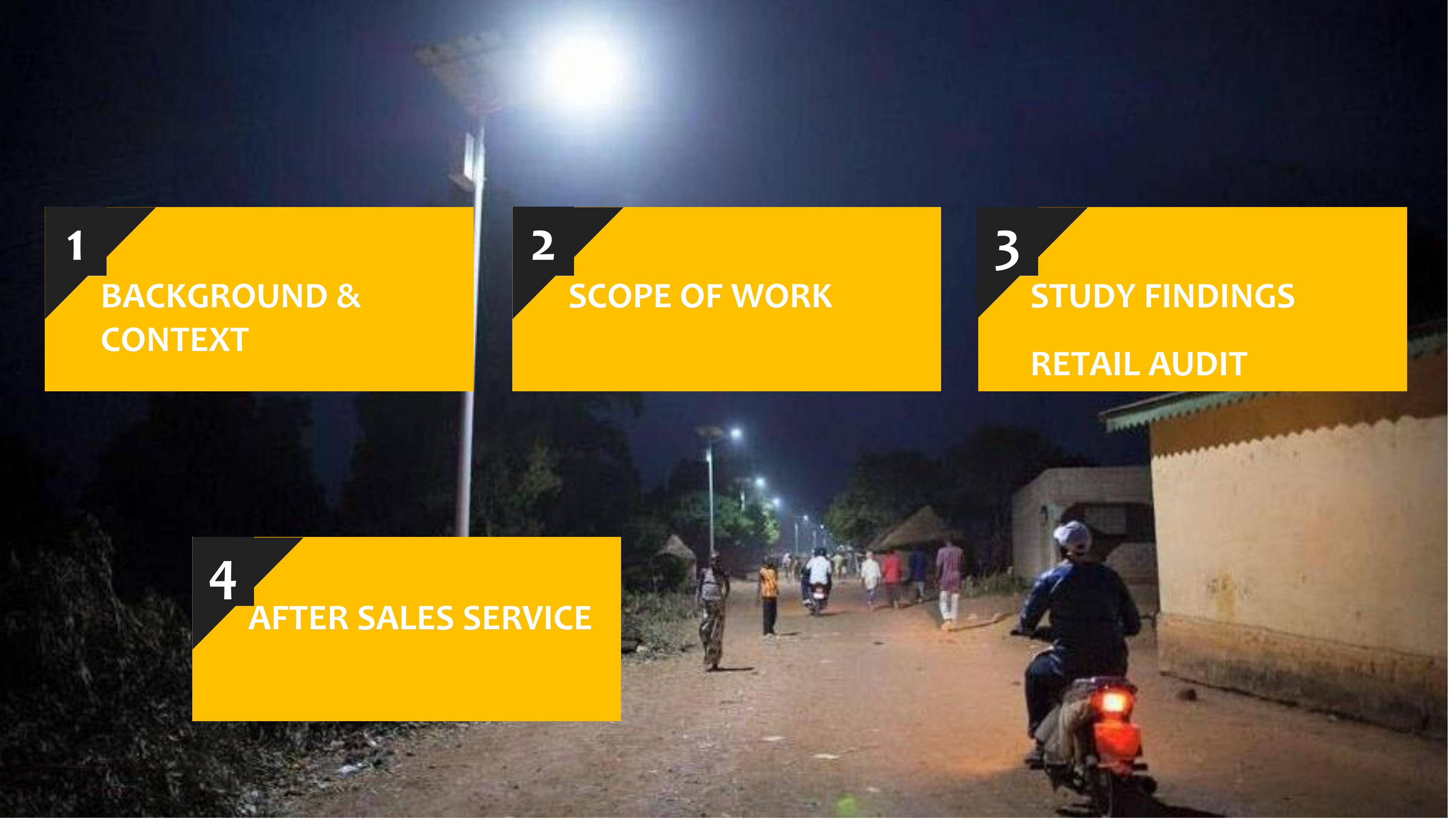
OPERATIONAL DEFINITION OF TERMS

GROCERIES	▪ Outlets with selling area between 10 and 100 m2. ▪ Retail outlets of fixed and non-fixed building structure. ▪ Located in both urban and rural areas. ▪ Over the counter service. ▪ Handle wide variety of products – clothes, shoes, hardware, etc. ▪ Also handle food and drugs (FMCG) but at a small scale.
SOOK	▪ Selling area approximately below 10 m2. ▪ Fixed & non-fixed structures / non-permanent located in both urban & rural areas. ▪ Over the counter service. ▪ Handle mainly non-durables & products with high turnover e.g. milk, cigarettes, soft drinks, soaps and airtime. Could offer on-trade consumption of hot & cold drinks.
POSTAL OFFICE	▪ Outlets stocking/retailing Sunking products across the country.
WHOLESALERS/DISTRIBUTORS	▪ Stockists of solar and or electrical products, not food stuffs (non-edibles).
ASSOCIATES	▪ Stockists/retailers handling LA verified products.
NON-ASSOCIATES	▪ Stockists/retailers handing non-verified products by LA.
MARKET PENETRATION	▪ Refers to the availability of solar lighting products in the market (outlets stocking products).
MARKET SHARE	▪ Percentage of market (solar products) held by associate and non-associate products.



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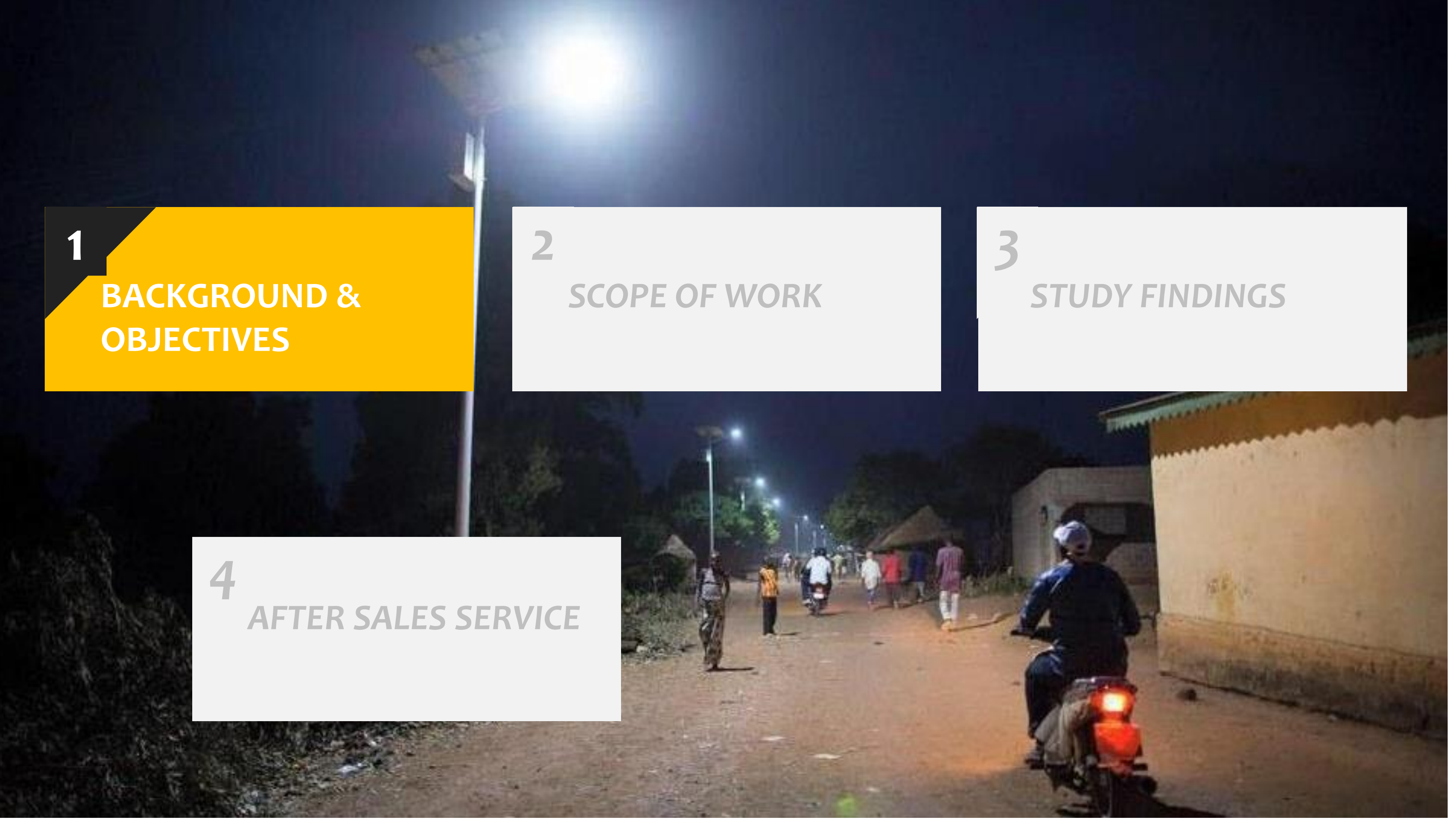

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LIGHTING AFRICA	LA'S MANDATE	WHY THE STUDY
Lighting Africa (LA) is a joint IFC and World Bank program, seeking to accelerate the development of commercial off-grid lighting markets in Sub-Saharan Africa as part of the World Bank Group's wider efforts to improve access to energy.	Through the provision of targeted activities designed to overcome **market barriers** and facilitate market entry on behalf of industry interest, the Lighting Africa Program is addressing the gaps across the supply chain with the ultimate objective of **facilitating access to modern off-grid lighting options** which offer superior quality and safety, **at affordable prices** for consumers across the African continent.	Lighting Africa Ethiopia sought to understand the solar supply chain in Ethiopia against a background of increased products and growth of the sector. This report presents findings from the retail audit, product evaluation & after sales services research segments undertaken in the market.

