

SOLAR OFF GRID MARKET RESEARCH IN TANZANIA

MARKET INSIGHTS REPORT

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Table of Content

03

Background

07

Executive Summary

13

Supply Insights

75

Consumer Insights

130

IPSOS POV



About lighting Africa

Lighting Africa

Lighting Africa (LA), a joint World Bank- International Finance Corporation (IFC) program aims at mobilizing the private sector to provide affordable, renewable, clean lighting to 250 million people in Africa by 2030. The program was launched in September 2007 to accelerate the development of markets for modern off grid lighting products in Sub-Saharan Africa

Lighting Africa – Tanzania Program

Launched in 2016, the projects overall goal is to contribute to the development of a commercial market for quality-verified solar lanterns and SHS. Our target is to enable access to cleaner and safer off-grid lighting and energy for 6.5 million people in Tanzania by end 2019 – focusing predominantly on low income households and micro businesses among the Bottom of the Pyramid (BOP) population.

Lighting Africa Tanzania's Activities

- 1. Quality Assurance;** Lighting Africa has been working with the Tanzania Bureau of Standards (TBS) to integrate the Lighting Global Quality Standards into their regulatory framework
- 2. Consumer Education;** inform consumers of the benefits of off-grid solar products – including financial savings – and the importance of investing in quality.
- 3. Market Intelligence;** examine supply chains and rural market penetration, after-sales services and innovative business models already in place, including PAYG.
- 4. Business & Supply Chain Development;** provision of an array of business development support services to promote a vibrant competitive environment stimulating distribution into rural areas by giving technical and business skills training sessions to importers/ distributors and retailers to build capacity.
- 5. Access to Finance;** work with financial institutions to extend access to finance for the distribution of solar energy products to the last mile, as well as working capital finance for solar energy companies.



Geographical coverage

36 towns were scoped in the survey. Towns visited were grouped into regions for ease of reporting



Tier 1	Tier 2	Tier 3
Dar-es-Salaam	Temeke	Charambe
Mwanza	Misungwi	Mabuki
Arusha	Arusha Rural	Oldonyosambu
Mbeya	Tukuyu	Katumba
Morogoro	Kilosa	Mikumi
Moshi	Moshi Rural	Makuyuni
Iringa	Kilolo	Ilula
Songea	Mbinga	Kihangi Mahuka
Tanga	Korogwe	Mazinde
Dodoma	Kongwa	Kibaigwa
Singida	Iramba	Kiomboi
Tabora	Nzega	Utwigu

Tier 1 regions represent urban based areas
 Tier 2 & 3 represent regions towards last mile connectivity.



Outlet coverage

5 potential outlet types were identified based on market intelligence and store visits.

TYPE OF OUTLETS SCOPE		
Retail stores*	48%	<p>*RETAIL STORES BREAKDOWN</p> <ul style="list-style-type: none"> • Sale of consumer goods • Electrical sales shops • Mobile phones shop • Hardware shops • Electrical repair shops • Solar repair shops • Solar products shop <p>**SUPERMARKETS BREAKDOWN</p> <ul style="list-style-type: none"> • Mini supermarket; very small self service stores in estates • Supermarket; stores larger than mini supermarkets but smaller than hypermarkets. • Hyper markets; very large self service stores with various floors selling a wide range of products under one roof <p>***NON-TRADITIONAL CHANNELS</p> <ul style="list-style-type: none"> • Direct Sales Agents e.g. Machinga • Commissioned agents • Promoters; people who communicate/advertise products in open air markets • Transporters; people who move/ferry products from one region/town to another • NGO • SACCO • VIKOBA • School • Micro Finance Institution
Supermarkets **	21%	
Non-traditional channels***	14%	
Wholesale & distributors	10%	
Petrol stations	3%	

Note: This is not a universal retail audit covering all channels. ONLY outlets with potential to sell/repair solar products were targeted in the scope.



Objectives for the retail audit

Objective

To measure the current retail penetration of solar lighting products in Tanzania

Information Areas

Areas under investigation for the retail audit included;

1. Solar retailer penetration
2. Type of outlets handling solar products
3. Solar lighting products handled (lanterns, SHS and panels)
4. Volumes sold by outlets & products
5. Incidence of Pay As You Go (PAYG) retailers
6. Incidence of solar technicians



Product definition & categorization

1



Solar Lantern

Single lighting point, portable unit

2



Solar Panels

Stand alone solar panels of below 100W as a proxy of the size of the Solar Home System (SHS) market.

3



Solar Home Kits

Plug and play multiple lighting points, panels, switch, power storage unit.



EXECUTIVE SUMMARY

1. Executive Summary- Retail Audit

A total of 9,512 **potential outlets** were scoped in the survey. Of these, 1,510 were found to either stock or repair solar lighting products giving an overall market penetration of 16% for solar lighting retailers and technicians.

Rural based regions (areas towards last mile connectivity) registered the highest incidence for solar lighting products an indication of where the highest need for the products resides. By regions, Singida had the highest incidence of solar retailers in the country.

Non traditional outlets are the main channels that supply solar lighting products in the rural areas. They account for half of the solar retailers in the market. However, traditional retail channels carry more volumes compared to the non-traditional channels. This could be because while retail outlets sell in bulk, non-traditional channels sell single unit volumes to consumers.

Solar lanterns have the highest incidence in the market amongst the solar products surveyed (including kits and panels). This is more so in tier 3 areas. Panels have the second highest incidence in the market.



2. Executive Summary- Retail Deep Dive (Market Structure)

Tanzania Market has both established trade and *non-trade channels of distribution of Solar lighting solutions. Within trade, there is a high volume of unstructured and informal channels

About the market

Main brand owners have a targeted approach and concentration in specific regions

- **Lanterns** – more focus through trade – again driven by a large number of informal sellers, which has a high potential for pushing counterfeit products
- **Solar home Kits** – higher focus through non-trade channels with well developed and trained agency networks delivering products to customer doorstep

Dar-es-Salaam remains a key hub for trade, while the non-trade approach is regionalized (Arusha, Lake region, Southern agricultural corridor and Western corridor)

*vendors selling products door to door

What next for Lighting Africa?

Some Key brand owners & market leaders not part of the LA program Associate – engage them

Consider multi-pronged approach of engagement with the various brand owners, to have a clear market guidance. (Trade and non-trade players)



3. Executive Summary- Retail Deep Dive (Solar penetration in the trade channel stands at 16%.)

A listing (audit) of all potential channels (9,512) showed that only 16% of the outlets stocked solar products. Penetration in tier two and three towns seemed to be much higher – though the outlets were fewer. This trend is similar to other EA markets studies in last two years (KE, ET)

About the trade

There were more outlets in tier 1 towns, suggesting that more customers buy from key urban areas and take the product back to their rural homes for use.

Unlike in other EA markets, supply through petrol stations had not been established at the time of the survey (Total has now started distributing Solar products)

78% of traders stocked Solar Lanterns, while 23% stocked Solar Home Kits. Solar Panels were stocked by 46% of all traders

Only a third of technicians repairing solar products (285) had any form of training.

What next Lighting Africa?

The is need to develop a strategy for tier three towns to increase outlets selling solar solutions at the grassroots – this could come through partnerships with leading distributors / Wakalas in tier 3 outlets that push multiple products from other consumer good

Higher incidence of Lanterns also raises the need for product quality certification given the market spoilage effect

Need for partnerships for training Solar technicians.

4. Executive Summary- Retail Deep Dive (LA Associates are largely underrepresented in the trade)

This study established 148 different brands of lanterns and 70 brands of Solar Home Kits in the trade. For lanterns, LA associates had 29 brands (17%) while for home kits, LA associates had 31 brands (44%)

About the trade

Considering the total volume of products that were in stock, LA associates accounted for 28% of the volume of Lanterns, while non-associates accounted for 72%. For home kits, LA associates accounted for 43% of stocked volumes, while non-associates accounted for 57%.

What next for Lighting Africa?

Need to widen Associate products base to increase Market Share through the trade

- Consumer education is key to address market spoilage.
- Help Associates expand distribution to tier 3 towns
- Need for trader education as only 27% of traders can tell the difference between a genuine and counterfeit product.
- Financing of Solar traders virtually non-existent at 4% - Need to bring in financiers to support trade

SUPPLY SIDE INSIGHTS

1. Retail Audit
2. Retail Deep Dive

Market potential

A total of 9,512 potential outlets were scoped in the census. Dar-es-Salaam accounted for close to half (48%) of the potential outlets scoped in the survey. This is on account of the city's importance as the main business hub, and its key role as a port of entry. By outlet type, retail outlets accounted for 85% of all potential outlets scoped.

REGIONAL DISTRIBUTION OF POTENTIAL OUTLETS

	Dar-es-Salaam	Mwanza	Arusha	Mbeya	Morogoro	Moshi	Iringa	Songea	Tanga	Dodoma	Tabora	Singida	
	9,512	4,547	759	624	524	574	188	350	380	340	658	293	275
Tier 1	8,692	4,528	729	613	437	435	140	302	250	242	560	217	239
Tier 2	612	15	27	10	69	104	46	17	130	90	20	75	9
Tier 3	208	4	3	1	18	35	2	31	0	8	78	1	27

OUTLET TYPE

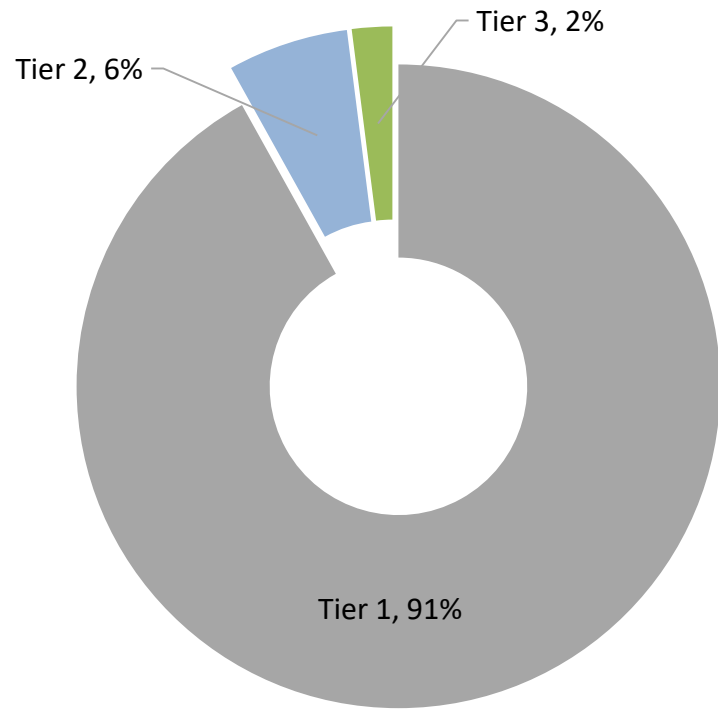
	Retail Outlets	Supermarket	Non-traditional Channel	Wholesalers/ Distributors of Electrical Appliances	Fuel Retail Site	
	9,512	8042	244	398	584	244
Tier 1	8,692	7338	239	330	573	212
Tier 2	612	527	1	56	5	23
Tier 3	208	177	4	12	6	9

Potential outlet distribution at total level

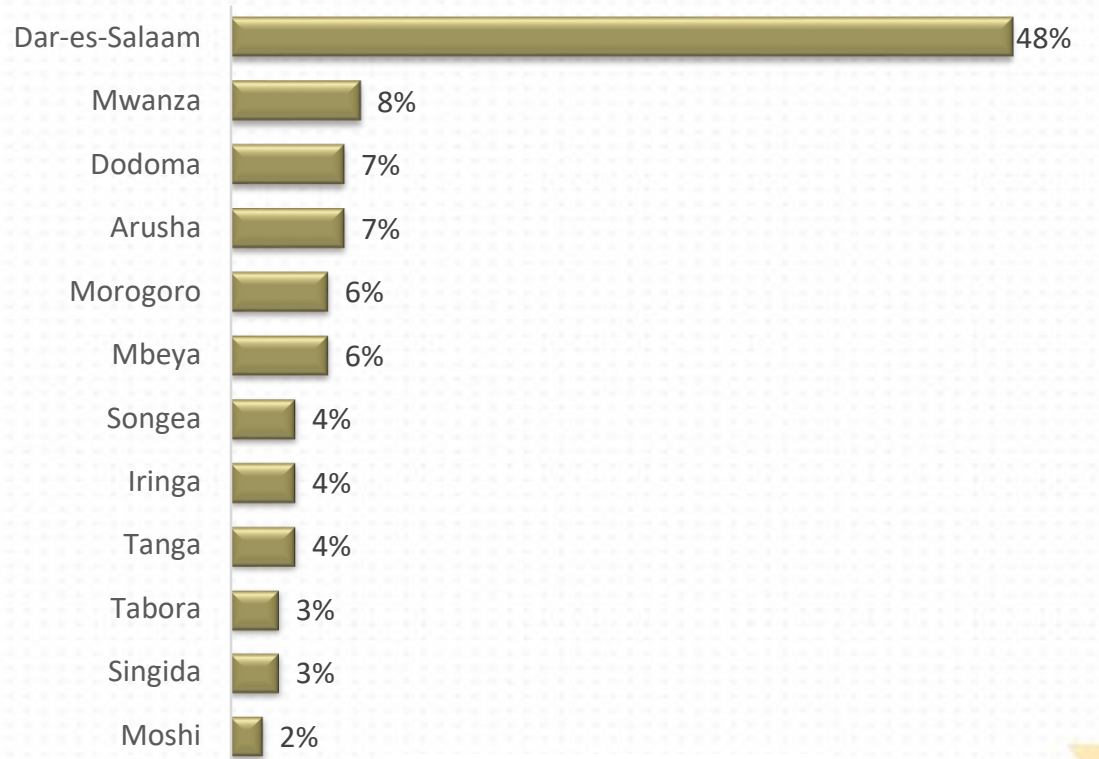
As expected, tier 1 regions account for the largest share of potential outlets in the market, driven by urbanization and large population sizes.

Dar-es-Salaam accounts for close to half of the potential outlets scoped by the survey. This could be attributed by the fact that is it the main business capital of the country and also the largest city by population and size.

Potential Outlet Distribution by Tiers

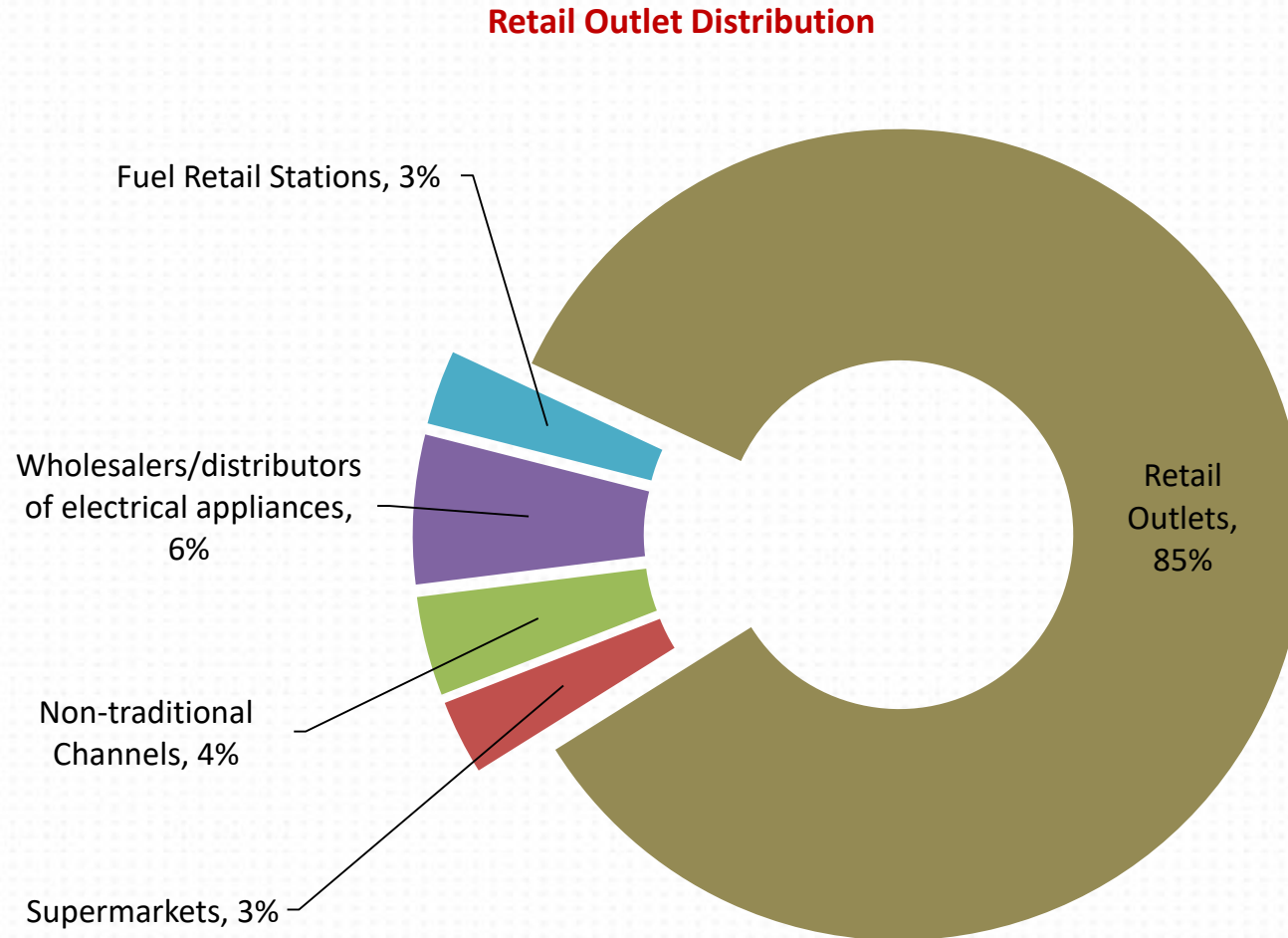


Regional Distribution of potential outlets



Market potential by outlet type

Retail channel outlets represent 85% of the sample base given their widespread reach and penetration in the country



Retail outlets segmentation

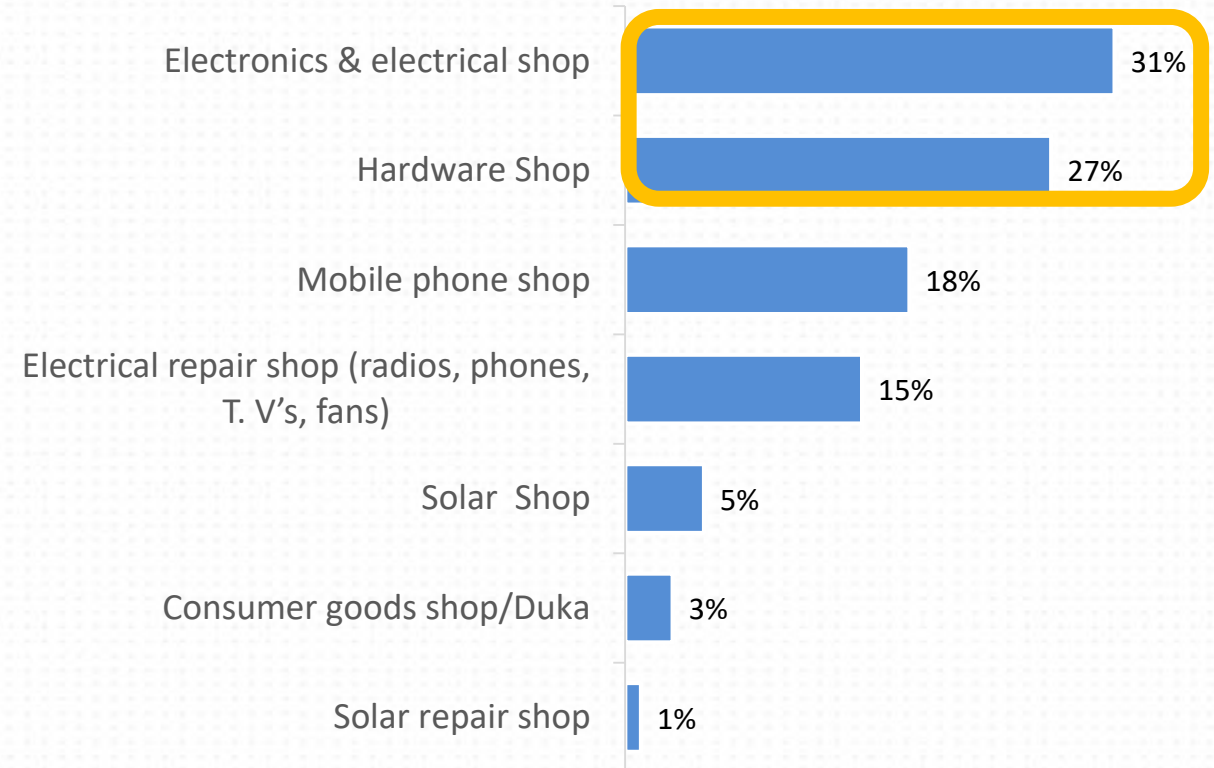
Electricals shop and hardware's are the type of outlets within the sample size given their close association with solar in the minds of consumers.



Retail Outlets
85% Market penetration



Retail Outlets Segmentation

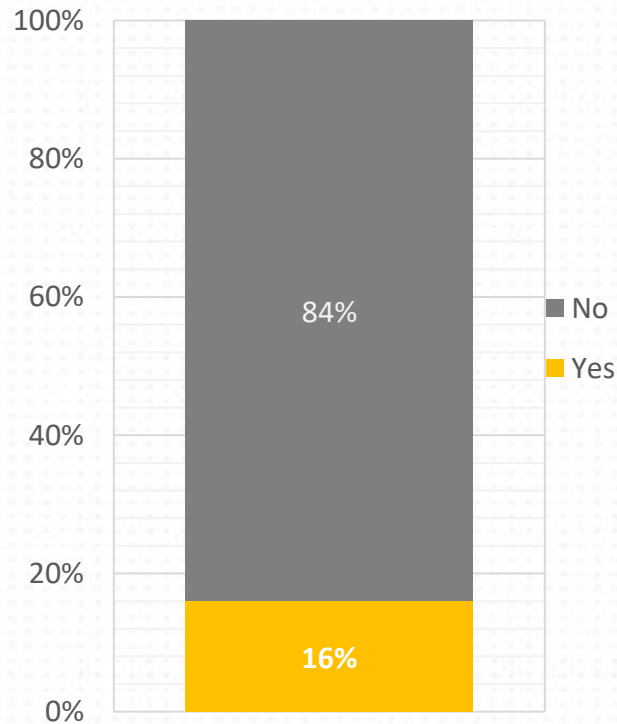


Solar retailer penetration is 16%

1,510 outlets out of 9,512 sell and/or repair solar lighting products.

Channel penetration as a percentage of outlets is higher in tier 3 compared to tiers 1 and 2, a likely indication of where the highest need for solar lighting products is.

Solar Handling Incidence



SOLAR HANDLING INCIDENCE IN OUTLETS

	TOTAL	TIER 1	TIER 2	TIER 3
Total Outlets Scoped	9,512	8,692	612	208
Handle solar	1,510	1,289	154	67
% incidence	16%	15%	25%	32%

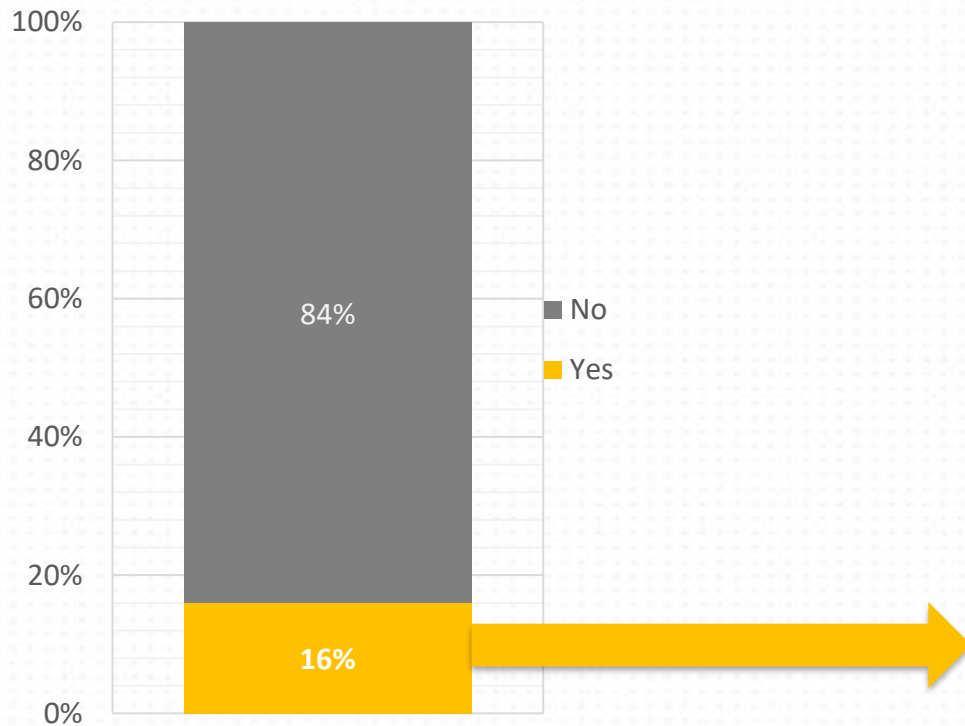


Solar retailer incidence by regions

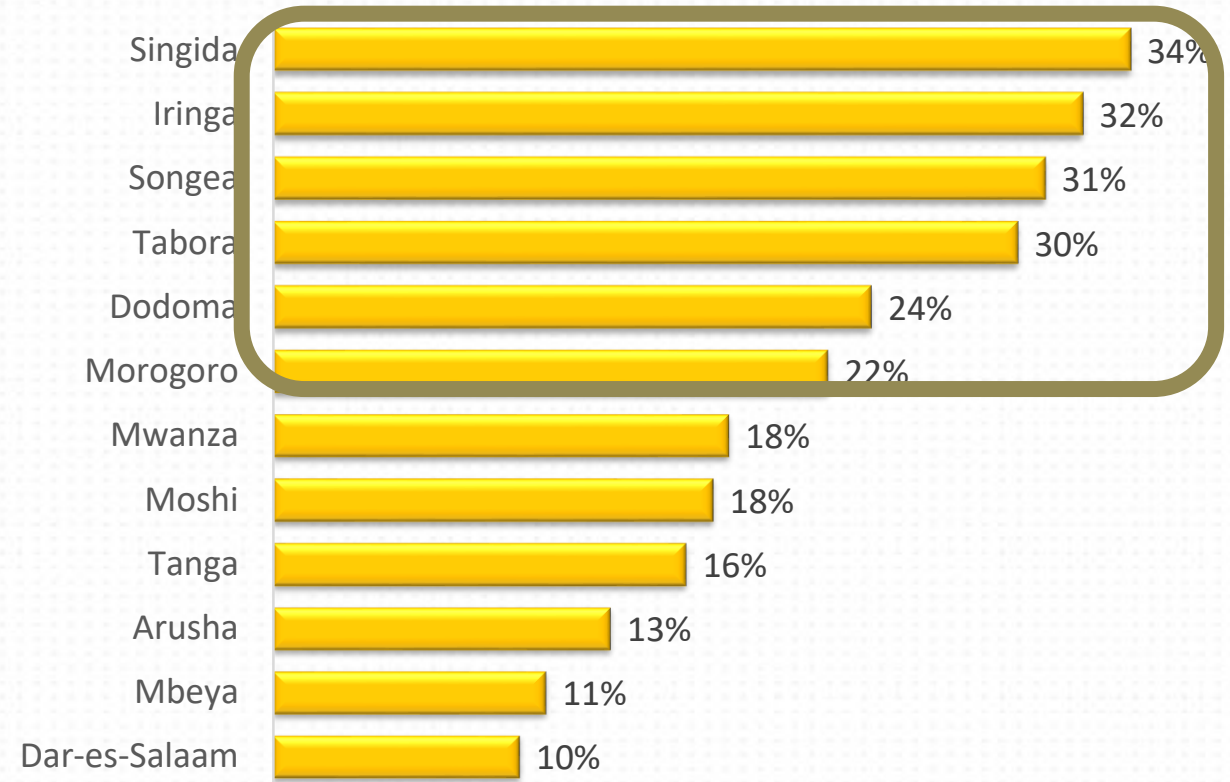
Singida recorded the highest solar retailer incidence in the survey.

Iringa, Songea, Tabora, Dodoma and Morogoro are also regions with high solar retailer incidence in the country.

Solar Handling Incidence

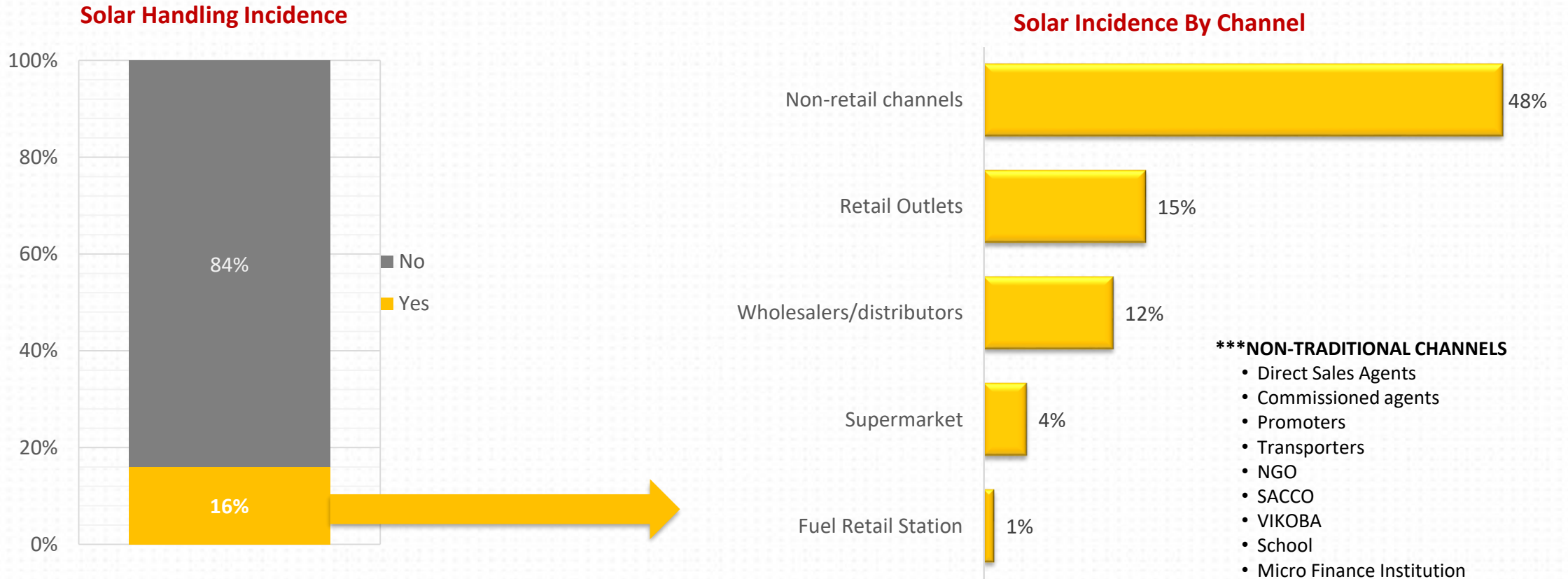


Comparison of Handling Incidence Across Regions



Solar retailer incidence by channel

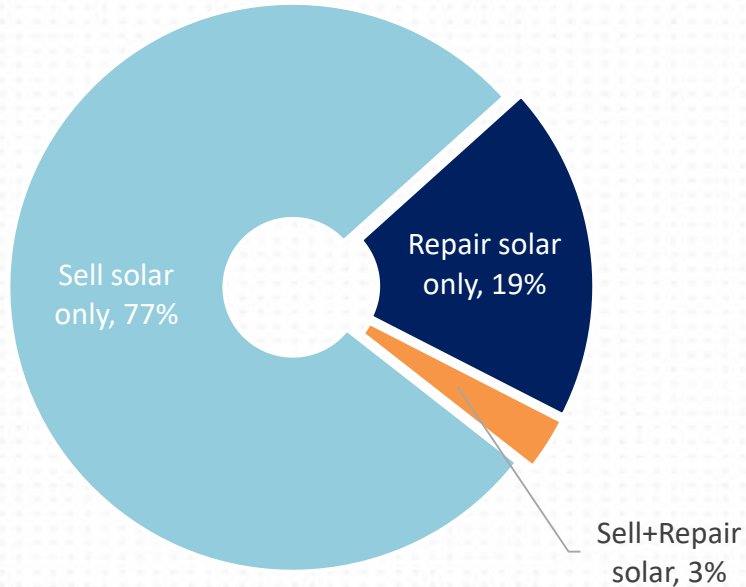
Non-retail outlets are the main channels carrying solar lighting products as they account for about **half** of the distribution chain partners and route to market. This signifies a highly unstructured distribution/supply chain for solar lighting products.



Of all outlets that deal with solar, majority sell (77%), while about 19% do repairs and installation only, while 3 sell & repair .

At about 20 – 23% availability of repair/installation channels available in the market, Tanzania appears to be ahead of most countries. HOWEVER only 70% of these technicians do not have any formal training on solar.

SOLAR ACTIVITIES UNDERTAKEN BY OUTLETS



SOLAR RELATED ACTIVITIES UNDERTAKEN BY OUTLETS

	Total	Tier 1	Tier 2	Tier 3
	1,258	1,065	131	62
Sell only	77%	77%	85%	74%
Repair/installation only	19%	20%	13%	23%
Sell + repairs/installation	3%	4%	2%	3%

SOLAR LIGHTING PRODUCTS SOLD BY OUTLETS

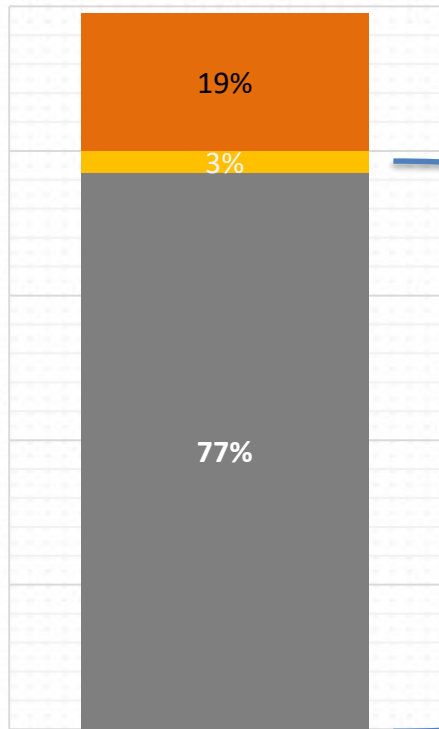
	Total	Tier 1	Tier 2	Tier 3
	1,015	853	114	48
Solar lanterns	78%	79%	63%	94%
Solar kits	23%	25%	12%	17%
Solar panels	46%	45%	57%	50%



Solar retailer demographics

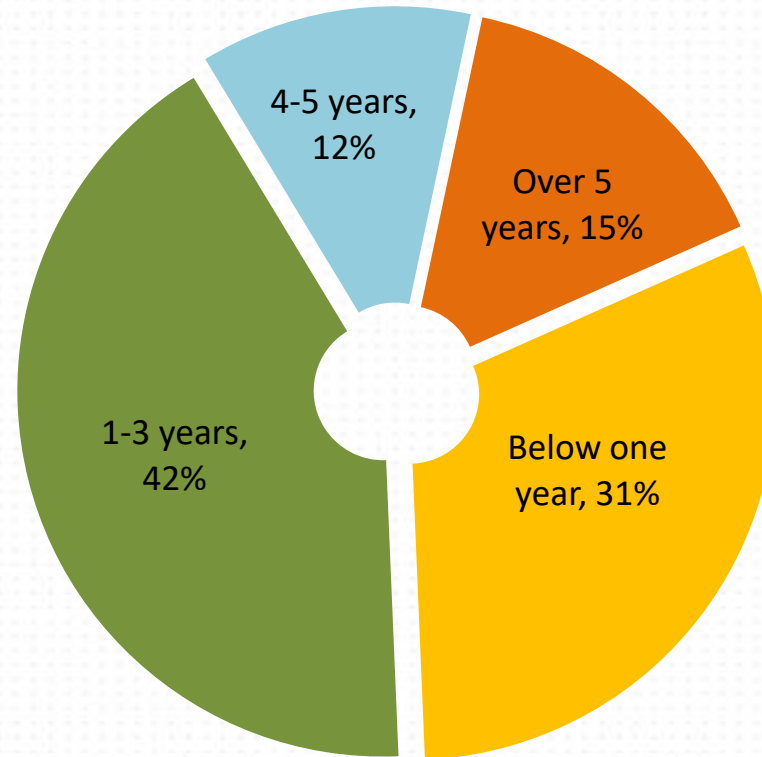
About three quarters of retailers that sell solar lighting products have been in the market for less than 3 years. This is an indication of potential interest in the sector by retailers