Study Objective & Scope

The Overarching Objective of the Research was to provide a comprehensive retail, supply and value chain analysis of the market for off grid lighting products in Ethiopia.

Objective #1

Retail Audit of retailers carrying solar lighting products

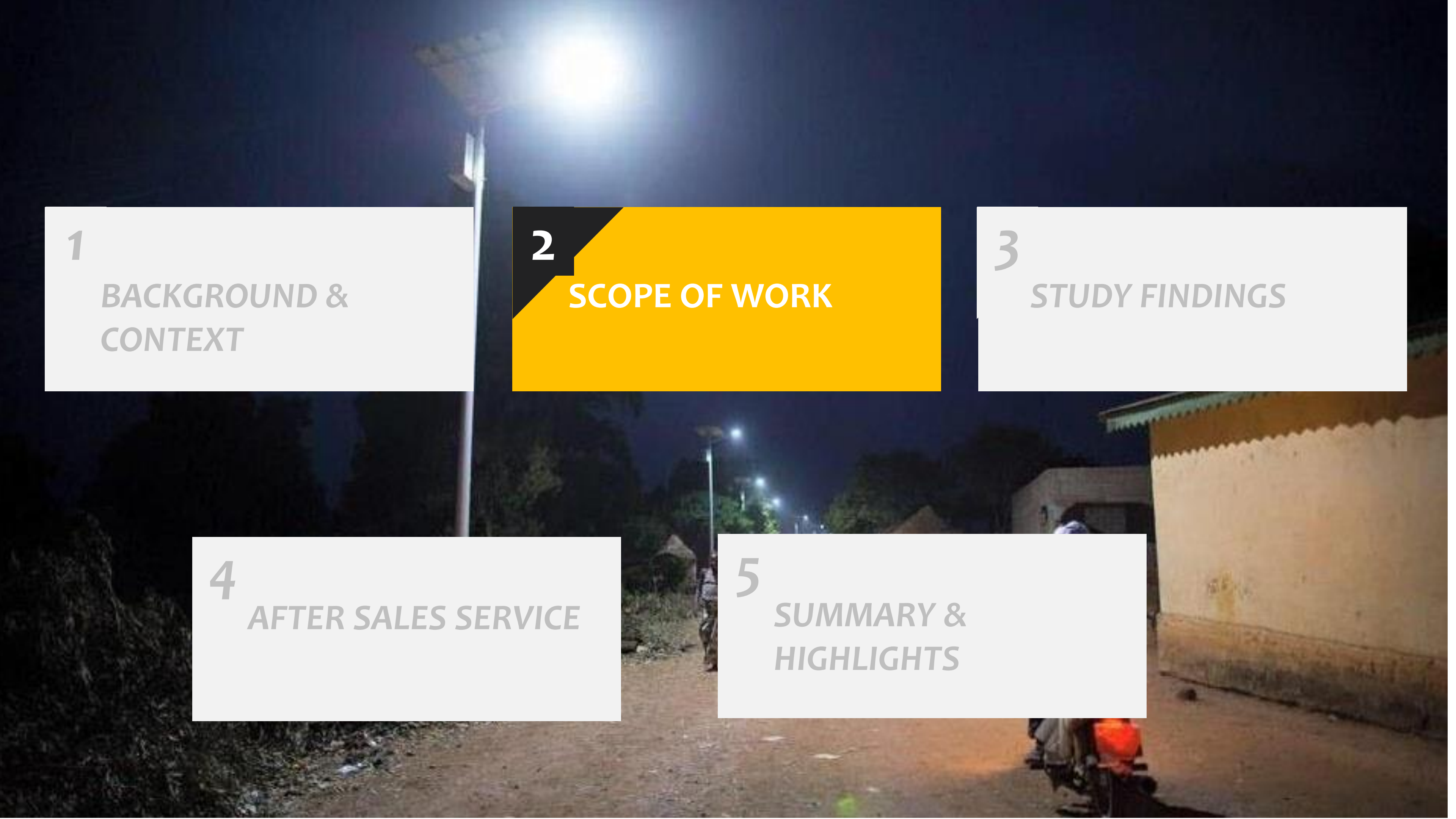
Objective #2

Evaluation of solar products available in the market

Objective #3

Analysis of the after sales service of solar lighting products

The findings and recommendations from the study will provide insights for the development of market entry strategies for manufacturers, distributors and retailers of off-grid lighting products, seeking to serve the Ethiopian market.



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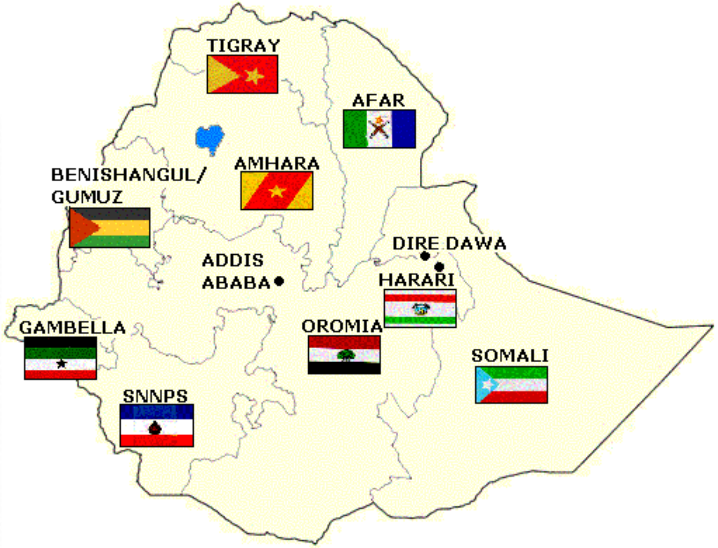
GEOGRAPHICAL SCOPE

All the regional states of Ethiopia were scoped by the research and segmented as follows;

REGION	TIER 1	TIER 2
Addis Ababa	Addis Ababa	
Afar	Asayita	Awash, Sebat kilo
Amhara	Bahir Dar	Debre Markos, Gonder, Kombolcha
Benishangul-Gumuz	Assosa	
Dire Dawa	Dire Dawa	
Harar	Harar	
Oromia	Adama	Jimma & Sebeta
Somali	Jigjiga	
Tigray	Mekelle	Adigrat
SNNP	Hawassa	Sodo & Arbaminch



Definitions:

- Tier 1: highly urbanized regions
- Tier 2: peri-urban to rural based regions.

PRODUCT SCOPE

Solar lanterns & solar home systems/kits were defined as follows;

SOLAR LANTERN

- Single lighting point
- Panel is either separate or attached to the lantern
- Portable (one can move around with it)

SOLAR HOME SYSTEM/KIT

- Multiple lighting points
- Separate panel
- Not portable (is fixed and one cannot move around with it)

Images only used for illustrative purposes

LIGHTING AFRICA

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OUTLET SCOPE

Outlets scoped were those perceived to have "potential" of stocking solar lighting products

Grocery: Handle wide variety of products – clothes, shoes, hardware, etc. also handle also food and drug FMCG but at a small scale.

Sook: Selling area approximately below 10 m2

Hardware Shop: Trade a wide variety of household building materials.

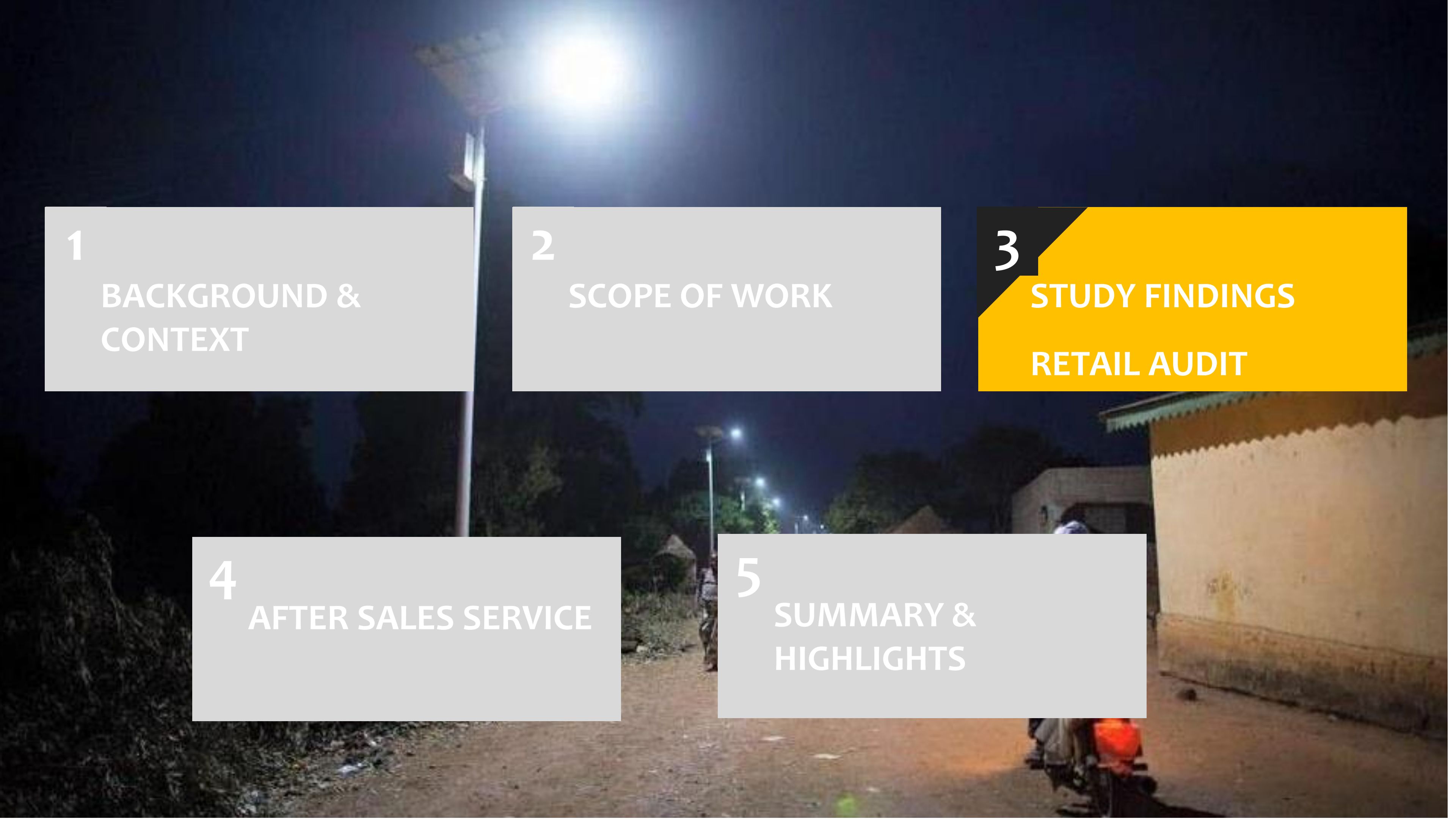
Mobile Phone Shop: Sell new/old mobile phones, phone accessories, and scratch cards.

Electronics & Electrical Shop: Trade household electronics like TV, radios, fridges etc.

Mini market; Outlets with selling area between 100 and 500 m2

Supermarket: Outlets with selling area between 500 and 999 m2; mainly self-service

Sooks & groceries were scoped in the survey due to their high penetration in the market. This presents an opportunity that can be explored in carrying/stocking solar lighting products and hence increase penetration of the product in the market



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SUMMARY & HIGHLIGHTS

POTENTIAL OUTLET PENETRATION

Sooks are the outlets with the highest penetration in the market(56%). This presents an opportunity that can be explored to increase penetration of solar lighting products in the market.

	Total	Tier 1	Tier 2	Addis Ababa	Afar	Amhara	Benishangul -Gumuz	Dire Dawa	Harar	Oromia	Somali	Tigray	YeDebub (SNNPR)
	29,832	24,871	49,61	13,835	257	4,083	429	1,565	1,069	3,191	995	2,001	2,407
Sook	16,758	13332	3426	40%	1%	17%	2%	6%	3%	12%	3%	7%	9%
Hardware Shop	4,075	3627	448	60%	1%	10%	1%	4%	3%	7%	2%	8%	6%
Grocery	2,652	2401	251	43%	1%	6%	1%	12%	9%	12%	9%	4%	5%
Mobile Phone Shop	2,435	2051	384	55%	1%	14%	2%	2%	2%	10%	1%	8%	7%
Electricals Shop	2,115	1935	180	60%	1%	8%	1%	3%	3%	5%	2%	7%	8%
Electric Repair Shop	682	522	160	31%	1%	20%	2%	1%	2%	10%	2%	15%	17%
Wholesalers & Distributors	427	400	27	68%	-	9%	-	5%	2%	-	14%	1%	-
Hawker	330	291	39	43%	-	13%	3%	8%	5%	14%	6%	-	8%
Mini supermarket	139	132	7	83%	-	1%	-	-	1%	2%	1%	7%	5%
Petrol Station	73	62	11	59%	1%	8%	-	4%	4%	14%	1%	3%	5%
Solar Products Shop	70	60	10	57%	1%	11%	-	4%	7%	10%	-	1%	7%
Supermarket	33	29	4	73%	-	10%	-	-	-	3%	-	7%	7%
Solar Repair Shop	24	17	7	46%	-	33%	-	4%	-	12%	-	4%	-
Postal office	19	12	7	42%	5%	26%	-	-	-	5%	-	5%	16%

n=29,832

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LIGHTING AFRICA Catalyzing markets for modern off-grid lighting
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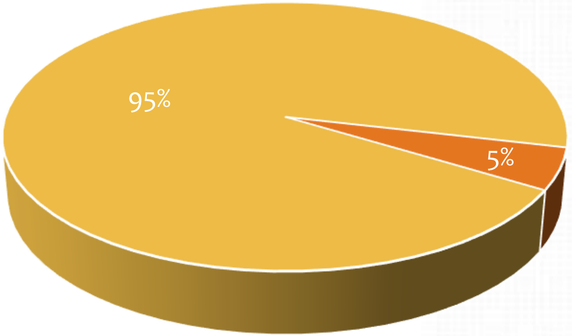
SOLAR HANDLING INCIDENCE

Solar lighting products have a retail penetration of 5%. Tier 2 regions have a higher penetration of solar than tier 1. An indication of where the highest need for solar is (rural). Afar region has the highest handling incidence (9%).

DO YOU STOCK/REPAIR SOLAR LIGHTING PRODUCTS?



Solar handling incidence by tiers	Total	Tier 1	Tier 2
	5%	5%	7%

STOCKING INCIDENCE BY REGIONS	Total Outlets	Outlets Stocking Solar	% Stocking Incidence
Overall	**29,832**	**1,524**	**5%**
Addis Ababa	13,835	518	4%
Afar	257	23*	9%
Amhara	4,083	276	7%
Benishangul-Gumuz	429	30	7%
Dire Dawa	1,565	71	5%
Harar	1,069	71	7%
Oromia	3,191	177	6%
Somali	995	70	7%
Tigray	2,001	128	6%
YeDebub (SNNPR)	2,407	160	7%

* Small base

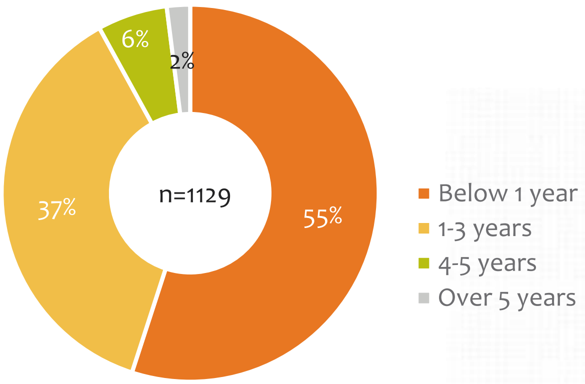
SC1. Do you STOCK OR REPAIR any solar lighting products (lanterns or solar home kits), whether currently in stock or not?

n=29,832

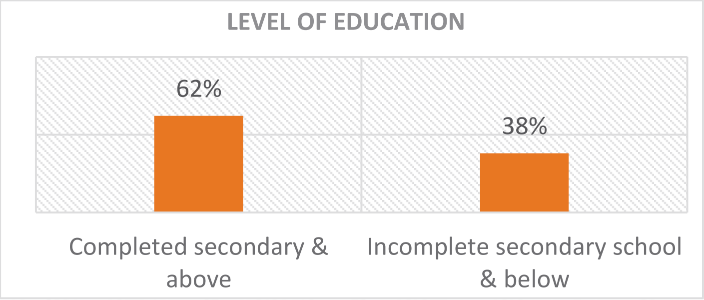
SOLAR RETAILER DEMOGRAPHICS

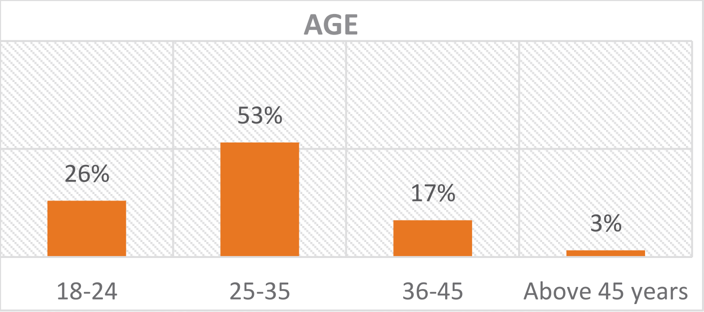
55% of solar retailers have stocked the products for less than a year, an indication of growing interest/momentum in the sector and a possible indicator of the potential that exists. Most of these young retailers in the business are in tier 2, an indication of where the growth and potential lies.

RETAILER YEARS IN SOLAR BUSINESS



	TOTAL	TIER 1	TIER 2
YEARS IN SOLAR BUSINESS	**1129**	**918**	**211**
Below 1 year	55%	54%	59%
1-3 years	37%	37%	35%
4-5 years	6%	6%	4%
Over 5 years	2%	3%	2%





D1. For how long has this outlet been operating in the solar lighting market?
D3. Please tell me, what is the highest level of education that you have achieved?
D4. Please tell me, how old are you?

n=1129

SOLAR HANDLING INCIDENCE BY REGION & TYPE OF OUTLET

Electronics & electrical shops account for the highest solar handling incidence (40%). This could explain the low penetration of the product given the low incidence of the electronic shops in the universe (29,832). Pushing the products to the Sooks & hardware shops would help increase access. Electrical stores in Dire Dawa registered the highest handling incidence (63%).