Solar Handling Incidence



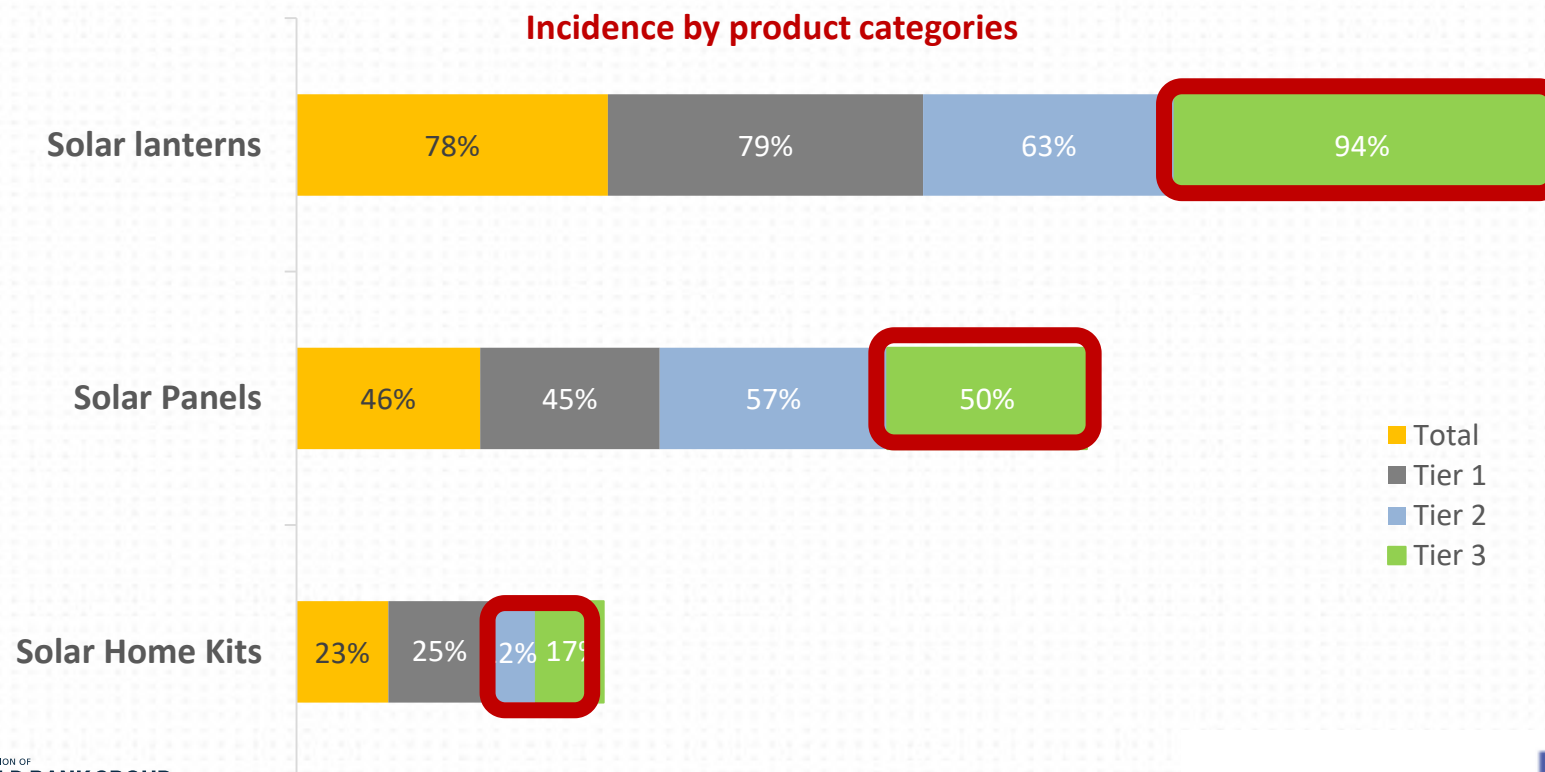
■ Sale solar only ■ Sell+repair solar ■ Repair solar only

Number of Years in Operation



Incidence of solar product categories

- Overall, lanterns have the highest retail penetration in the market (78%), probably driven by low prices lowering capital requirements needed by retailers for purchasing stock. There is close to universal availability of lanterns (94%) in solar outlets in tier 3, this signifies that there is a high demand for the products at this level.
- Panels are the second most stocked solar products probably used for lighting and provision of other energy sources e.g. heating. Panels are also stocked by 1 out of every 2 retailers in tier 3, another strong indicator of demand in the mainly off-grid areas
- Solar kits are more popular in tier 2 areas (25%), probably driven by a high consumer purchasing power at this level.



Incidence of solar product categories by regions

- Singida and Morogoro have the highest incidence of solar lanterns. Other regions with high incidence are Iringa, Dodoma & Tanga
- Solar Kits are more popular in Moshi (31%), Mwanza (29%), Dodoma (28%), Arusha (27%) & Dar-es-Salam (27%)
- Solar panel retailers are more popular in Songea (68%), Tabora (63%), Dodoma (61%) and Singida (59%)

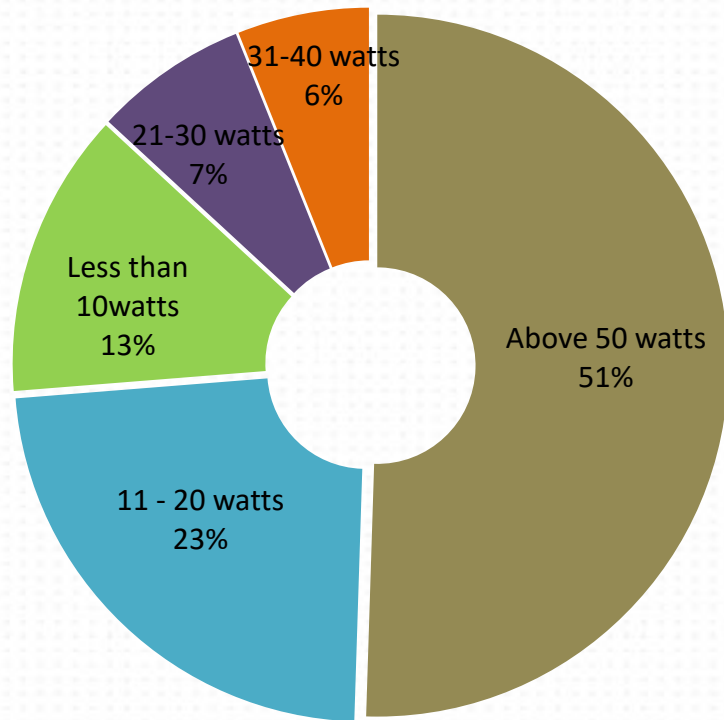
		Dar-es-Salaam	Mwanza	Arusha	Mbeya	Morogoro	Moshi	Iringa	Songea	Tanga	Dodoma	Tabora	Singida
TOTAL	1015	288	109	55	36	86	26	73	71	46	116	60	49
Solar Lanterns	78%	79%	76%	73%	58%	91%	50%	89%	52%	83%	85%	75%	92%
Solar Home Kits	23%	27%	29%	27%	11%	26%	31%	11%	6%	4%	28%	23%	24%
Solar Panels	46%	43%	45%	20%	47%	52%	23%	25%	68%	30%	61%	63%	59%



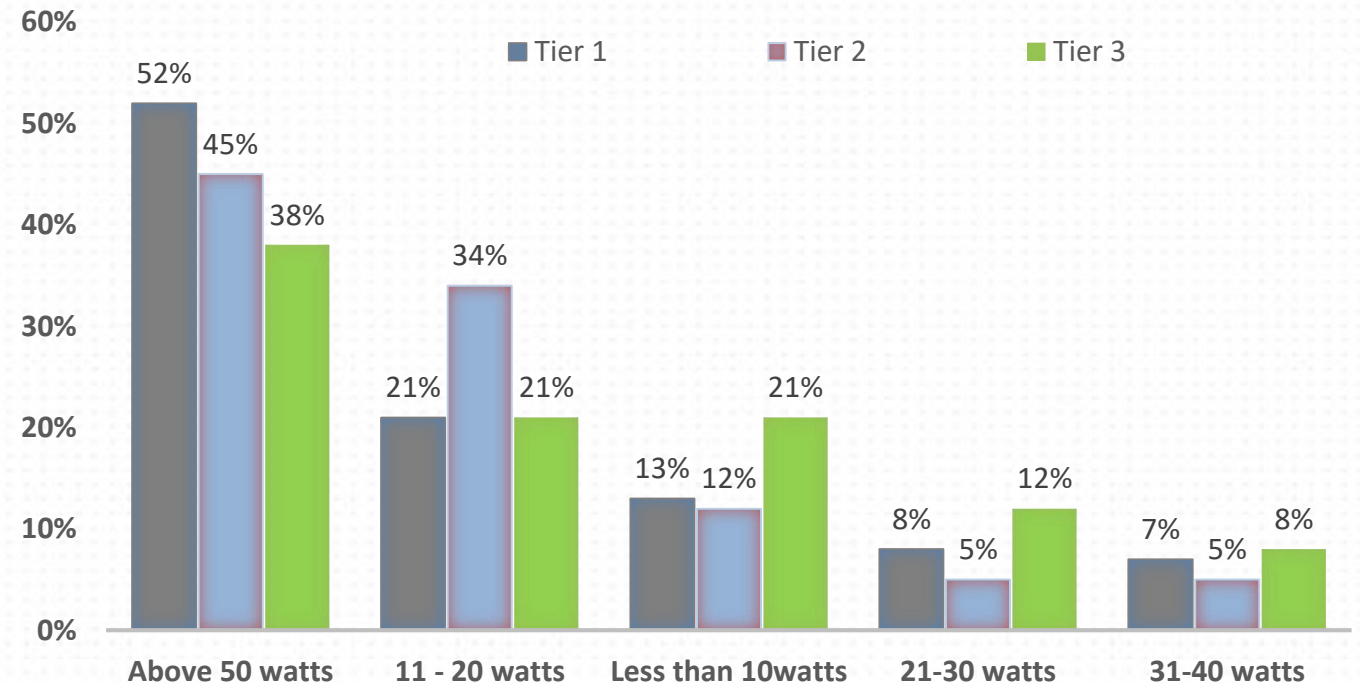
Larger solar panels are more popular as compared to the smaller ones

- About half of all retail outlets scoped claimed to sell more of the 50+ watts panels compared to low powered panels...by this is very much driven by the tier segmentation and has a direct correlation to incomes
- 50+ watts panels are more popular in tier 1 areas while 11-20 watts panels are popular in tier 2 regions. In tier 3, panels of below 10w are more popular

Fastest Moving Solar Panel Sizes



Fastest Moving Panels By Tiers



Product volumes moved per month by outlets

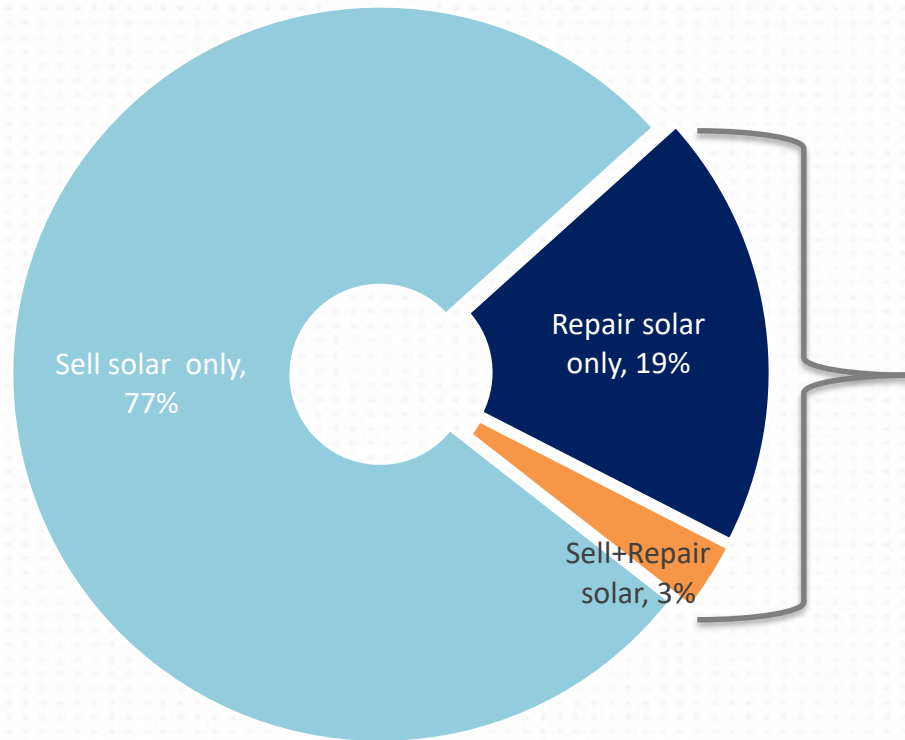
- Retail outlets maintain their lead in carrying solar lighting products. This could be attributed to their association with electrical products as well as potential to sell products in bulk and distribute to other channels..
- For lanterns, non-retail channels (NGO's, Direct Agents, lending institutions etc.) move a considerable amount of product in a good month.

SOLAR LANTERNS SOLD IN A MONTH (n=791)			SOLAR PANELS SOLD IN A MONTH (n=232)			SOLAR KITS SOLD IN A MONTH (n=469)		
	TOTAL UNITS SOLD IN A GOOD MONTH	TOTAL UNITS SOLD IN A BAD MONTH		TOTAL UNITS SOLD IN A GOOD MONTH	TOTAL UNITS SOLD IN A BAD MONTH		TOTAL UNITS SOLD IN A GOOD MONTH	TOTAL UNITS SOLD IN A BAD MONTH
Total	40,988	7,776	Total	18,859	2,390	Total	4,222	1,372
Retail Outlets	38,090	6,878	Retail Outlets	9,302	2,132	Retail Outlets	3,238	1,075
Supermarkets	77	9	Supermarkets	0	0	Supermarkets	0	0
Non-traditional outlets	1,948	612	Non-traditional outlets	228	70	Non-traditional outlets	339	111
Wholesalers & Distributors	870	275	Wholesalers & Distributors	9,328	188	Wholesalers & Distributors	645	186
Fuel retail station	3	2	Fuel retail station	1	0	Fuel retail station	0	0

Solar technician penetration

- Repair technicians are available in 25% of the sampled channels but critical to note that this takes a drastic drop in tier 3 where its only 6%.
- There is need to decentralize these services to tier 2&3 where most solar customers are found

Solar Activities Undertaken by Outlets



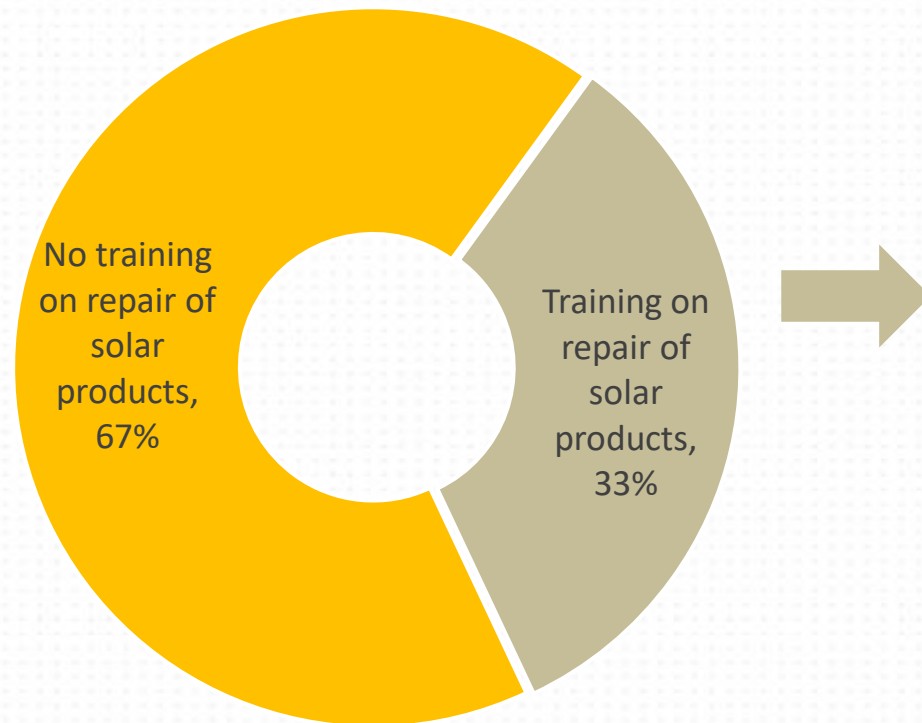
	Total	Tier 1	Tier 2	Tier 3
Sale of solar lighting products only	77%	84%	12%	5%
Repair/installation of solar lighting products	23%	88%	7%	6%



Solar technician training on repair of solar products

- ONLY 33% of technicians claimed to have undergone formal training on repair of solar products. A larger proportion of these technicians bank on experience from repairs of other electrical appliances.
- Majority of the formally trained technicians are in tier 1, yet the largest need is in tier 2 and 3.
- There is need to facilitate capacity building for these technicians on repairs/maintenance of solar lighting products.

Solar technician formal training on repairs for solar products



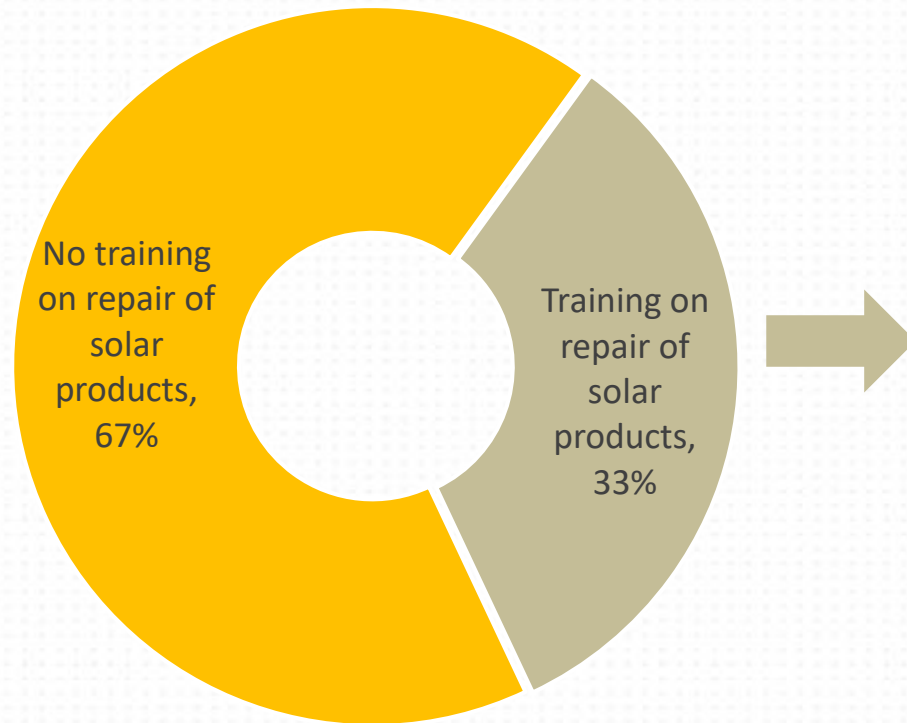
	Tier 1	Tier 2	Tier 3
Training experience by tiers	35%	11%	19%



Solar technician training on repair of solar products

- Vocational Educational and Training Authority (VETA) accounts for about half of the institutions attended by solar technicians in the market.
- Other institutions include Dar-es-salaam Technology, Mobisol Makii Training among others.