	Total (n=1524)	Addis Ababa (n=518)	Afar (n=23*)	Amhara (n=276)	Benishangul-Gumuz (n=30)	Dire Dawa (n=71)	Harar (n=71)	Oromia (n=177)	Somali (n=70)	Tigray (n=128)	YeDebub (SNNPR) (n=160)
Electronics & Electricals Shop	40%	47%	57%	26%	30%	63%	41%	29%	56%	37%	40%
Electric Repair Shop	20%	9%	13%	28%	20%	8%	13%	25%	13%	30%	36%
Mobile Phone Shop	15%	14%	17%	21%	-	7%	15%	18%	10%	16%	15%
Sook	6%	5%	4%	13%	10%	3%	4%	2%	1%	13%	3%
Sale of solar lighting products	4%	7%	4%	3%	3%	4%	7%	3%	-	-	3%
Hawker	4%	3%	-	-	30%	3%	-	17%	13%	-	1%
Hardware Shop	3%	5%	4%	1%	3%	3%	6%	2%	-	2%	1%
Grocery	2%	1%	-	2%	3%	4%	13%	2%	6%	1%	1%
Petrol Station	2%	3%	-	1%	-	3%	1%	2%	-	-	-
Solar Repair Shop	1%	1%	-	2%	-	-	-	1%	-	-	-
Mini supermarket	1%	2%	-	-	-	-	-	-	-	-	-
Supermarket	1%	2%	-	-	-	-	-	-	-	-	-
Wholesalers and Distributors	1%	1%	-	-	-	1%	-	-	1%	-	-
Hyper market	-	-	-	-	-	-	-	-	-	-	-

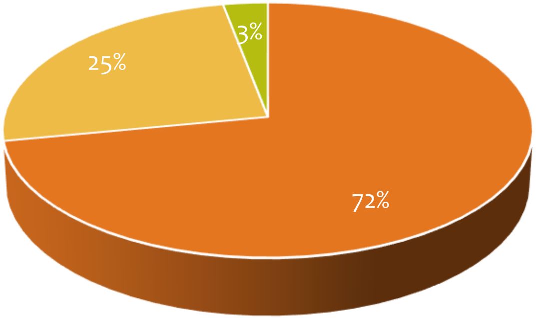
SC1. Do you STOCK OR REPAIR any solar lighting products (lanterns or solar home kits), whether currently in stock or not?

n=1524

SOLAR RELATED ACTIVITY UNDERTAKEN BY OUTLETS

The after sales service market (repair services) for solar lighting products is under served (ONLY ¼ of the market). Most of the current technicians are in tier 2 regions (38%). There is opportunity to train more technicians to help bridge the existing technical gap. Most of the current technicians are based in Amhara & Oromia regions.

SOLAR RELATED ACTIVITY UNDERTAKEN



n=1514*

- Sale of solar lighting products only
- Repair of solar lighting products only
- I engage in both of these activities

***Out of the 1524 outlets that handle solar lighting products, only 10 declined to participate in the interviews.**

SOLAR ACTIVITY UNDERTAKEN		SALE ONLY	REPAIR ONLY	SALE + REPAIR
TOTAL	**100%**	**72%**	**25%**	**3%**
TIER 1	1174	75%	22%	3%
TIER 2	340	61%	38%	1%
Addis Ababa	511	83%	13%	4%
Afar	23	83%	17%	-
Amhara	275	63%	36%	1%
Benishangul-Gumuz	30	80%	20%	-
Dire Dawa	71	89%	8%	3%
Harar	71	87%	13%	-
Oromia	175	60%	36%	4%
Somali	70	86%	14%	-
Tigray	128	55%	41%	3%
YeDebub (SNNPR)	160	56%	42%	1%

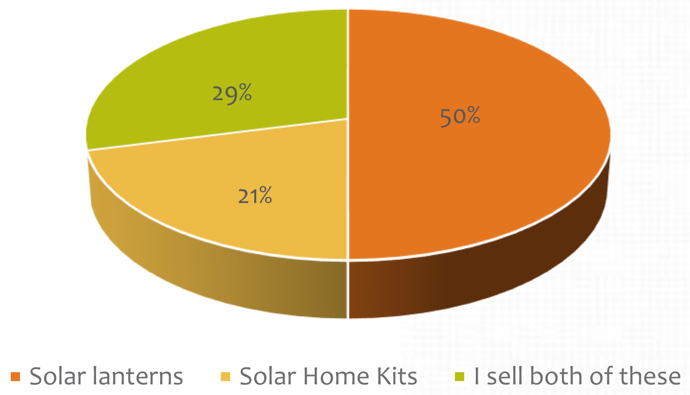
Sc3. Please tell me, which of the following activities related to solar products does this outlet engage in?

n=1514

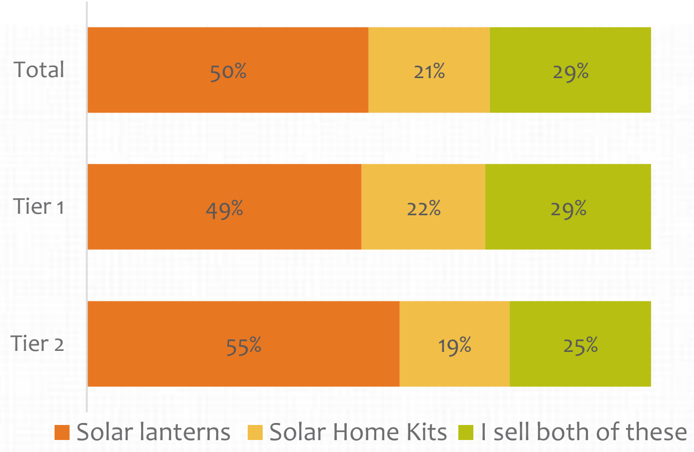
SOLAR PRODUCTS STOCKED

Solar lanterns are stocked more than kits. This could be attributed to insufficient capital by retailers to go for capital intensive solar kits and/or low purchasing power of the consumer. Lanterns are more popular in tier 2 (55%) than tier 1 (49%). Solar kits on the other hand are popular in tier 1 areas (22%) probably driven by a higher purchasing power among urban consumers compared to rural based consumers.

SOLAR PRODUCTS STOCKED BY OUTLETS



PRODUCTS STOCKED BY TIERS



SC4. Please tell me, which solar lighting product do you stock?

n=1129

Whilst Tigray region has the highest incidence of solar lanterns (76%), retailers in SNNPR region have the highest stocking incidence of solar kits (48%)

	Total (n=1129)	Tier 1 (n=918)	Tier 2 (n=211)	Addis Ababa (n=444)	Afar (n=19*)	Amhara (n=176)	Benishangul-Gumuz (n=24*)	Dire Dawa (n=65)	Harar (n=62)	Oromia (n=112)	Somali (n=60)	Tigray (n=75)	YeDebub (SNNPR) (n=92)
Solar lanterns	50%	49%	55%	45%	32%	53%	71%	43%	47%	54%	73%	76%	32%
Solar Home Kits	21%	22%	19%	26%	21%	15%	17%	11%	19%	19%	2%	7%	48%
I sell both of these	29%	29%	25%	29%	47%	31%	12%	46%	34%	28%	25%	17%	21%

An analysis of the types of products that the 1,129 retailers that stock solar products sell

SC4. Please tell me, which solar lighting product do you stock?

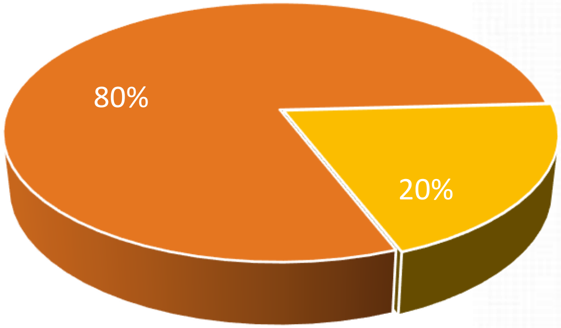
n=1129

SOLAR LANTERNS

PENETRATION OF SOLAR LANTERN RETAILERS

Non-Associate retailers have the highest market penetration (80%) compared to Associate retailers (20%). However, associate retailers are slightly more in tier 2 regions (21%) compared to tier 1 (20%). With the high penetration, non-associate retailer brands of solar lanterns account for a high proportion of products available in the market (89%).

PENETRATION OF ASSOCIATE VS. NON-ASSOCIATE SOLAR LANTERN RETAILERS



RETAILER PENETRATION BY TIERS

	TOTAL	TIER 1	TIER 2
Associates	20%	20%	21%
Non Associates	80%	80%	79%

NUMBER OF BRANDS/MODELS

	TOTAL	PROPORTION
Non- Associate	298	89%
Associate	37	11%
Total	**335**	**100%**

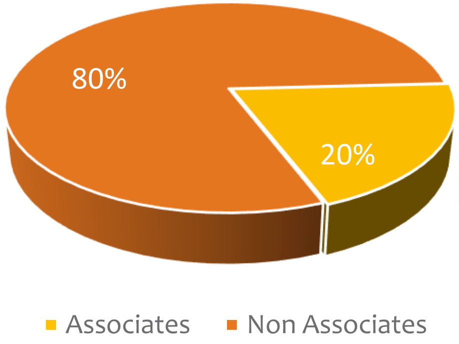
Q1a. Which brands of solar lanterns do you sell? Please tell me all the brands & models that you stock.

n=887

PENETRATION OF SOLAR LANTERN RETAILERS

Somali region recorded no incidence of Associate retailers. There is need to invest in recruitment of Associate retailers in Somali region in order to encourage adoption of quality assured products. On the other hand, SNNPR region recorded the highest penetration of associates at 30%. This incidence is however still very low.