Solar technician formal training on repairs for solar products



INSTITUTIONS ATTENDED	N=93
VETA (affiliate institutions)	46%
Dar-es-salam Technology	5%
Mobisol Makii Training	3%
VTC College	2%
REA	2%



2. Retailer Deep Dive

Deep dive Objectives

Overarching Objective

To inform on the diversity of low cost off-grid solar products in the market.

Information Areas

- a) Estimate number of brands in the market (solar lanterns & SHS) and popular sizes.
- b) Estimate number of products that have passed LA standards vs. others
- c) Estimate market share for solar lighting products and popular/fast moving brands & why
- d) Estimate number of SHS sold and most popular/popular/fast moving brands & why (indication of volumes).
- e) Customer preferences, handling warranties, etc.
- f) Explore where these retailers purchase products from (e.g. manufacturers, distributors, self-importation, etc.)
- g) Explore whether or not these retailers have secured financing from lenders.
- h) Customer progression from small to larger solar units
- i) Drivers and barriers to uptake of products currently available in the market. (preference beyond costs)



Sampling for deep dive Interviews

Target was to interview all outlets that were scoped in the retail census for the deep dive survey. However, only 72% of retailers scoped in the census survey participated in deep dive interviews

COMPARISON BETWEEN NUMBER OF SOLAR RETAILERS SCOPED AT CENSUS & DEEP DIVE STAGES

	TOTAL	Dar-es-Salaam	Mwanza	Arusha	Mbeya	Morogoro	Moshi	Iringa	Songea	Tanga	Dodoma	Tabora	Singida
Census	1,501	447	138	84	57	127	33	113	117	56	157	87	94
Deep dive	1,080	299	92	34	42	115	23	95	54	54	136	73	63
Success rate	72%	67%	67%	40%	74%	91%	70%	84%	46%	96%	87%	84%	67%

Arusha and Songea had the highest incidence of retailer non-participation in deep dive interviews.

Below are some of the reasons that led to the non achievement of 100% interviews with all solar retailers in the market at the deep dive phase;

1. Non-traditional channels e.g. machinga's and commissioned agents (+350) move around a lot hence getting them a second time for interviews was not an easy task.
2. Participation was voluntary and interview conducted upon consent. Some retailers opted not be interviewed.
3. Some retailers expressed fear of victimization for participation in interviews - due to lack of sufficient documentation for business

How does Tanzania compare (solar penetration) with other EA markets?

Tier 3 regions always registered the highest penetration of solar products, though the actual number of outlets are fewer. In all the three countries model, distribution in tier three seems to be more driven by non-trade channels.

SOLAR PENETRATION TANZANIA				
	Total	Tier 1	Tier 2	Tier 3
Potential Market	9,512	8,692	612	208
Stock solar	1,501	1,304	153	67
%	16%	15%	25%	32%

SOLAR PENETRATION ETHIOPIA			
	Total	Tier 1	Tier 2 & 3
Potential Market	29,832	24,622	5,210
Stock solar	1,524	1,174	340
%	5%	5%	7%

SOLAR PENETRATION KENYA				
	Total	Tier 1	Tier 2	Tier 3
Potential Market	8,167	5,876	1,934	357
Stock solar	1,729	1,135	507	87
%	21%	19%	26%	24%

Base=9,512 potential outlets scoped



Retail outlets account for 86% of all solar stocking outlets

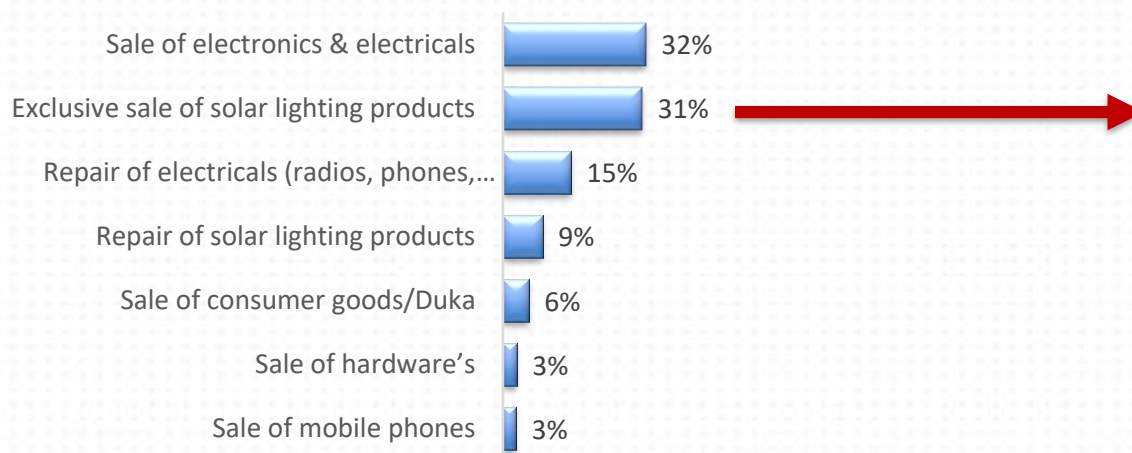
This could be attributed to the channels overall high penetration in the country. Retail stores selling electronics and exclusive solar retailing outlets were the main retail channels carrying products.

Dedicated Solar outlets are mainly based in tier 1 regions, signifying the centralization of outlets from which direct selling agents collect product and sell to households. This model allows for control and accountability of products

Solar penetration by channels/outlets

Outlet Type	Total	Tier 1	Tier 2	Tier 3
Number of retailers surveyed	1,080	973	71	36
Retail Outlets	86%	91%	6%	3%
Supermarket	0%	100%	0%	0%
Non-traditional channels	11%	87%	12%	1%
Wholesalers/distributors of electrical appliances	2%	85%	0%	15%

RETAIL OUTLETS BREAKDOWN



Penetration of outlets selling solar lighting products only by tiers

Retail Outlet Type	Total	Tier 1	Tier 2	Tier 3
	291	258	17*	16*
Exclusive sale of solar lighting products	100%	89%	6%	5%

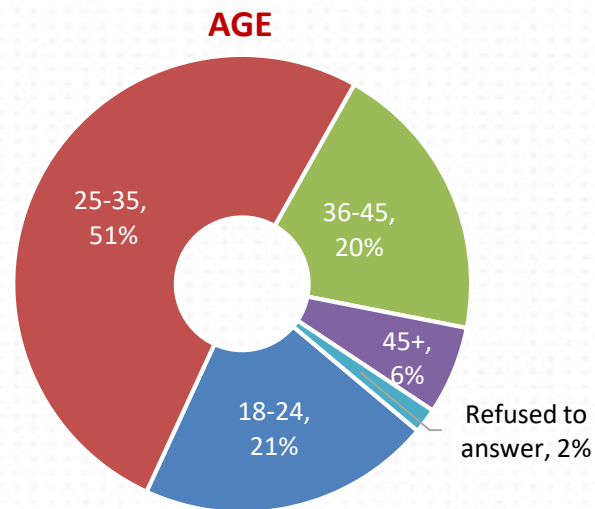
n=1,080

Retailer profile

76% of current solar retailing outlets have been in the business for less than 3 years. This indicates relatively young businesses that have identified a potential market for investment in solar. Half of these retailers are aged between 25-35 years. About three thirds of these retailers are aged 18-35.

Its important to note that only 45% of the retailers have completed primary school education

Retailer Years In Solar Business	
	Total
	848
Below 1 year	26%
1-3 years	50%
3-5 years	10%
Over 5 years	15%



Retailer Level of Education				
	Total	Tier 1	Tier 2	Tier 3
	848	753	68	27*
No formal education	1%	1%	1%	4%
Incomplete primary education	2%	2%	1%	7%
Completed primary education	45%	45%	41%	48%
Incomplete secondary education	4%	4%	3%	4%
Complete secondary education	34%	34%	41%	22%
Incomplete 'A' level	1%	1%	1%	0%
Completed 'A' level	4%	4%	0%	4%
Incomplete tertiary education	1%	1%	0%	4%
Complete tertiary education	2%	2%	4%	4%
University graduate	7%	7%	6%	4%

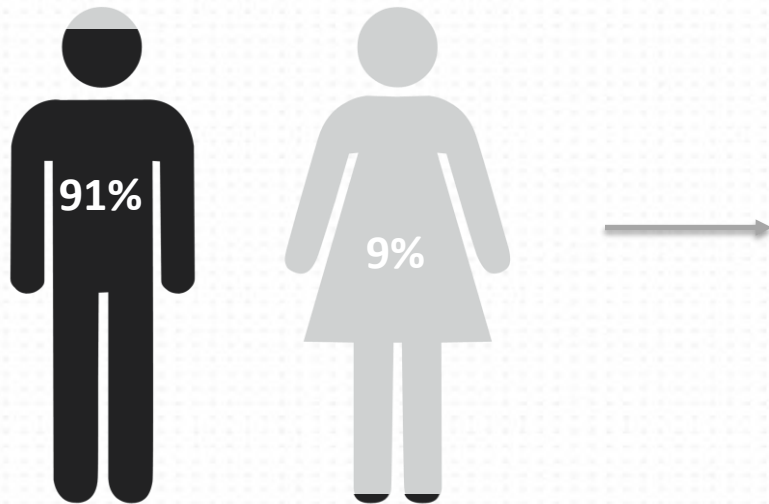
D1. For how long has this outlet been operating in the solar lighting market?
 D2. Please tell me, what is the highest level of education that you have achieved?
 D3. Please tell me, how old are you?



Retailer Gender

Solar businesses are dominated by male owners (91%), this could be a result of the association of solar products with other electrical products which are mainly associated with the male gender hence the distribution. Majority of the female retailers (81%) have been in the solar business for less than 3 years while 69% of the females are aged between 18-35 years. This indicates that majority of the young females (youths) in the country are appreciating and embracing businesses previously associated with males.

GENDER OF BUSINESS OWNER



NUMBER OF YEARS IN BUSINESS BY GENDER

	Below 1 year	1-3 years	4-5 years	Over 5 years
Male	185	396	77	113
Female	33	29	5	10
Total	218	425	82	123

RETAILER AGE BY GENDER

	18-24	25-35	36-45	45 years+	Refused to answer
Male	159	399	154	44	15
Female	17	36	15	9	0
Total	176	435	169	53	15

D7. Please tell me, are you the owner of this business?
D8. What is the gender of the owner of this business?

n=848

Retailer uptake of banking services

62% of retailers do not hold a bank account neither for self nor business. 31% hold a bank account for themselves while only 8% have an account for business. 3% of the retailers in the market use the same account for self and business. FSDT reports that majority of MSMEs experience limited access to finance and effective use of financial products and services as major barriers to growth. The lack of access to finance by MSMEs attributes to Financial Services Providers' strict requirements around KYC and formal registration, collateral, credit history and lack of MSME tailored products. This brings out the importance of digital finance in the country and more so among the traders (FSDT reported that 76% of retailers use mobile money as the main financial products).

NMB & CRDB are the main banks with which the banked retailers hold accounts for business and/or self

BANK ACCOUNTS HELD BY RETAILERS

	TOTAL	TIER 1	TIER 2	TIER 3
	848	753	68	27
Bank account for self	31%	31%	34%	26%
Bank account for business	8%	8%	6%	0%
Same account for self and business	3%	3%	6%	4%
None of the above	62%	62%	60%	70%

BANK ACCOUNTS HELD BY GENDER

	MALE	FEMALE	TOTAL
	771	77	848
Bank account for self	236	24	260
Bank account for business	32	1	33
Same account for self and business	26	3	29
None of the above	477	49	526

BANK ACCOUNT FOR SELF

TOTAL	260
NMB	40%
CRDB	37%
Others	23%

BANK ACCOUNT FOR BUSINESS

TOTAL	68
NMB	40%
CRDB	25%
Others	35%

COMBINED ACCOUNT FOR SELF & BUSINESS

TOTAL	29*
CRDB	31%
NMB	28%
Others	41%

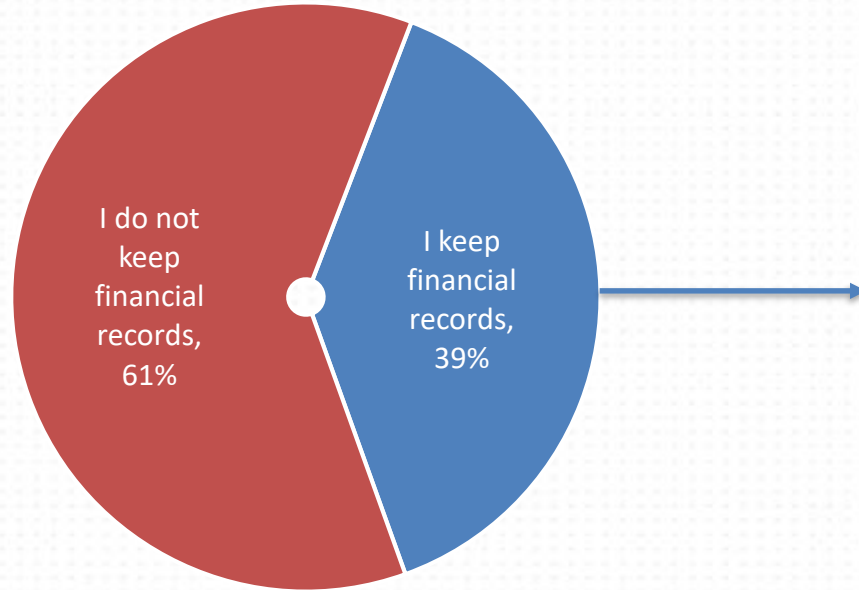
D4. Do you have any of the following bank accounts?

D5. With which bank do you have each of these accounts? (Bank account for self)

Financial records kept by retailers

39% of retailers keep financial records for their businesses. The records kept by retailers are mainly sales and expenses.

FINANCIAL RECORDS FOR BUSINESS



FINANCIAL RECORDS KEPT BY RETAILERS

	Total	Tier 1	Tier 2	Tier 3
	328	292	23*	13*
Sales and expenses records	86%	88%	61%	69%
Stock in/stock out	10%	11%	13%	-
Revenue and expenditure	7%	6%	9%	31%

***Small bases**

DO YOU KEEP FINANCIAL RECORDS FOR YOUR BUSINESS?		
	Yes	No
Male	294	477
Female	34	43
Total	328	520

D6. Do you keep any financial records for your business? If yes, which records do you keep?

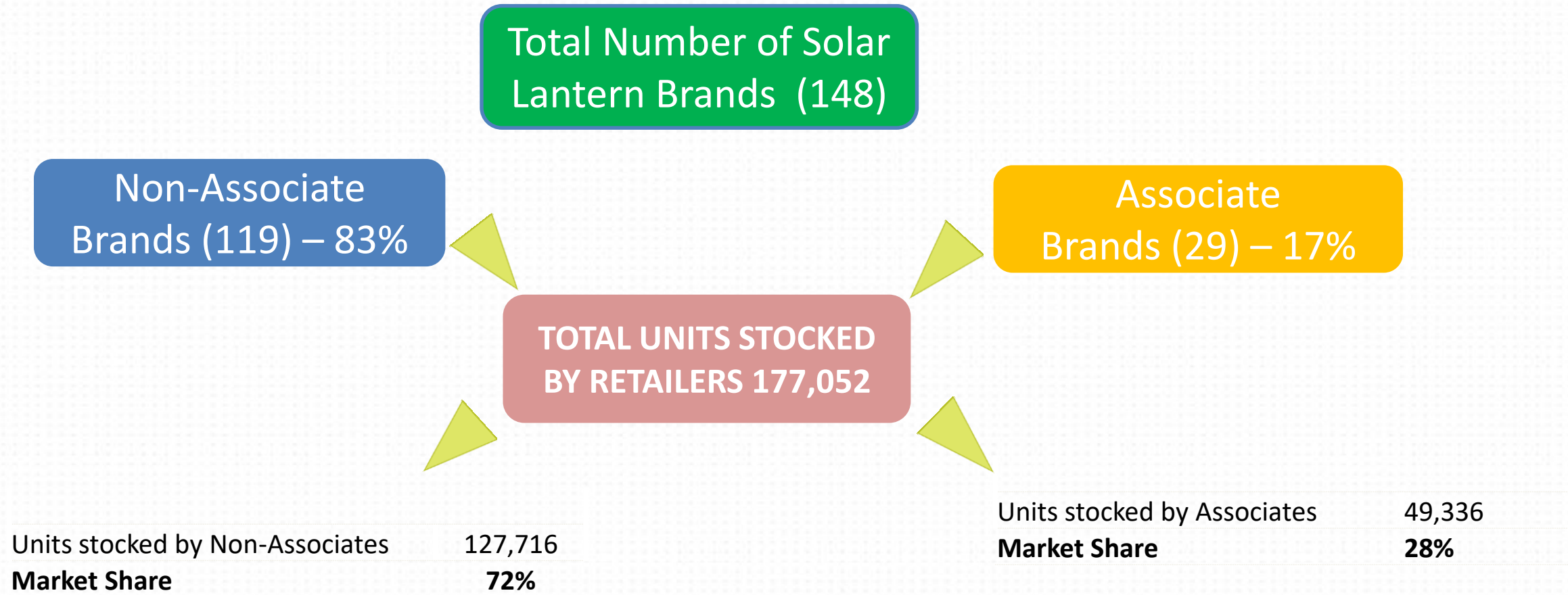
n=848



SOLAR LANTERNS

148 different solar lantern brands were identified in the market

- Associates brands account to 17% (29) of the total brands (148)
- However they account to 28% of the sales volumes



Q1c. Which brands of solar lanterns do you sell? Please tell me all the brands that you sell?

n=644



Solar lantern retailer penetration at tier level

Dar-es-salam, Mwanza & Arusha have the highest penetration of Associates brands in the outlets – but again not as market leaders (Arusha leads with 42% penetration).

RETAILER PENETRATION BY TIER 1 REGIONS

	Total	Dar-es-Salaam	Mwanza	Arusha	Mbeya	Morogoro	Moshi	Iringa	Songea	Tanga	Dodoma
N	644	167	57	10*	13*	65	15*	50	12*	24*	84
Associate	17%	31%	26%	42%	8%	6%	20%	4%	14%	3%	4%
Non-Associate	83%	69%	74%	58%	92%	94%	80%	96%	86%	97%	96%

*Read with caution, small bases

Q1c. Which brands of solar lanterns do you sell? Please tell me all the brands that you sell?

n=644

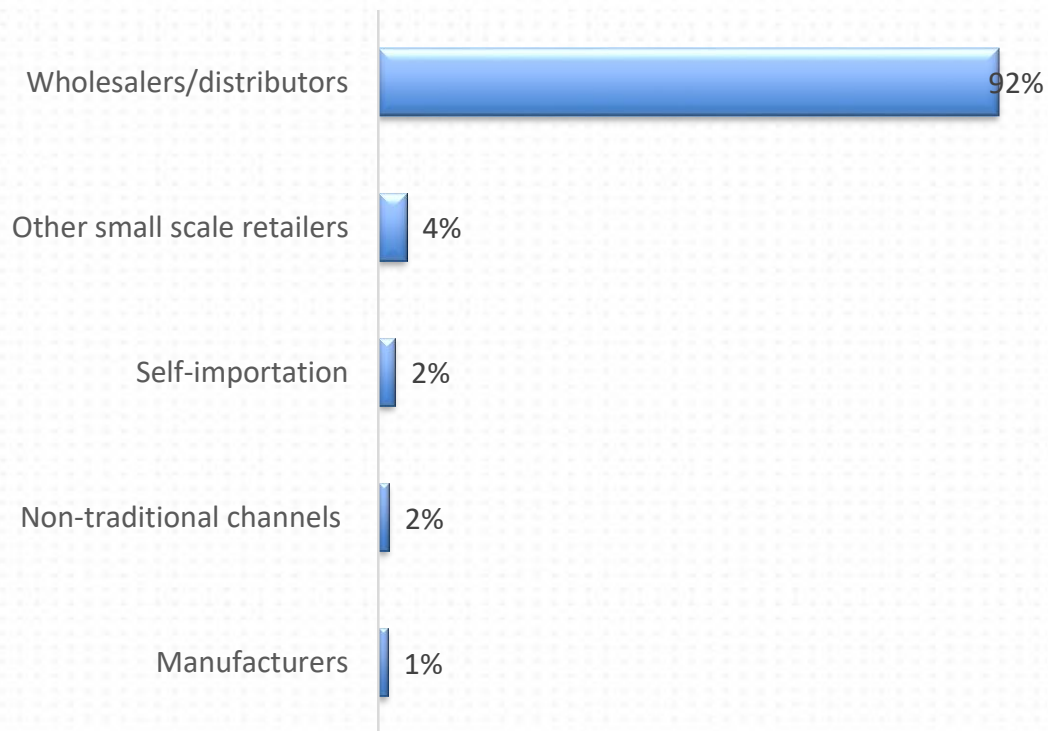


Product purchase points and target customers

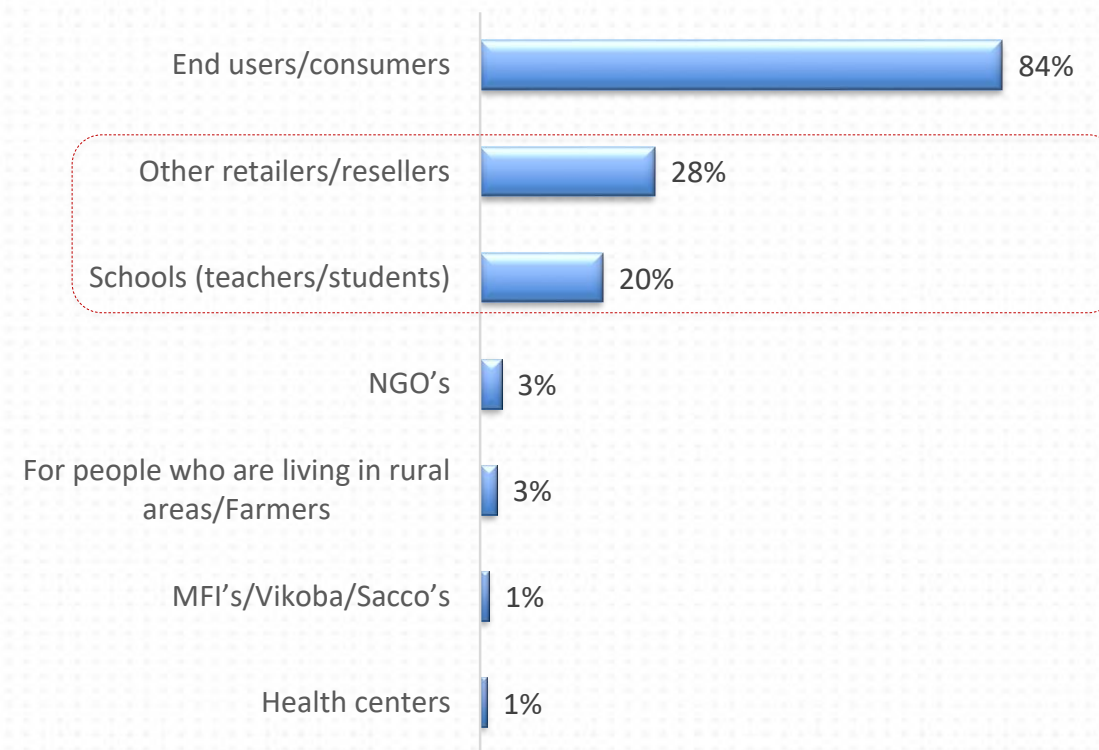
Wholesalers are the key suppliers for retailers, probably because of their importance in breaking the bulk goods into smaller units.

While end users are key customers for these retailers, schools are an important channels for moving the products too

SUPPLIERS FOR RETAILERS



CUSTOMERS TARGETED BY RETAILERS



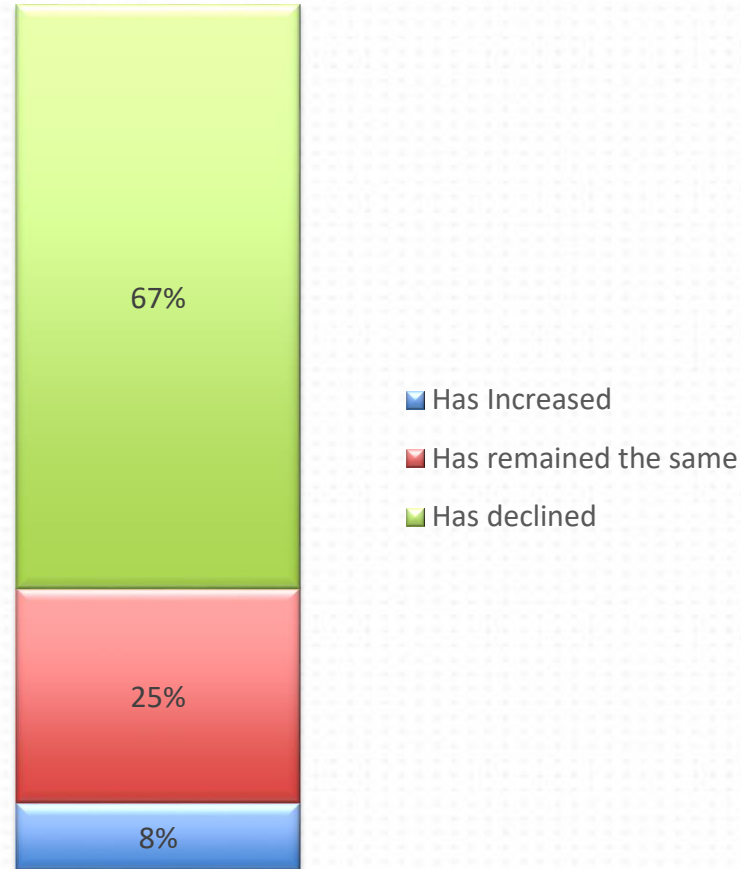
Q1k. Please tell me, where do you purchase your solar lanterns from?
Q1l. Please tell me, who are your target customers for solar lanterns?

n=644

Market demand for lanterns in the last 12 months

There is cause for concern among retailers of solar lanterns as 67% of them claim to have experienced a decline in sales for products in the last 12 months

Demand for lanterns in the last 12 months



Q1n. How would you compare the number of units (solar lanterns) you are selling now to 12 months ago? Would you say...

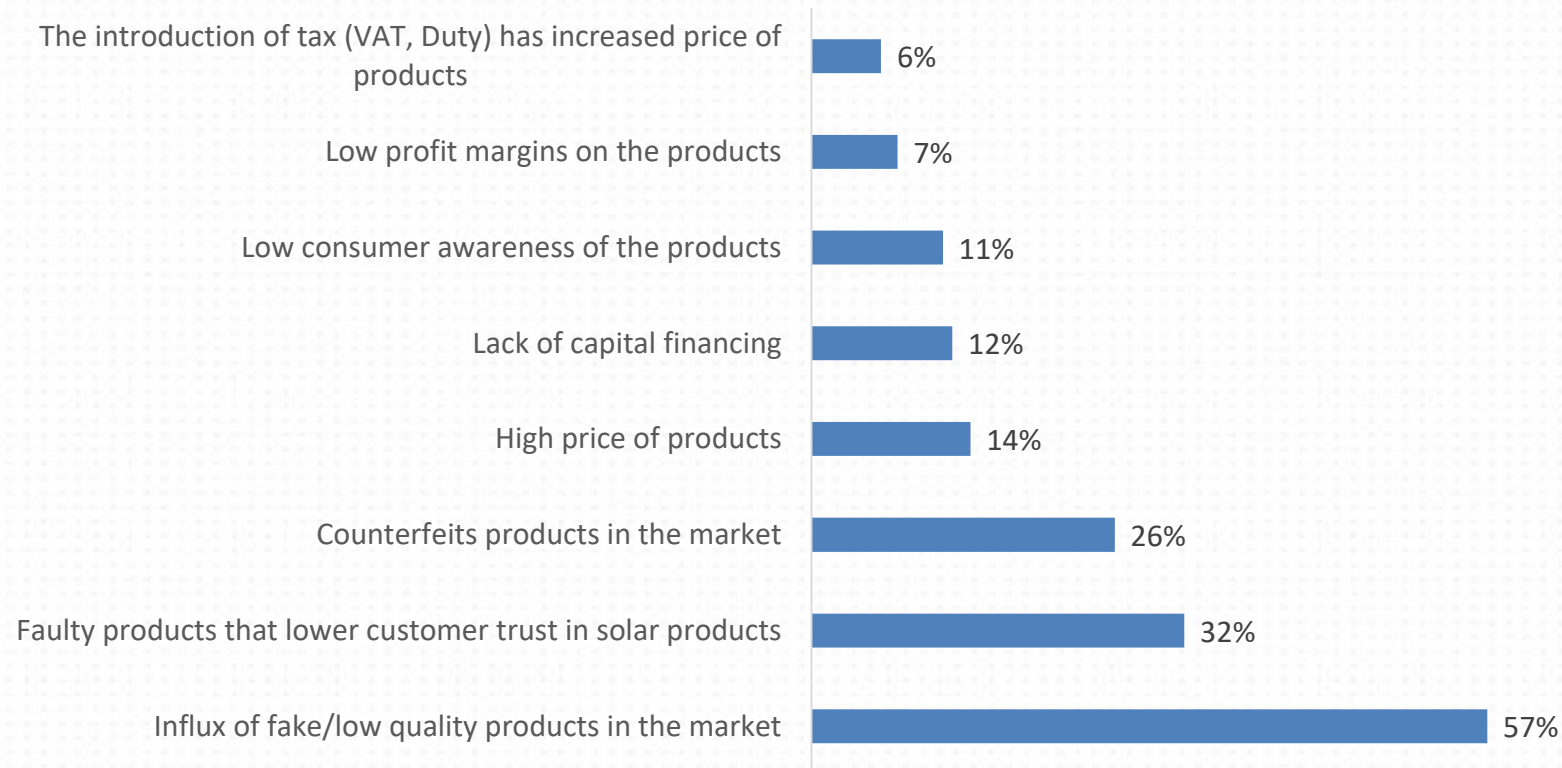
n=644



Challenges faced by lantern retailers

More than half of the retailers cite the influx of low quality products in the market as the main challenge to their businesses. Faulty products (as a proxy of low quality products) is the second biggest threat to the solar businesses more so in tier 3 areas where the demand for the products is high. This calls for measures to curb the serious market spoilage issue

CHALLENGES FACED BY RETAILERS OF SOLAR LANTERNS



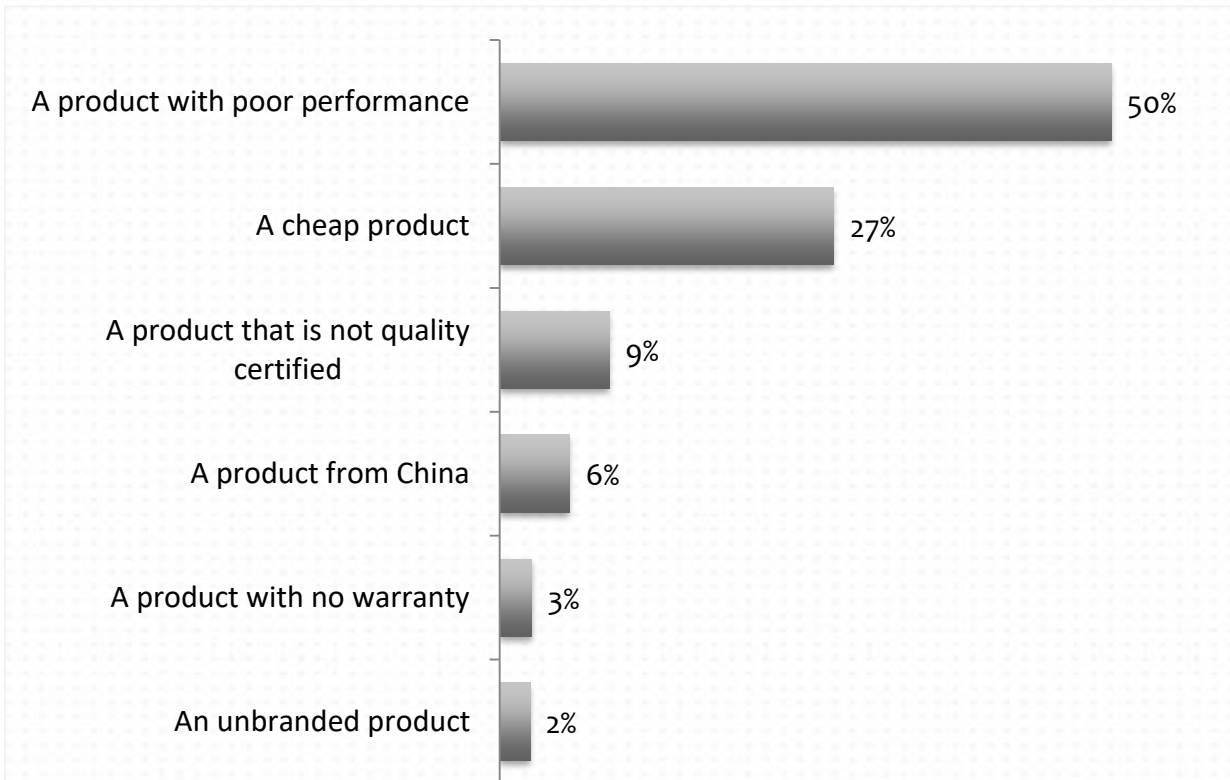
Q1o. What challenges if any, do you face when selling solar lanterns?

n=644

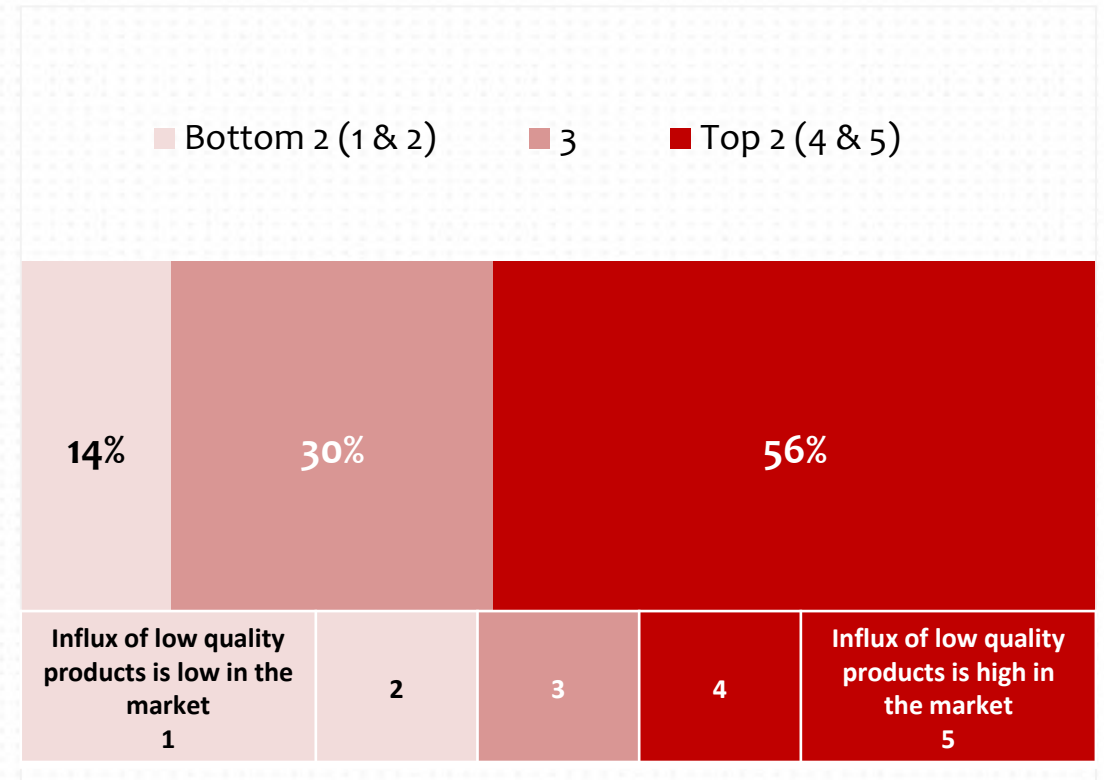
Retailer opinion on low quality products

More than half of the retailers claim that there is a high influx of low quality products in the market. These products are defined as products with poor performance and cheap

What is a low quality solar lantern?



Retailers rating of Influx of low quality products in the market on a scale of 1 - 5



Q1p. What, in your own words is the definition of a low quality solar lantern?

Q1q. On a scale of 1-5, to what extent would you say there is an influx of low quality and counterfeit solar lanterns in the market?