PENETRATION OF ASSOCIATE VS. NON-ASSOCIATE SOLAR LANTERN RETAILERS



RETAILER PENETRATION BY REGIONS

	Total	Addis Ababa	Afar	Amhara	Benishangul-Gumuz	Dire Dawa	Harar	Oromia	Somali	Tigray	YeDebub (SNNPR)
	887	327	15	149	20	58	50	91	59	70	48
Non - Associates	80%	75%	87%	72%	75%	90%	96%	90%	100%	79%	70%
Associates	20%	25%	13%	28%	25%	10%	4%	10%	-	21%	30%

Q1a. Which brands of solar lanterns do you sell? Please tell me all the brands & models that you stock.

n=887

MARKET SHARE BY ASSOCIATE & NON-ASSOCIATE

- Associate lantern retailers represent 11% **of the brands** (slide 20) in the market yet, they own a 43% market share **on volume**
- SNNPR region has the highest market share **on sales volumes** of Associate products (87%) followed by Addis & Amhara regions at 65%

Non-Associate Brands

Total units stocked by retailers	290,199
Units stocked by Non-Associates	165,031
Market Share	57%

Associate Brands

Total units stocked by retailers	290,199
Units stocked by Associates	125,168
Market Share	43%

	TotalShare (n=887)	Addis Ababa (n=327)	Afar (n=15*)	Amhara (n=149)	Benishangul-Gumuz (n=20*)	Dire Dawa (n=58)	Harar (n=50)	Oromia (n=91)	Somali (n=59)	Tigray (n=70)	YeDebub (SNNPR) (n=48)
Non Associates	57%	35%	18%	35%	92%	99%	100%	98%	100%	47%	13%
Associates	43%	65%	82%	65%	8%	1%	-	2%	-	53%	87%

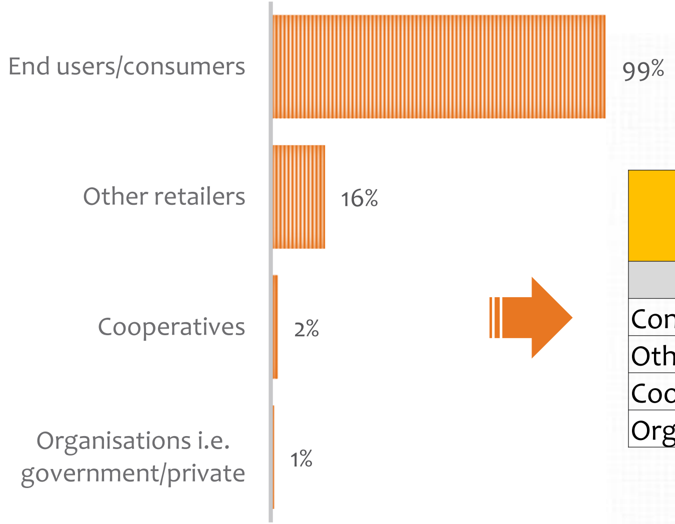
Q1f. On average, how many units of each of these brands do you buy at once when restocking?

n=887

TARGET CONSUMERS FOR LANTERN RETAILERS

End users are the main costumers targeted by retailers (99%). Retailers in Somali, Harar & Amhara regions also sell to other retailers.

WHO IS YOUR TARGET CONSUMER?



	Addis Ababa	Afar	Amhara	Benishangul-Gumuz	Dire Dawa	Harar	Oromia	Somali	Tigray	YeDebub (SNNPR)
	327	15	149	20	58	50	91	59	70	48
Consumers	99%	100%	99%	100%	98%	96%	100%	100%	99%	98%
Other retailers	14%	13%	20%	5%	7%	22%	16%	32%	11%	12%
Cooperatives	2%	13%	1%	-	-	-	1%	-	1%	6%
Organisations	1%	-	1%	-	-	-	1%	-	-	2%

Q1q. Please tell me, who are your target customers for solar lanterns?

n=887

PRODUCT FEATURES ASKED FOR BY CONSUMERS

Consumers of solar lanterns mainly consider affordable solar lanterns (52%) more so in tier 2 regions. This could explain the high penetration of lanterns in tier 2 than tier 1 regions. Hours of lighting (50%) & quality assurance (46%) are also key features asked for by consumers. Manufacturers can leverage on this attributes by communicating about them in order to attract consumers to their brands.

	TOTAL (n=887)	TIER 1 (n=717)	TIER 2 (n=170)	Addis Ababa (n=327)	Afar (n=15*)	Amhara (n=149)	Benishangul-Gumuz (n=20*)	Dire Dawa (n=58)	Harar (n=50)	Oromia (n=91)	Somali (n=59)	Tigray (n=70)	YeDebub (SNNPR) (n=48)
Cheaper/affordable products	52%	48%	66%	49%	47%	66%	80%	34%	34%	46%	37%	64%	65%
Hours of lighting	50%	49%	53%	50%	67%	58%	50%	53%	46%	35%	64%	27%	60%
Quality approved products	46%	46%	44%	46%	27%	35%	30%	45%	66%	48%	61%	40%	58%
Product life span	39%	38%	41%	43%	40%	49%	45%	34%	32%	30%	32%	20%	33%
Consumers ask (retailers) to recommend products for them	11%	12%	9%	9%	20%	11%	10%	17%	14%	11%	12%	11%	21%
Availability of aftersales service support	8%	7%	15%	10%	7%	20%	-	5%	-	5%	-	1%	2%
Product warranty	5%	4%	7%	5%	7%	9%	5%	3%	-	2%	-	6%	6%

Q1r. What do your customers ask for when they are considering which solar lantern to buy?

n=887

CHALLENGES IN RETAILING SOLAR LANTERNS

The current influx of low quality products is the retailers' main challenge (44%) especially in tier 2 regions (46%). This is mainly the case in Somali (this could be as a result of their close proximity to the port of Djibouti). Counterfeit products are another key challenge to the retailers (30%). Faulty products (22%) could be as a result of the low quality products in the market. This calls for measures to protect retailers of quality assured lanterns in the market.

	TOTAL (n=887)	TIER 1 (n=717)	TIER 2 (n=170)	Addis Ababa (n=327)	Afar (n=15*)	Amhara (n=149)	Benishangul-Gumuz (n=20*)	Dire Dawa (n=58)	Harar (n=50)	Oromia (n=91)	Somali (n=59)	Tigray (n=70)	YeDebub (SNNPR) (n=48)
Influx of fake/low quality products in the market	44%	43%	46%	43%	27%	42%	35%	52%	44%	45%	61%	36%	40%
Counterfeits products in the market	30%	32%	24%	28%	13%	32%	5%	47%	54%	21%	46%	17%	27%
Faulty products that lower customer trust in solar products	22%	21%	26%	21%	67%	25%	10%	21%	26%	22%	19%	17%	25%
High price of products/They are expensive	18%	16%	23%	15%	33%	26%	25%	19%	18%	13%	15%	1%	35%
Low consumer awareness of the products	17%	17%	16%	18%	0%	29%	15%	14%	18%	10%	12%	7%	10%
Insufficient technicians to handle repair issues	11%	9%	22%	7%	20%	23%	5%	3%	10%	9%	15%	1%	27%

Q1u. What do your customers ask for when they are considering which solar lantern to buy?

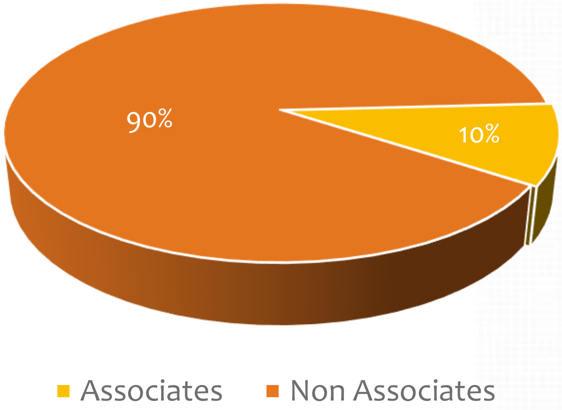
n=887

SOLAR HOME KITS

PENETRATION OF SOLAR KITS

Associate solar kits have a very low distribution penetration in the market (ONLY 10%) with a limited variety of brands and products offering in the market (8%).

PENETRATION OF ASSOCIATE VS. NON-ASSOCIATE SOLAR LANTERN RETAILERS



RETAILER PENETRATION BY TIERS			
	TOTAL	TIER 1	TIER 2
Associates	10%	10%	8%
Non Associates	90%	90%	92%

NUMBER OF BRANDS/MODELS		
	TOTAL	PROPORTION
Non- Associate	283	92%
Associate	25	8%
Total	**308**	**100%**

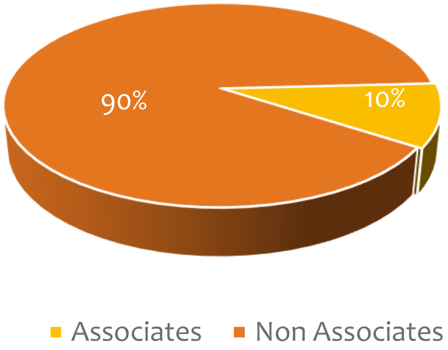
Q2a Which brands of solar home systems do you sell? Please tell me all the brands & models that you stock?

n=565

PENETRATION OF SOLAR KITS

Once again, we see that Somali region has no single incidence of associate kits in the region. There is need to recruit and incentivize solar kits retailers to encourage adoption of quality approved kits across the regions.

PENETRATION OF ASSOCIATE VS. NON-ASSOCIATE SOLAR LANTERN RETAILERS



RETAILER PENETRATION OF SOLAR KITS BY REGIONS											
	Total (n=565)	Addis Ababa (n=244)	Afar (n=13*)	Amhara (n=82)	Benishangul-Gumuz (n=7*)	Dire Dawa (n=37)	Harar (n=33)	Oromia (n=52)	Somali (n=16*)	Tigray (n=18*)	YeDebub (SNNPR) (n=63)
Non-Associates	90%	90%	92%	87%	75%	97%	97%	94%	100%	68%	92%
Associates	10%	10%	8%	13%	25%	3%	3%	6%	0%	32%	8%

* Small base

Q2a Which brands of solar home systems do you sell? Please tell me all the brands & models that you stock?

n=565

MARKET SHARE BY ASSOCIATE & NON-ASSOCIATE

- Associate lantern retailers represent 8% **of the brands** (slide 30) in the market yet, they own a 21% market share **on volume**.
- Amhara region has the highest market share **on sales volumes** of Associate products (71%) followed by Afar regions at 35%

Non-Associate Brands

Total units stocked by retailers	99,941
Units stocked by Non-Associates	78,499
Market Share	**79%**

Associate Brands

Total units stocked by retailers	99,941
Units stocked by Associates	21,442
Market Share	**21%**

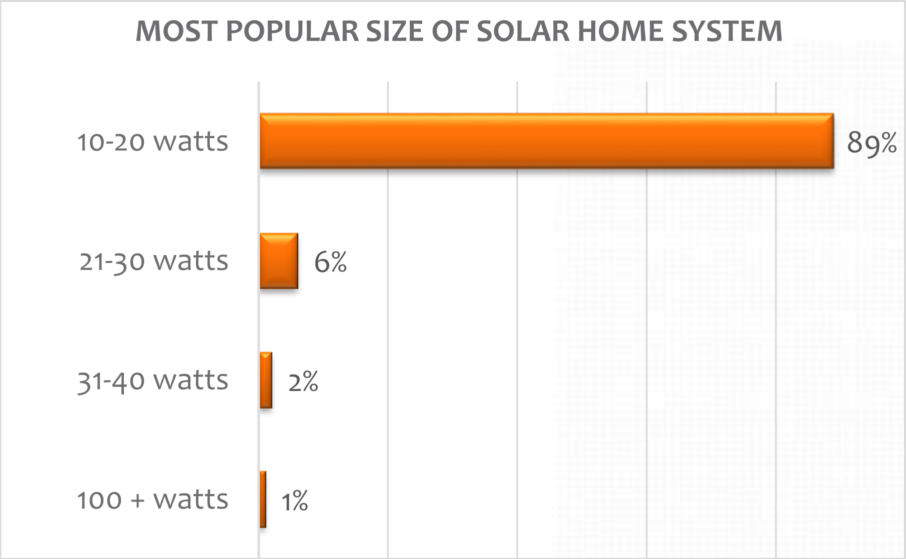
	Total Share	Addis Ababa	Afar	Amhara	Benishangul-Gumuz	Dire Dawa	Harar	Oromia	Somali	Tigray	YeDebub (SNNPR)
	565	244	13	82	7	37	33	52	16	18	63
Non-Association	79%	83%	65%	29%	69%	100%	90%	97%	100%	72%	76%
Association	21%	17%	35%	71%	31%	-	10%	3%	-	28%	24%

Q2f. On average, how many units of each of these brands do you buy at once when restocking?

n=565

LIGHTING AFRICA
AN INNOVATION OF WORLD BANK GROUP
THE WORLD BANK IFC

Small sized solar home systems are currently more popular (89%) in the market compared to larger units.



	TOTAL (n=565)	TIER 1 (n=471)	TIER 2 (n=94)
10-20 watts	89%	87%	96%
21-30 watts	6%	6%	3%
31-40 watts	2%	3%	1%

Q2i Which is the most popular size of solar home systems in terms of size and features?

n=565

MOST POPULAR FEATURES ASKED FOR BY CONSUMERS

Number of lighting points is the main product feature asked for by solar kit consumers (77%). Consumers in tier 1 tend to mainly ask for the number of lighting points for the kits. In terms of lighting hours, consumers in tier 2 tend to ask for this more (50%) than those in tier 1, probably because this is their main source of lighting. Price is a key factor for tier 2 consumers as most of them ask for this (66%) at the point of purchase.

	TOTAL (n=565)	TIER 1 (n=471)	TIER 2 (n=94)	Addis Ababa (n=244)	Afar (n=13*)	Amhara (n=82)	Benishangul -Gumuz (n=7*)	Dire Dawa (n=37)	Harar (n=33)	Oromia (n=52)	Somali (n=16*)	Tigray (n=18*)	YeDebub (SNNPR) (n=63)
Number of lights/lighting points	77%	78%	72%	80%	38%	73%	86%	76%	82%	79%	56%	56%	89%
Lighting hours	48%	48%	50%	43%	69%	62%	71%	59%	55%	25%	38%	44%	54%
Price	44%	39%	66%	35%	69%	63%	29%	30%	27%	48%	25%	61%	60%
Energy capacity	41%	39%	55%	41%	62%	43%	-	32%	39%	44%	56%	33%	43%
Quality	41%	40%	45%	39%	38%	51%	-	41%	45%	31%	56%	33%	43%
Multi functioning i.e. charging, Plays radio/TV/flash disk	3%	3%	3%	5%	-	2%	14%	-	-	6%	-	-	2%

* Small base

Q2r. What do your customers ask for when they are considering which solar home systems to buy?

n=565

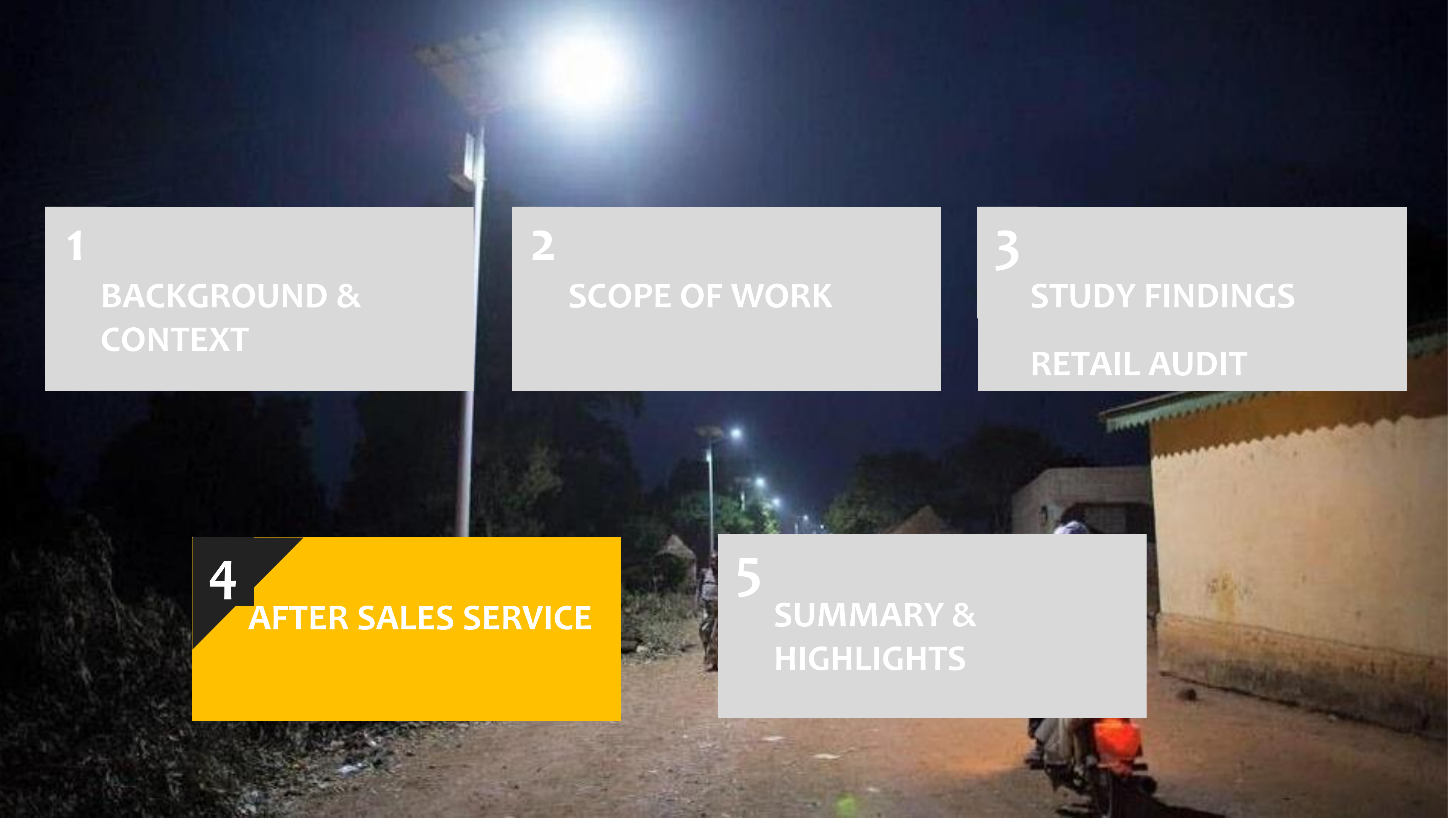
CHALLENGES IN RETAILING SOLAR KITS

Low quality (43%) & counterfeit products (33%) account for the biggest challenge faced by retailers in the solar kits market. Amhara, Somali & Harar regions have the highest incidence of counterfeit products. Faulty products (24%) is the 3rd largest challenge to the business. This calls for measures to arrest the inflow of low quality/counterfeit products. Manufacturers also need to work on the quality of products they release in the market in order to reduce cases of fault.