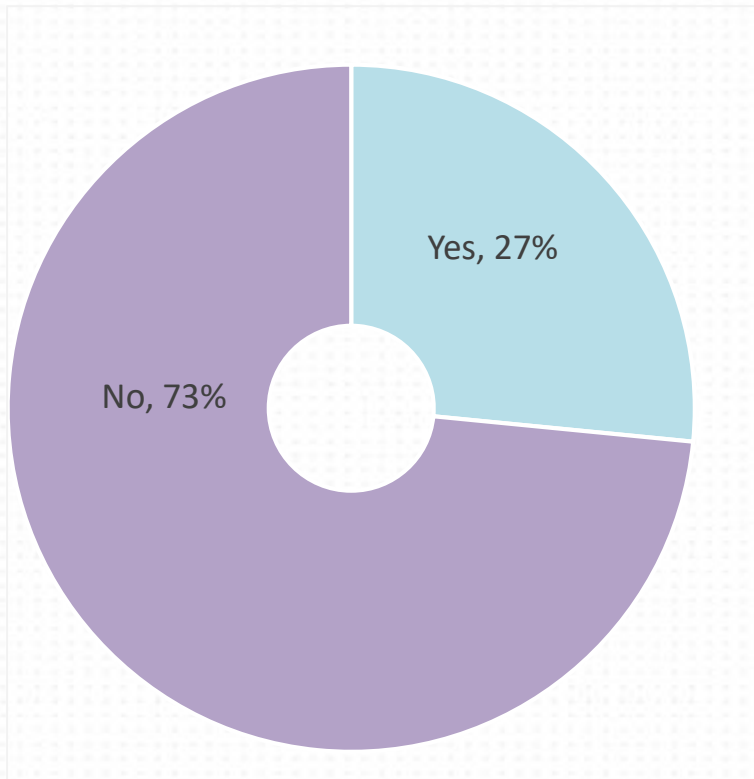
n=644



Most retailers can hardly differentiate between genuine and counterfeit lanterns

73% of lantern retailers cannot differentiate between genuine and counterfeit solar lanterns in the market. This calls for urgent retailer education on how to distinguish between the products in order to encourage adoption of quality verified products.

CAN YOU DIFFERENTIATE BETWEEN GENUINE AND COUNTERFEIT LANTERNS IN THE MARKET?



RETAILER CRITERIA FOR SELECTING SOLAR LANTERNS FOR SELL



Q1r. Tell me, are you able to differentiate between genuine and counterfeit solar lanterns in the market?
Q1s. How do you decide on which brands/types of solar lanterns to stock/sell in your outlet?

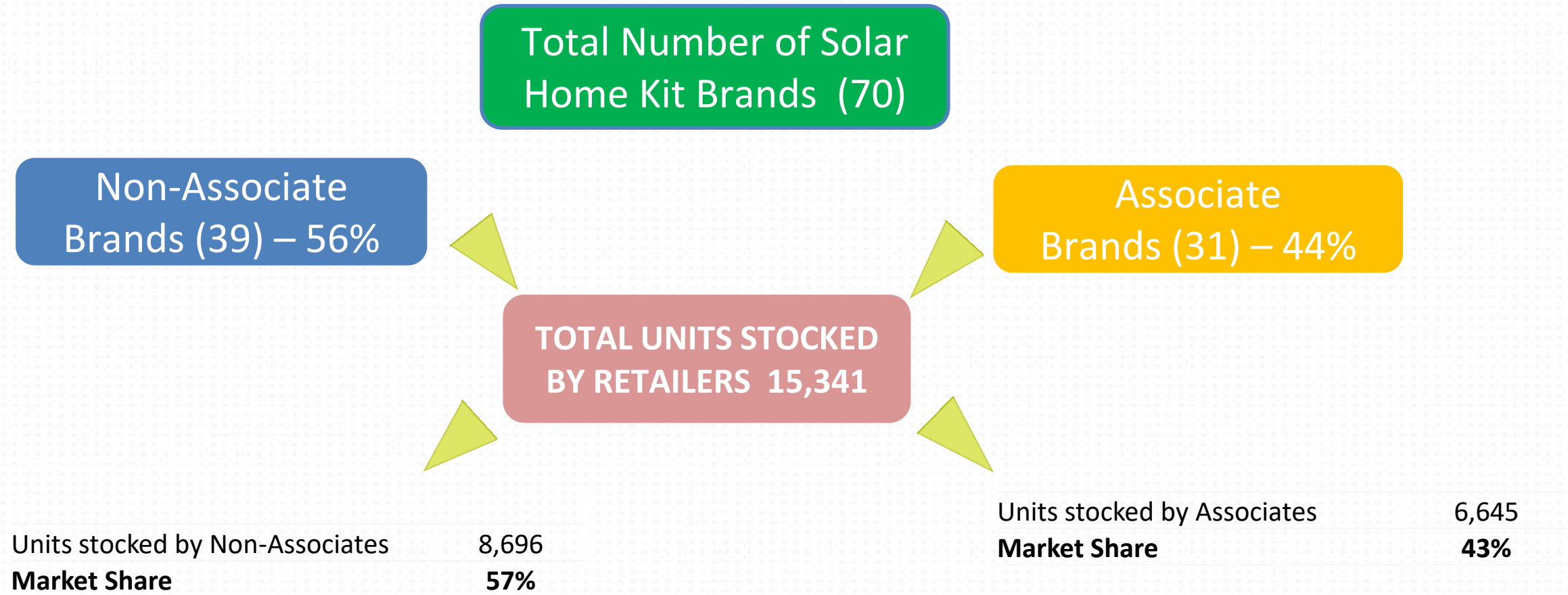
n=644



SOLAR HOME KITS

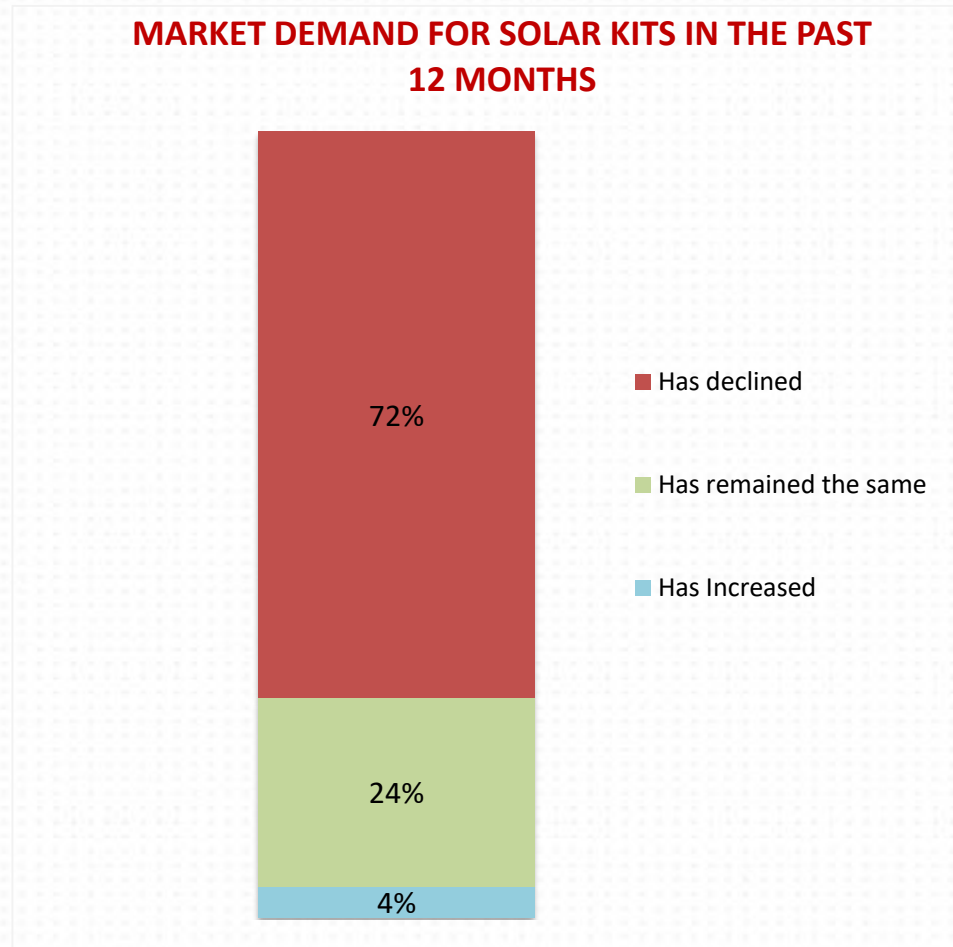
70 different brands for solar kits were identified in the market

Associate account to 44% (31) of the 70 brands in the market. They also have a corresponding market share on volume sales



Market demand for products

Just like for lanterns, about three quarters of solar kit retailers claim to have witnessed a decline in sales for the products. This could be attributed to the current high cost of living making pushing high value solar lights beyond the scope of some consumers



Q2n. How would you compare the number of units (solar lanterns) you are selling now to 12 months ago? Would you say...

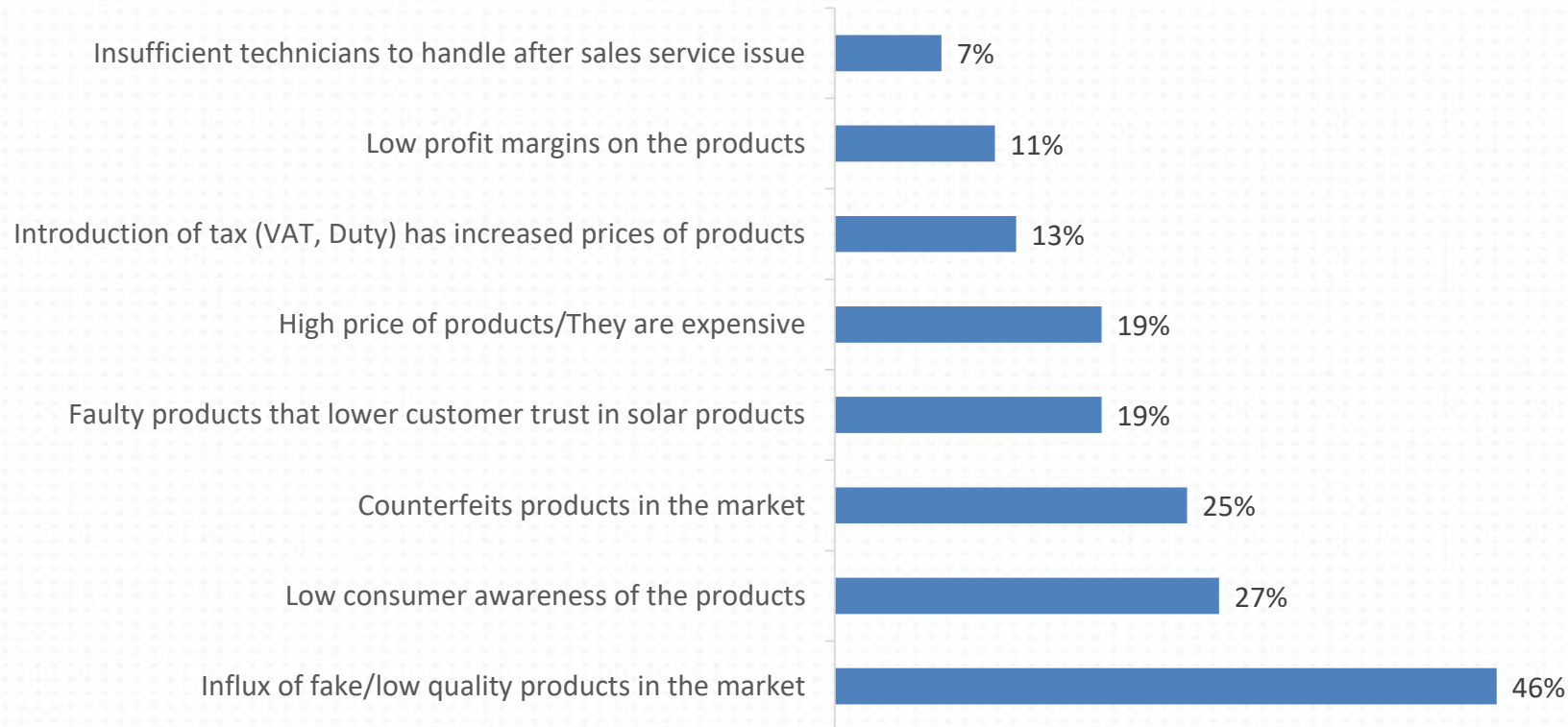
n=134



Challenges faced by solar kit retailers

The current influx of low quality products in the market is making it difficult for retailers to operate in the market. This calls for partnerships between the government and the private sector in order to effectively curb inflow of these products. A quarter of the retailers also cite low consumer awareness of the products as another challenge to their businesses. This call for consumer education programs in the market in order to increase awareness as well as encourage adoption of the product.

CHALLENGES FACED BY RETAILERS OF SOLAR KITS



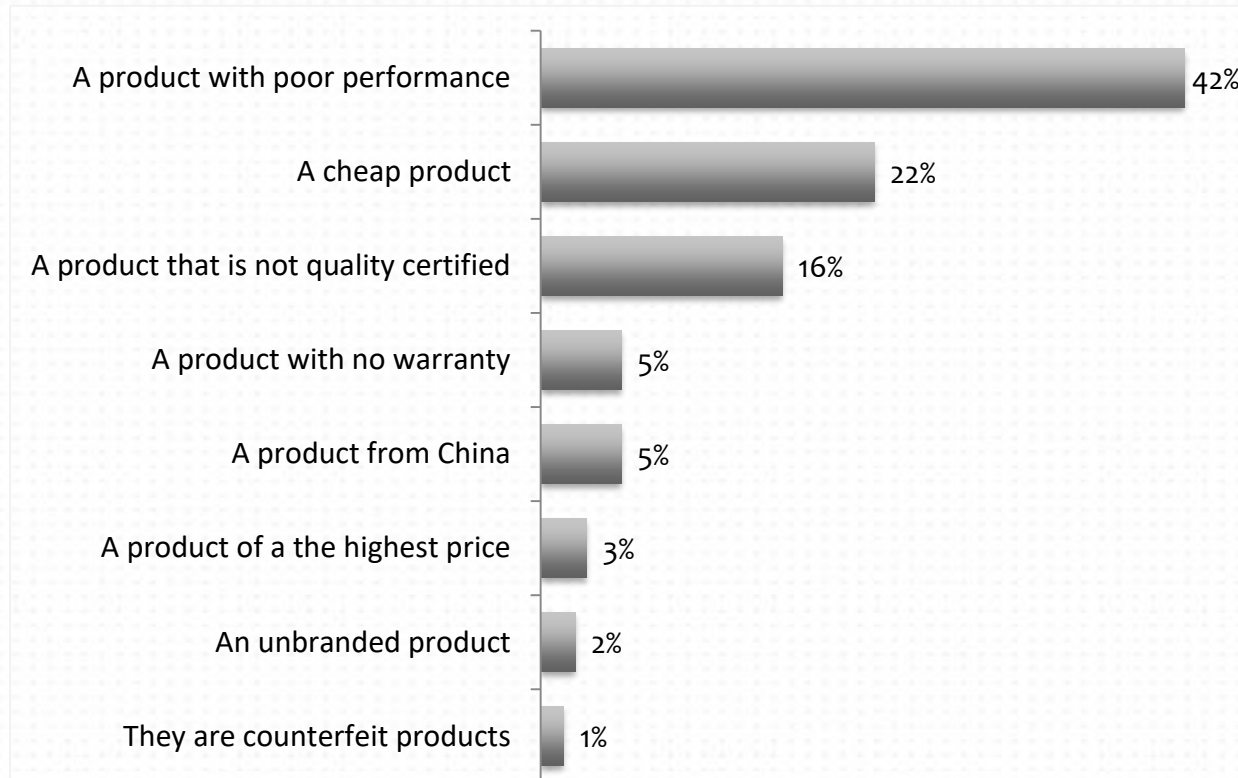
Q2o. What challenges if any, do you face when selling solar kits?

n=134

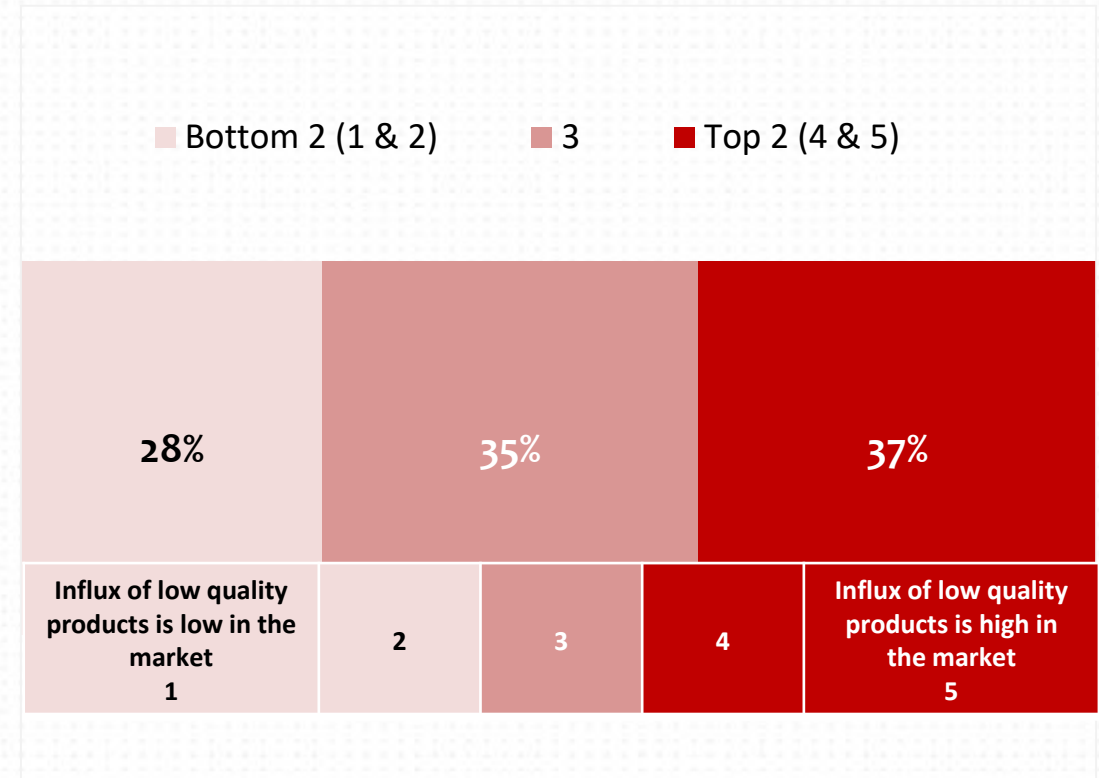
Solar kit retailer perceptions on quality

A low quality solar kit is mainly defined as a product with poor performance. 37% of the solar retailers in the market claim that there is a high influx of poor performing kits in the market. This can be attributed to the low penetration of quality verified products in the market

What is a low quality solar kit?



Retailers rating of Influx of low quality products in the market on a scale of 1 - 5



Q2p. What, in your own words is the definition of a low quality solar lantern?