	TOTAL (n=565)	TIER 1 (n=471)	TIER 2 (n=94)	Addis Ababa (n=244)	Afar (n=13*)	Amhara (n=82)	Benishangul-Gumuz (n=7*)	Dire Dawa (n=37)	Harar (n=33)	Oromia (n=52)	Somali (n=16*)	Tigray (n=18*)	YeDebub (SNNPR) (n=63)
Influx of fake/low quality products in the market	43%	43%	41%	42%	23%	38%	71%	43%	45%	38%	81%	50%	44%
Counterfeits products in the market	33%	35%	24%	30%	23%	39%	14%	51%	67%	19%	56%	6%	29%
Faulty products that lower customer trust	24%	24%	24%	23%	62%	28%	-	24%	21%	12%	6%	17%	33%
High price of products/They are expensive	21%	20%	26%	17%	38%	30%	29%	19%	33%	15%	6%	6%	30%
Low consumer awareness of the products	17%	17%	17%	19%	-	30%	14%	8%	6%	13%	-	11%	14%
Insufficient technicians to handle repair issues	16%	12%	34%	9%	15%	32%	43%	5%	3%	8%	19%	-	38%
Irregular supply of products	10%	7%	21%	7%	54%	11%	14%	8%	6%	13%	-	-	16%
Low profit margins on the products	8%	7%	13%	8%	-	7%	29%	3%	6%	10%	-	-	14%

Q2u. What challenges if any, do you face when selling solar home systems?

n=565


1
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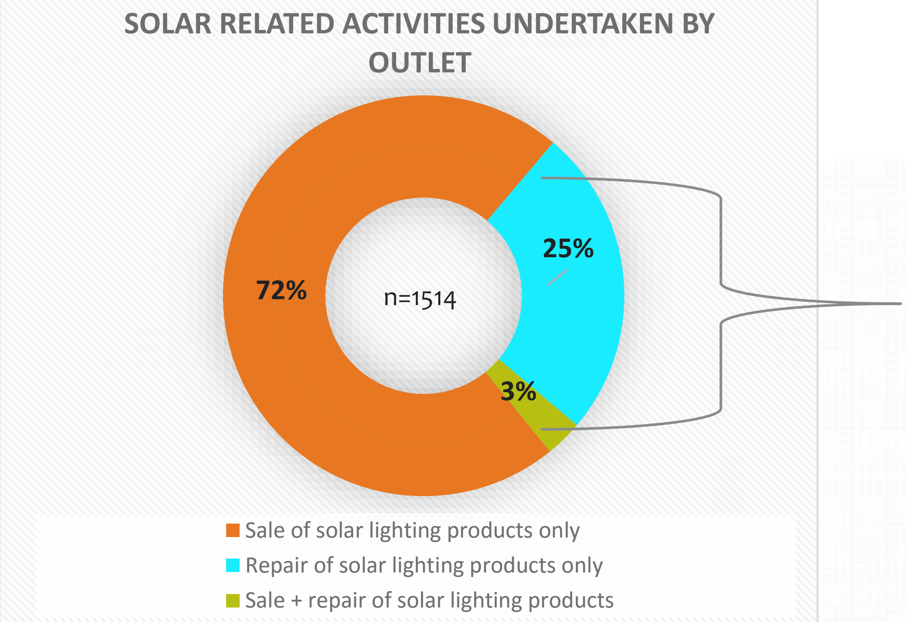
5
SUMMARY & HIGHLIGHTS

REGIONAL DISTRIBUTION OF SOLAR TECHNICIANS



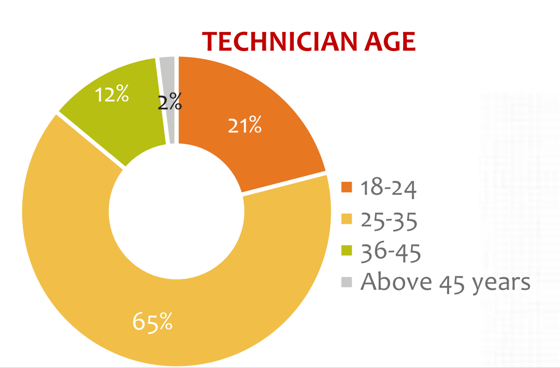
REGIONAL DISTRIBUTION OF TECHNICIANS		
BASE>>	**410**	**100%**
Addis Ababa	80	20%
Afar	4	1%
Amhara	101	25%
Benishangul-Gumuz	6	1%
Dire Dawa	7	2%
Harar	9	2%
Oromia	69	17%
Somali	10	2%
Tigray	55	13%
YeDebub (SNNPR)	69	17%

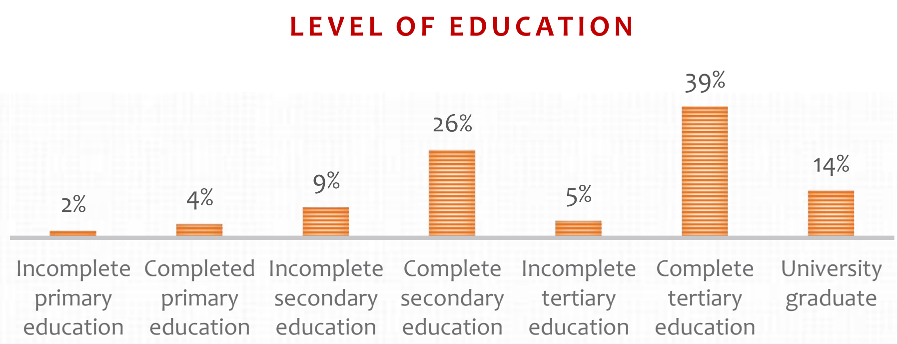
Regional distribution of solar technicians

n=410

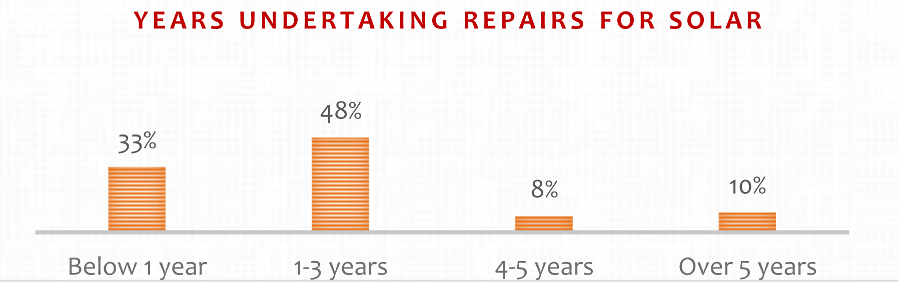
TECHNICIANS DEMOGRAPHICS

The current solar technicians in the market are young (86% below 35 years) and new entrants into the sector (81% less than 3 years in the market). Most of the technicians that are less than a year in the market are in tier 2 (36%). This could be an indication of the growth of solar in the regions hence technicians consider this a good business opportunity





	TOTAL	TIER 1	TIER 2
	410	276	134
Below 1 year	33%	32%	36%
1-3 years	48%	48%	49%
4-5 years	8%	8%	9%
Over 5 years	10%	12%	7%



Q3p. For how long has this outlet been undertaking repairs for solar lighting products?
Q3q. What is the highest level of education that you have achieved?
Q3r. Please tell me, how old are you?

n=410

MOST COMMON AFTER SALES SERVICE CASES

Issues with batteries are the most common cases registered by technicians (67%), more so tier 2 regions. This could be as a result of influx of counterfeit/non-quality approved products in the market. End user default cases are also prevalent (53%) meaning consumer education is needed on how to use the products (at point of purchase).

	TOTAL	Tier 1	Tier 2	Addis Ababa	Afar	Amhara	Benishangul-Gumuz	Dire Dawa	Harar	Oromia	Somali	Tigray	YeDebub (SNNPR)
BASE>>	410	276	134	80	4	101	6	7	9	69	10	55	69
Issues with batteries	67%	66%	69%	56%	75%	81%	83%	100%	78%	58%	70%	58%	65%
End user fault cases	53%	55%	50%	56%	50%	53%	33%	43%	56%	43%	40%	44%	72%
Environmentally induced cases e.g. rats eating cables	40%	37%	46%	32%	50%	56%	17%	86%	33%	38%	30%	38%	29%
Manufacturing faults	13%	14%	12%	19%	25%	18%	-	14%	11%	9%	10%	-	16%
Installation of panels	13%	13%	13%	18%	25%	20%	17%	14%	11%	10%	10%	2%	9%

Q3a. Please tell me, what is the nature of most of the after sales service cases that you face for solar products?

n=410

CHALLENGES IN PROVISION OF AFTER SALES SERVICES

Lack of tools for repair services is the technicians main challenge (71%) especially in tier 2 regions. Technicians in the market also lack training on repair of solar products (58%) more so in tier 2. This means the knowledge these technicians have on repair of other electronics is applied to solar products.