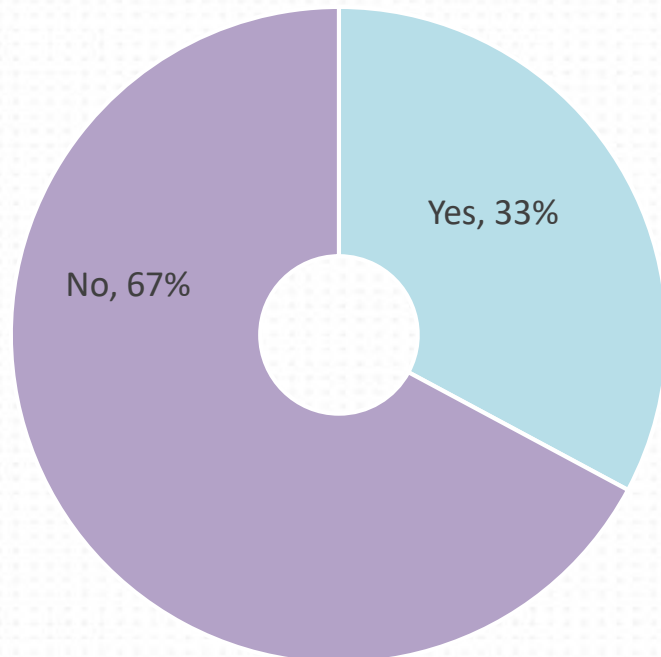
Q2q. On a scale of 1-5, to what extent would you say there is an influx of low quality and counterfeit solar lanterns in the market?

n=134

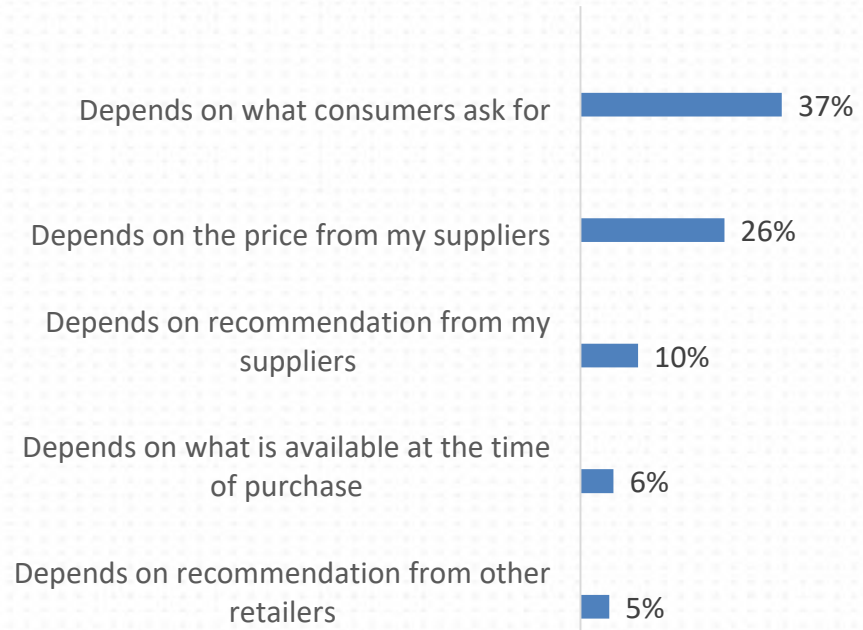
Solar kit retailer perceptions on quality

Only a third of solar kit retailers can differentiate between genuine and counterfeit solar kits in the market. This explains the high volumes moved by non-associate brands in the market. The nature of products stocked by retailers is dependent on what consumers ask for. This means if consumer education campaigns are implemented in the market, there is a likelihood of behavior change from use/sell of non-quality to quality verified products by both retailers and consumers.

CAN YOU DIFFERENTIATE BETWEEN GENUINE AND COUNTERFEIT SOLAR KITS IN THE MARKET



RETAILER CRITERIA FOR SELECTING SOLAR KITS FOR SELL



Q2r. Tell me, are you able to differentiate between genuine and counterfeit solar lanterns in the market?
Q2s. How do you decide on which brands/types of solar lanterns to stock/sell in your outlet?

n=134





SOLAR PANELS DEEP DIVE

Brand penetration

Sundar solar panels have the highest market penetration with about half of the retailers in the market carrying the brand. These retailers are mainly based in tier 1 regions. Oceanic and Sunshine solar are other popular brands in the market

SOLAR PANEL RETAILER PENETRATION

	TOTAL	TIER 1	TIER 2	TIER 3
BRANDS STOCKED	394	343	36	15*
Sundar Solar	48%	50%	36%	47%
Oceanic solar	15%	12%	56%	7%
Sunshine Solar	15%	16%	14%	7%
Pro Solar	11%	11%	8%	13%
Best Solar	10%	10%	3%	13%
Tendar solar	5%	5%	6%	7%
Gold Starshine	4%	4%	3%	0%
Shiv Solar	4%	4%	6%	0%
Step Solar	3%	3%	3%	0%

Q3a. Which brands of solar panels do you sell? Please tell me all the brands that you stock.

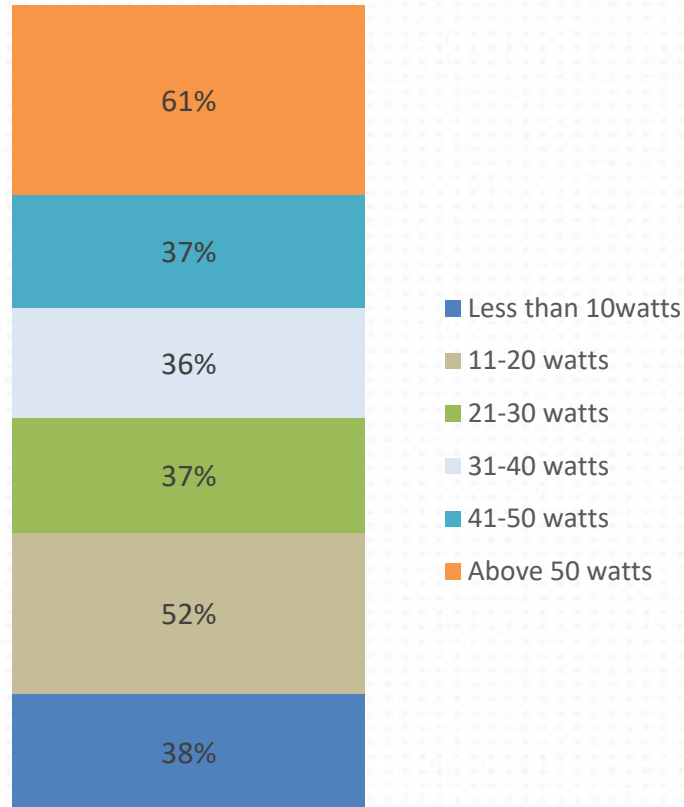
n=394



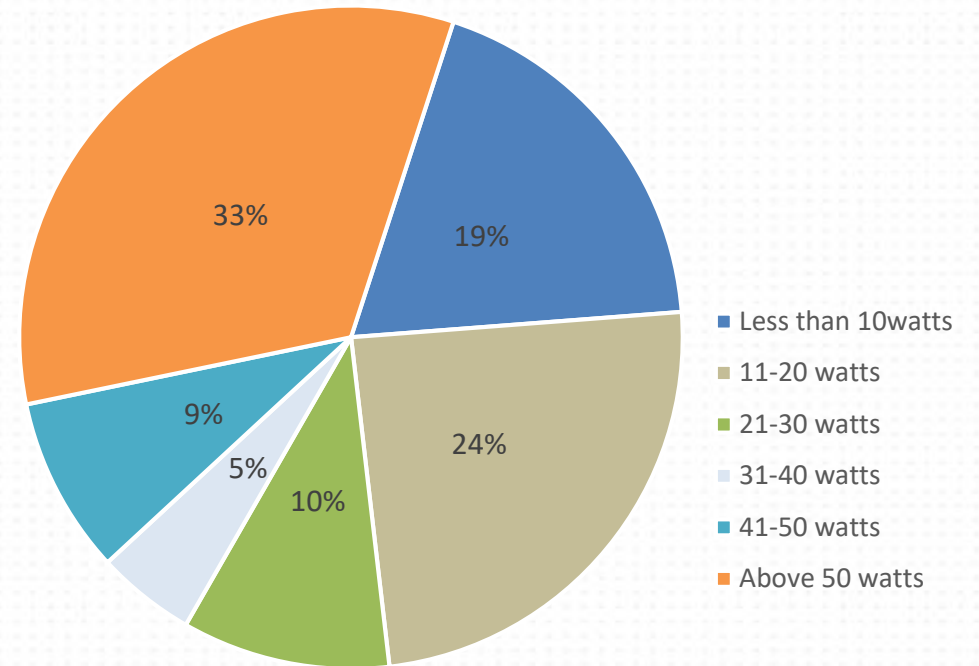
Size popularity

Panels of above 50 watts are stocked the most as they are the fastest moving. Panels of 11-20watts and less than 10 watts are also popular in the market.

SOLAR PANEL SIZES STOCKED



FASTEST MOVING PANELS



Q3k. Which of the following sizes of solar panels do you sell?
 Q3ki Which size of solar panels sells the most amongst your customers?

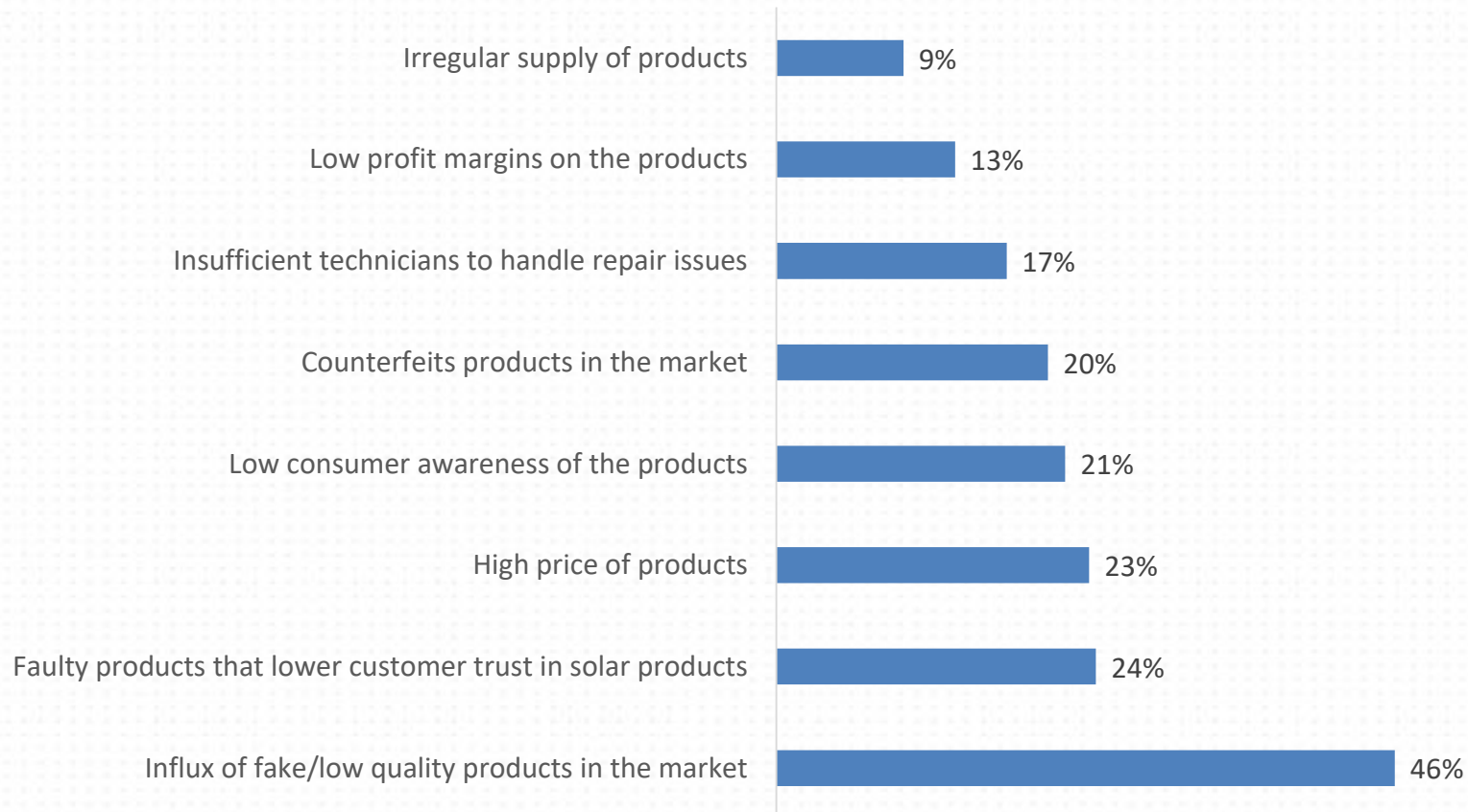
n=394



Challenges faced by retailers of solar panels

The issue of product quality is rife in the market as close to half of solar panel retailers assert that the influx of low quality products is the main challenge they face with their businesses. These very low quality products tend to be highly faulty lowering consumer trust in solar products.

CHALLENGES FACED BY RETAILERS OF SOLAR PANELS



Q3p.What challenges if any, do you face with retailing of solar panels?

n=394



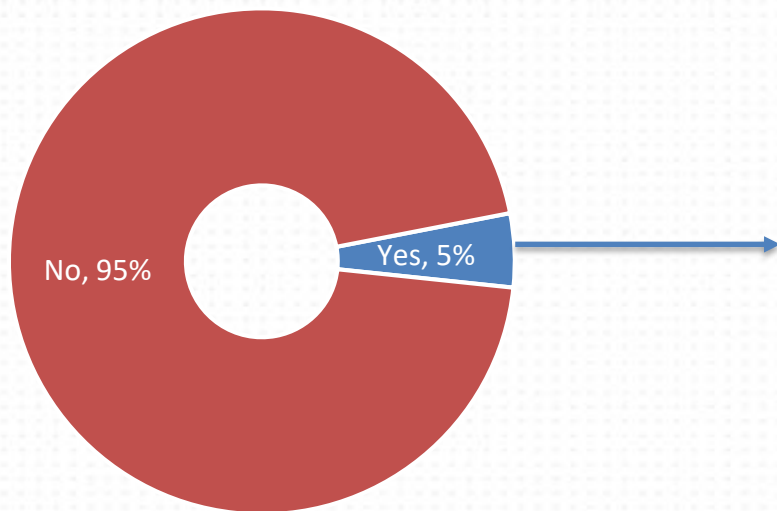


GENERAL MARKET INSIGHTS

Retailer credit

ONLY 5% of solar retailers have secured credit from their suppliers for stock. Distributors, who are the main suppliers for this retailers, account for the highest incidence of credit given to retailers. Other small retailers also give financing to retailers. Payment periods given by these suppliers is mainly 30 days

PLEASE TELL ME, DO YOU HAVE ANY CREDIT TERMS WITH ANY OF YOUR SUPPLIERS?



SUPPLIERS THAT GIVE CREDIT	40
Self-importation	5%
Manufacturers	10%
Distributors/Wholesalers	58%
Other small scale retailers	20%
Non-traditional channels	10%

Please tell me, do you have any credit terms with any of your suppliers?		
GENDER	Yes	No
Male	38	733
Female	2	75
Total	40	808

G1. Please tell me, do you have any credit terms with any of your suppliers?
 G2. Which of your suppliers give you goods on credit?

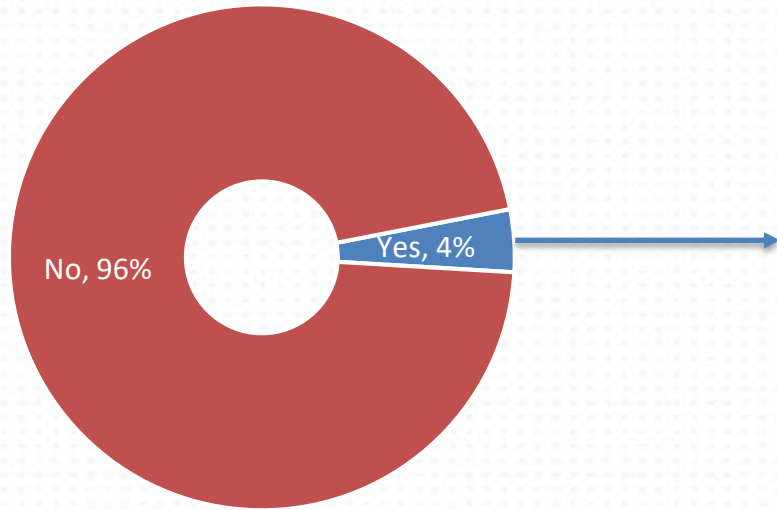
n=848



Retailer financing

Retailers hardly go for capital financing from lenders for purchase of solar products. For the few that do, banks stand out as the main lending institutions. Borrowing from relatives/individuals is also done by these retailers

HAVE YOU SECURED FINANCING FROM LENDERS FOR PURCHASE OF SOLAR PRODUCTS



SOURCE OF FINANCING FOR SOLAR	Percentage
Bank	58%
Micro finance institutions (MFI)	6%
SACCO	6%
My fellow farmers	3%
Relative/individual	15%
A solar product seller	9%
A youth group	3%

Have you secured any form of financing from lenders for purchase of solar lighting products?		
GENDER	Yes	No
Male	25	746
Female	8	69
Total	33	815

G4. Have you secured any form of financing from lenders for purchase of solar lighting products?
 G5. From whom did you secure this finance for solar lighting products?