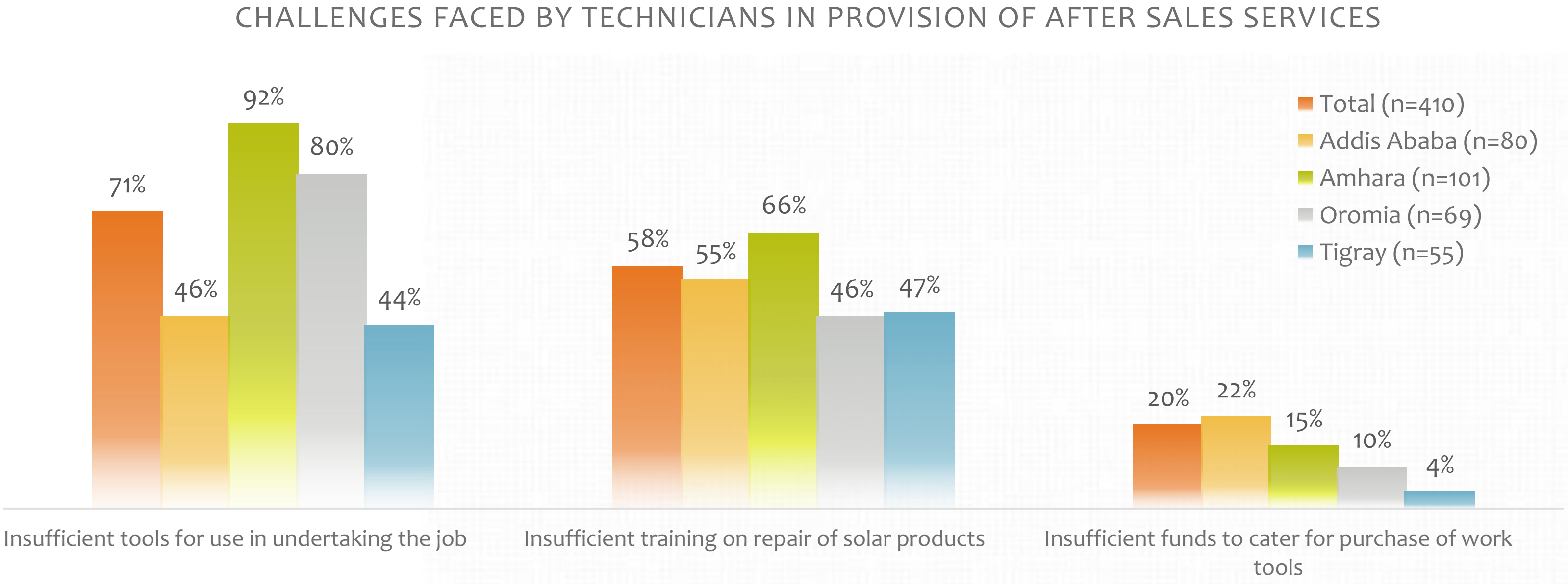
CHALLENGES IN PROVISION OF AFTER SALES SERVICES	TOTAL (n=410)	TIER 1 (n=276)	TIER 2 (n=134)
Insufficient tools for use in undertaking the job	71%	68%	79%
Insufficient training on repair of solar products	58%	57%	60%
Insufficient funds to cater for purchase of work tools	20%	20%	22%
Lack of support from industry players	20%	21%	19%
Low consumer awareness on availability of formally trained technicians	13%	14%	10%
Lack of product spare parts	8%	7%	10%
Low quality products	1%	1%	-

Q3d. What challenges do you face in providing after-sale services to solar customers?

n=410

CHALLENGES IN PROVISION OF AFTER SALES SERVICES

Technicians in Amhara and Oromia regions face the biggest challenge when it comes to access of tools for undertaking repairs. Amhara once again tops the list with technicians lacking the necessary training on repair of solar. This could be a factor of their high numbers compared to other regions in the country.



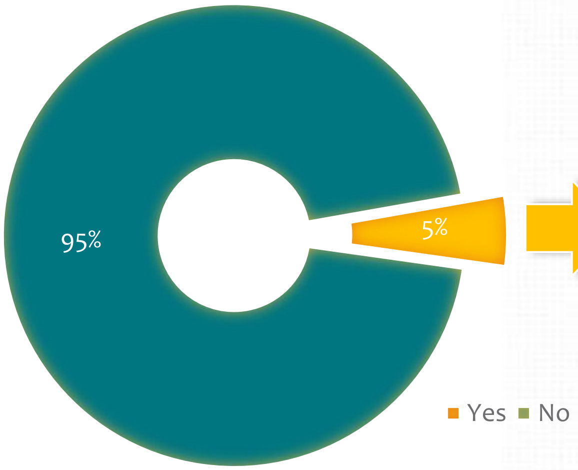
Q3d. What challenges do you face in providing after-sale services to solar customers?

n=410

TRAINING ON REPAIR OF SOLAR PRODUCTS

Solar technicians hardly have any formal training on repair of solar lighting products. Knowledge from repair of other electricals seems to be used in repair of solar. There is need to build technician capacity in order to increase confidence in the sector.

FORMAL TRAINING SECIFICALLY ON REPAIR OF SOLAR LIGHTING PRODUCTS?



TECHNICIANS FORMALY TRAINED ON REPAIR OF SOLAR PRODUCTS	
BASE>>	**19**
Addis Ababa	7
Amhara	4
Dire Dawa	1
Harar	1
Oromia	2
Somali	2
YeDebub (SNNPR)	2

INSTITUTIONS ATTENDED FOR TRAINING ON REPAIR OF SOLAR
GIZ
Tvt Collage
Polytechnic
Omni voltaic Company
Marathon Institution
Hi-Tech Electrical Repair
Gondar University
Melese Zenawi Company
Ethio Telecom
Manufacturing firm
Own Company
Gast Solar Engineering

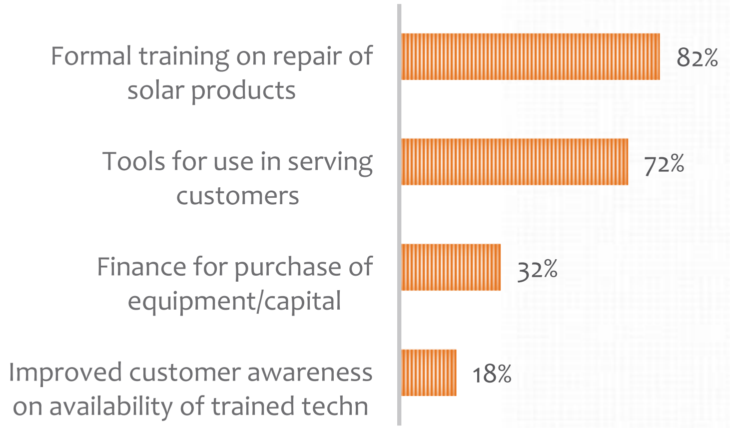
Q3m. Please tell me, have you undergone any formal training SPECIFICALLY FOR REPAIR OF SOLAR PRODUCTS?

n=410

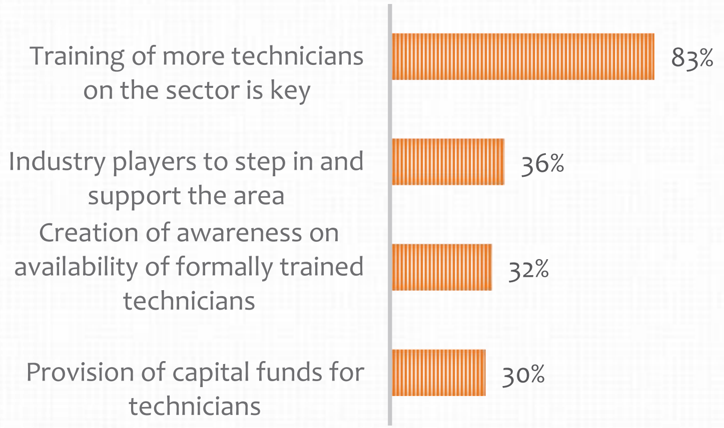
SUPPORT IN AFTER SALES SERVICE

With no formal training, the largest need for solar technicians is training on repair of solar products (82%). This support will go a long way in restoring confidence in the sector and the products. Availing of tools (72%) (credit for purchase of tools) is key in boosting services given to solar consumers

SUPPORT NEEDED BY SOLAR TECHNICIANS



HOW TO IMPROVE THE AFTER SALES SERVICE SECTOR



Q3j. What kind of support would you need to be able to properly serve solar customers?
Q3k.What do you think can be done to improve the after sales service of solar products?

n=410

1
BACKGROUND & CONTEXT

2
SCOPE OF WORK

3
STUDY FINDINGS
RETAIL AUDIT

4
AFTER SALES SERVICE

THANK YOU

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