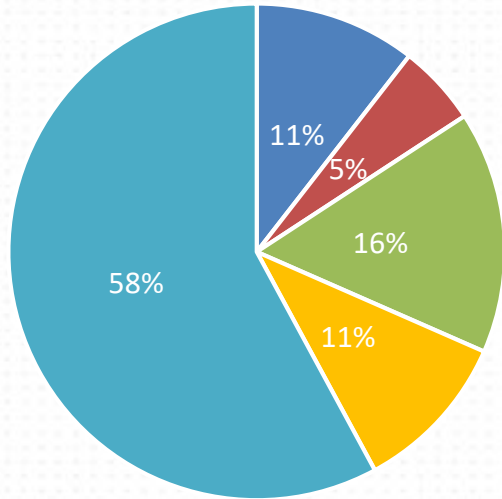
n=848



Credit terms given to retailers by banks

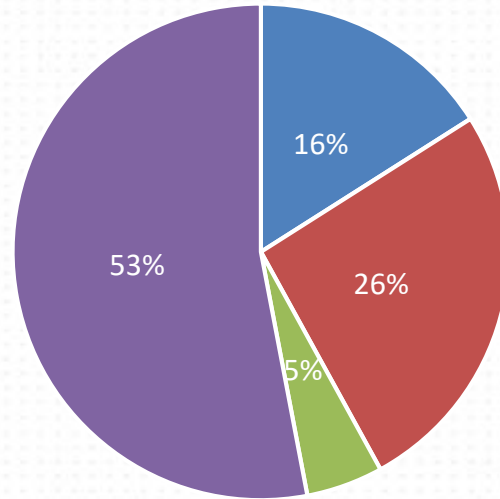
While majority of the respondents declined to give information of the loans borrowed from banks, the few who disclosed mainly borrowed between TZS 1.1-2.2 million, with a repayment period of 1-2 years. properties like buildings were the main securities given for the loans which had varying interest rates Of between 5%-15%. Retailers feel the payment period for the loans is too short

Amount borrowed from bank (USD)



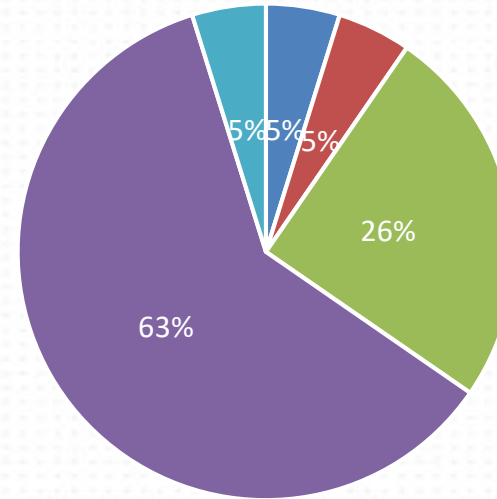
- 100 – 200
- 201 – 500
- 501 – 1,000
- 1000+
- No answer/Refused To Answer

Payment period



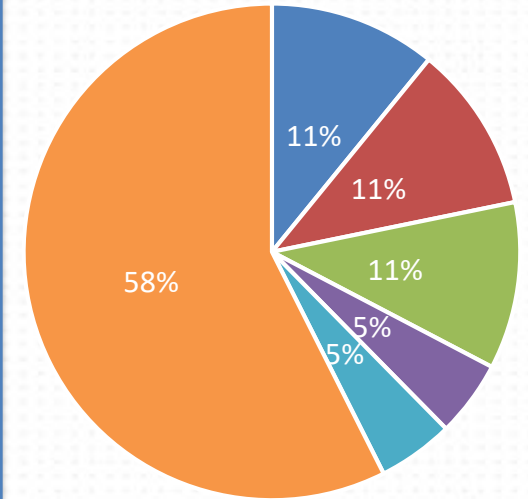
- Less than 1 year
- 1-2 years
- 2-5 years
- No answer/Refused To Answer

Security given



- Salary
- Title deeds
- Property e.g. building
- No answer/Refused To Answer

Interest rate paid



- Below 5% pa
- Between 6% - 10% pa
- Between 11% - 15% pa
- Between 16%-20% pa

G7. How much have you secured from the financier for purchase of solar lighting products? (Bank)

G11. What interest rate do you pay for the loan?

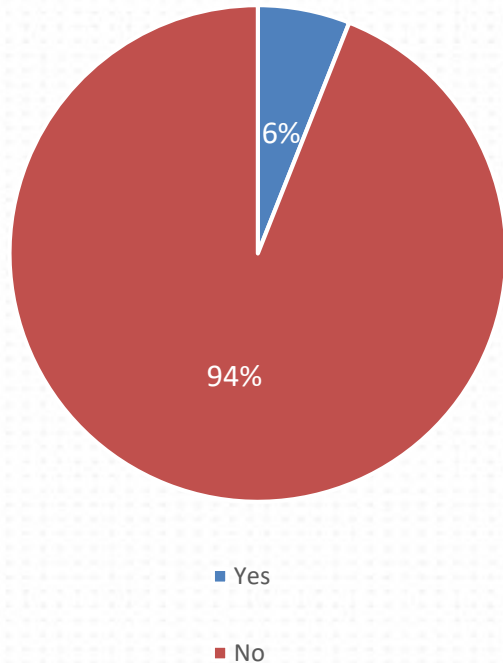
G8. How long is the repayment period for this loan?

G9. What security did you have to offer for the money?

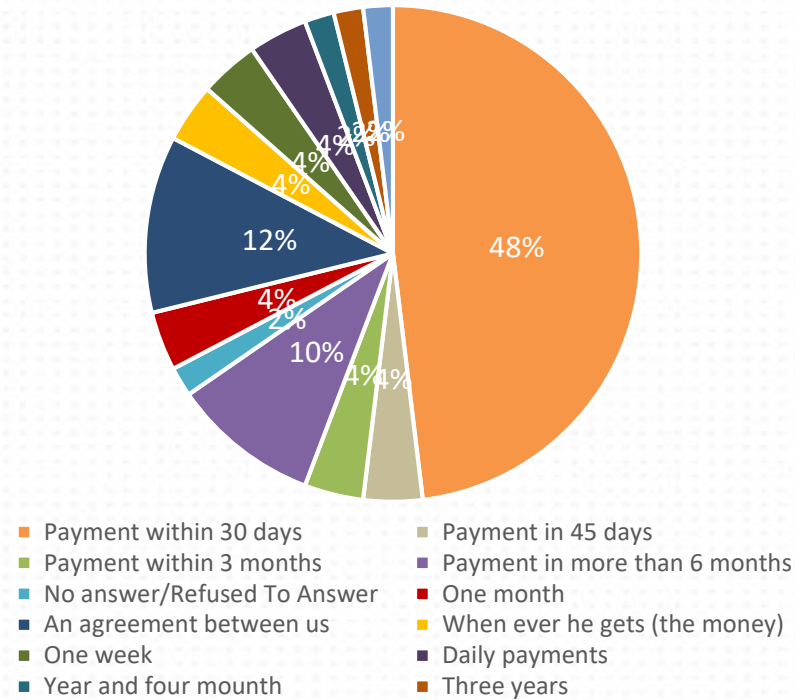
Credit terms given to customers by retailers

Retailers hardly give any credit to their customers, only 52 out of 848 retailers do this. About half of these retailers give a payment period of 30 days. This credit to customers comes with an interest rate of below 5% pa. about half of the retailers that give customers solar products on credit do not experience cases of default. For the few cases of default, the major reason for this is cited as loss of income by the customers

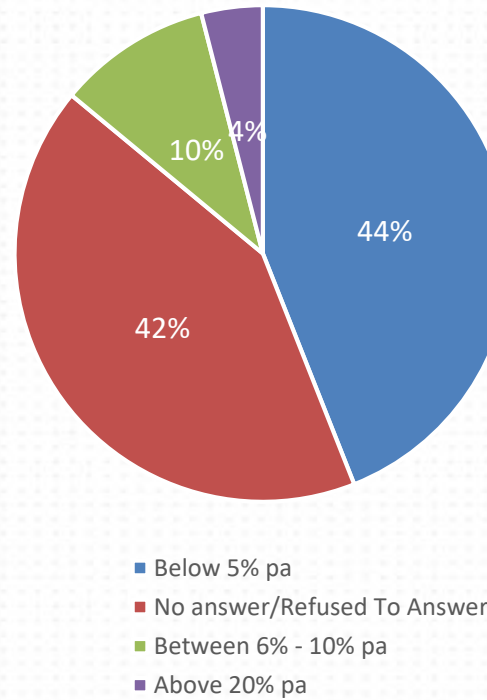
Give credit terms to customers



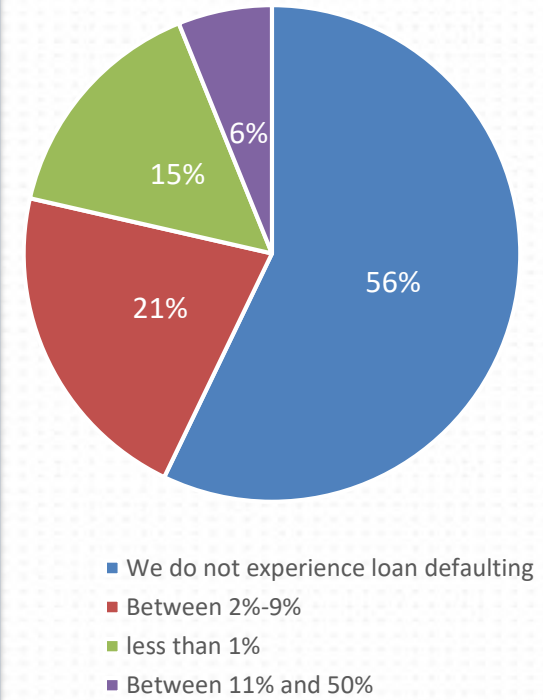
Credit terms



Interest rate



Extent of default



- G12. Please tell me, do you give any credit/finance terms to your customers?
- G13. What credit terms do you give to your customers?
- G14. What interest rate do you add on the credit given to your customers?
- G15. What rate of default do you experience on the credit advanced?
- G16. What would you say are the reasons for the defaults?
- G16. What would you say are the reasons for the defaults?

n=52 (retailers who give credit terms to their customers)



Proposed solutions to scaling up the solar market in Tanzania

About 6 in 10 retailers feel that aggressive consumer education on availability of quality products is the most important thing that can be done to scale up the solar lighting market in Tanzania, this is especially the case in tier 3 areas. Secondly, with counterfeits being a large problem in the market, there is retailer plea for curbing the entry of these products into the market. This calls for interventions at policy level

	TOTAL	TIER 1	TIER 2	TIER 3
	848	753	68	27*
Aggressive consumer education on quality products	58%	58%	57%	63%
Curbing entry of counterfeit products into the market	38%	38%	35%	56%
Consumer education on availability of after sales services for quality assured products	34%	34%	49%	11%
Availing credit/finance for retailers	17%	17%	18%	0%
Training more technicians/installers in the market	12%	12%	18%	0%
Availing credit/finance for consumers	7%	8%	9%	0%
Availability of quality and reliable products for consumption	7%	7%	6%	19%
They should reduce the price	6%	7%	1%	4%

*Small base

G17. What do you think can be done to scale up the solar lighting market in Tanzania?

n=848



CONSUMER INSIGHTS

Key specific study objectives

IFC – Tanzania commissioned Ipsos to undertake a market research on the off grid lighting market in the country.

Objective and purpose of the survey

To provide the industry, key stakeholders from the commercial sector, investors, financial institutions, government, donors, civil society with up to date understanding of:

- Consumer experiences with solar lighting products including Pay-As-You-Go (PAYG) products
- Where retailers are purchasing their solar products for sale

Specific information areas






Areas under investigation for the additional scope included;

1. Solar products and brands used by consumers and period they have used the brand
2. Establish consumers experience and willingness to recommend the products
3. The market channel- both from consumers and retailers
4. How consumers and retailers define counterfeit products and their definition of a quality product
5. Ease of doing business and getting financial support
6. Reasons behind consumers second purchase
7. Retailers purchase drivers for solar products
8. Drivers for consumers' upscaling to high energy, more expensive products



Overview of the research approach

Below outlines the methodology used to capture the quantitative and qualitative

		QUANTITATIVE APPROACH	QUALITATIVE APPROACH
Who		18+years; Male & Female who are decision makers in the household	
Where		Arusha, Mbeya, Mtwara, Mwanza, Rukwa, Singida, Tabora and Tanga	
When		October 2017	October 2017
How		Face to face data collection, Mobile data collection, House hold random interviews following the left hand rule	Qualitative Focus Group Discussions & In Depth Interviews- following the criteria's to be achieved per respondent
Sample		1378	10 FGDs 12 IDIs



Detailed methodology description

A three-stage sampling design was applied. The first stage involved the selection of urban and rural enumeration areas (primary sampling units) from the sampling frame -2012 Population and Housing Census - for each administrative unit in all regions. Wards in the enumeration areas formed the PSU's. The EAs were selected using a Probability Proportional to Size (PPS) procedure. The measure of size for the EAs was the households.

The second stage was the selection of households (secondary sampling units) from the enumeration areas. The date score method was used to determine the first household to be interviewed and thereafter appropriate skips applied depending on the setting (200m for rural EAs and skipping of 4 households in urban EAs.) while following the left hand rule.

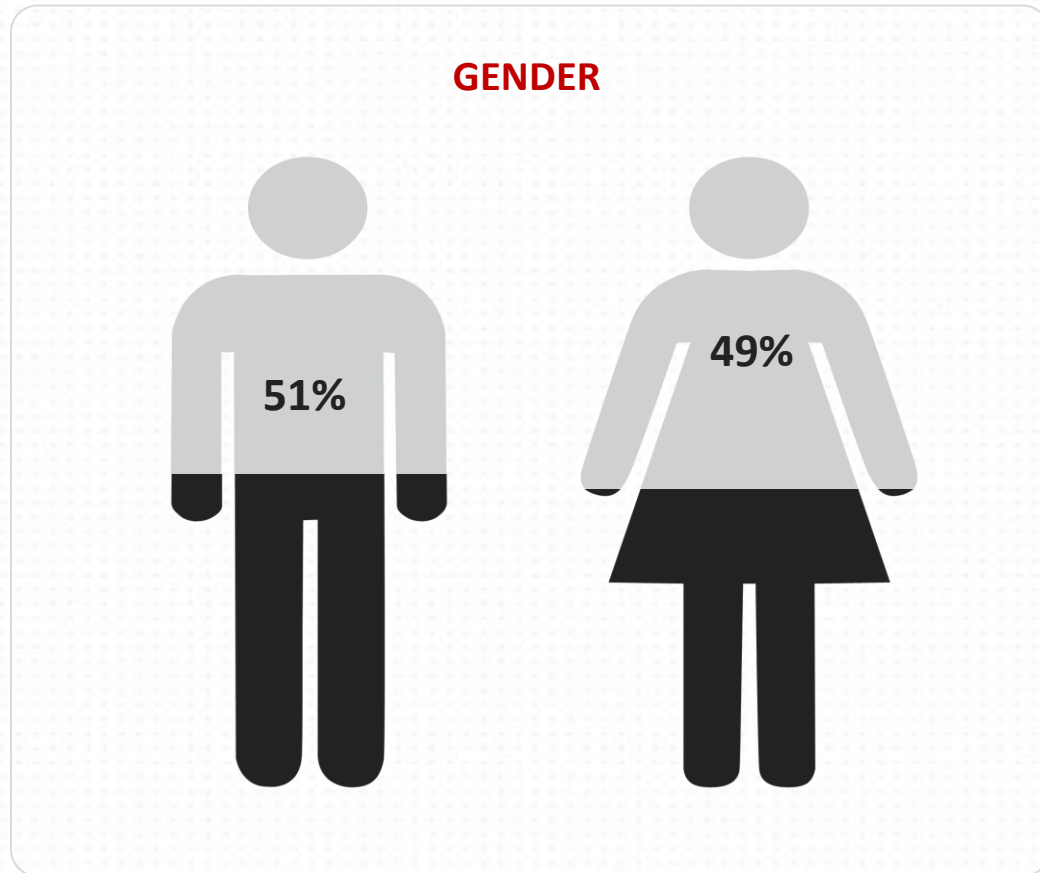
The final stage involved selection of respondents who were the key purchase decision makers or people who make part of the purchase decisions for the households.



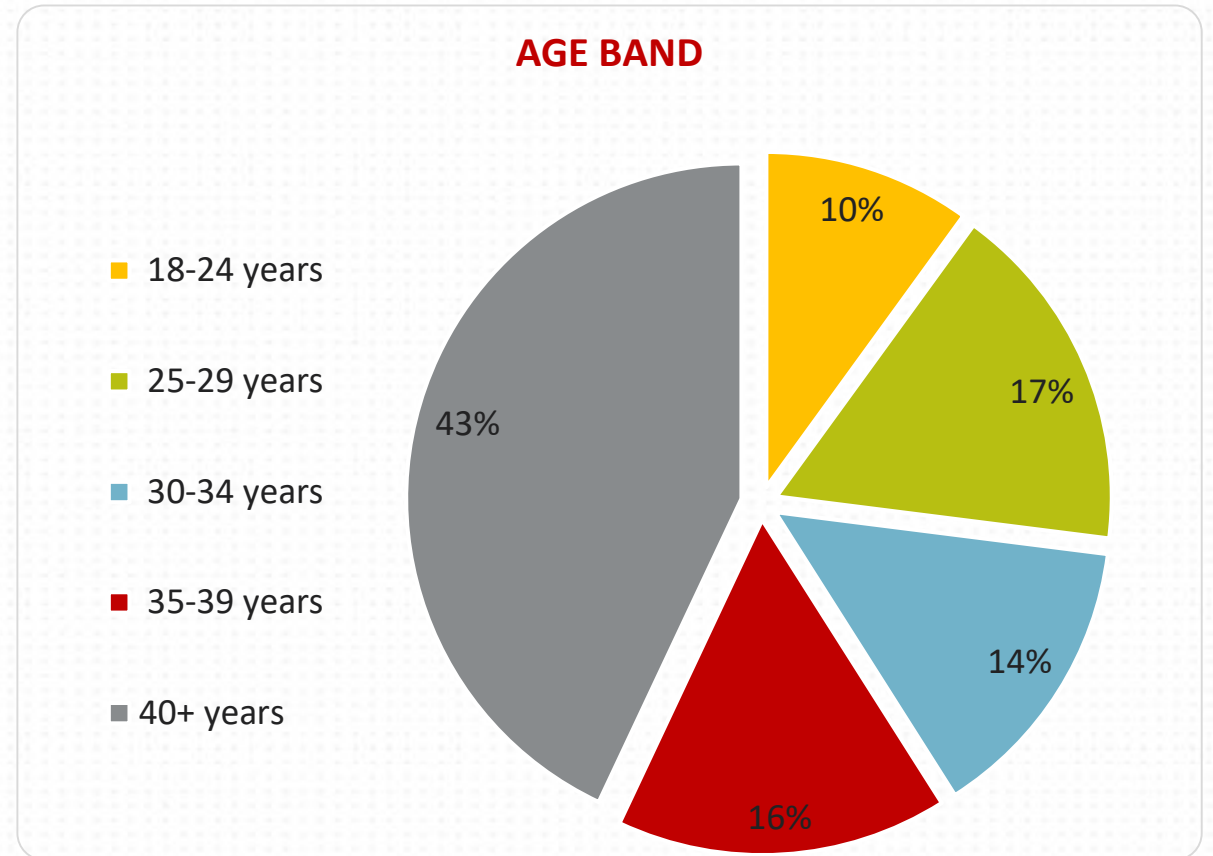
Respondent Demographics

- Slightly more males (54%) than females were surveyed – based on the selection criteria of main household decision maker / head of household
- 90% of the respondents surveyed were adults aged 25+ years of age

Gender of respondent



SC3. Please tell me how old are you?



n=2482

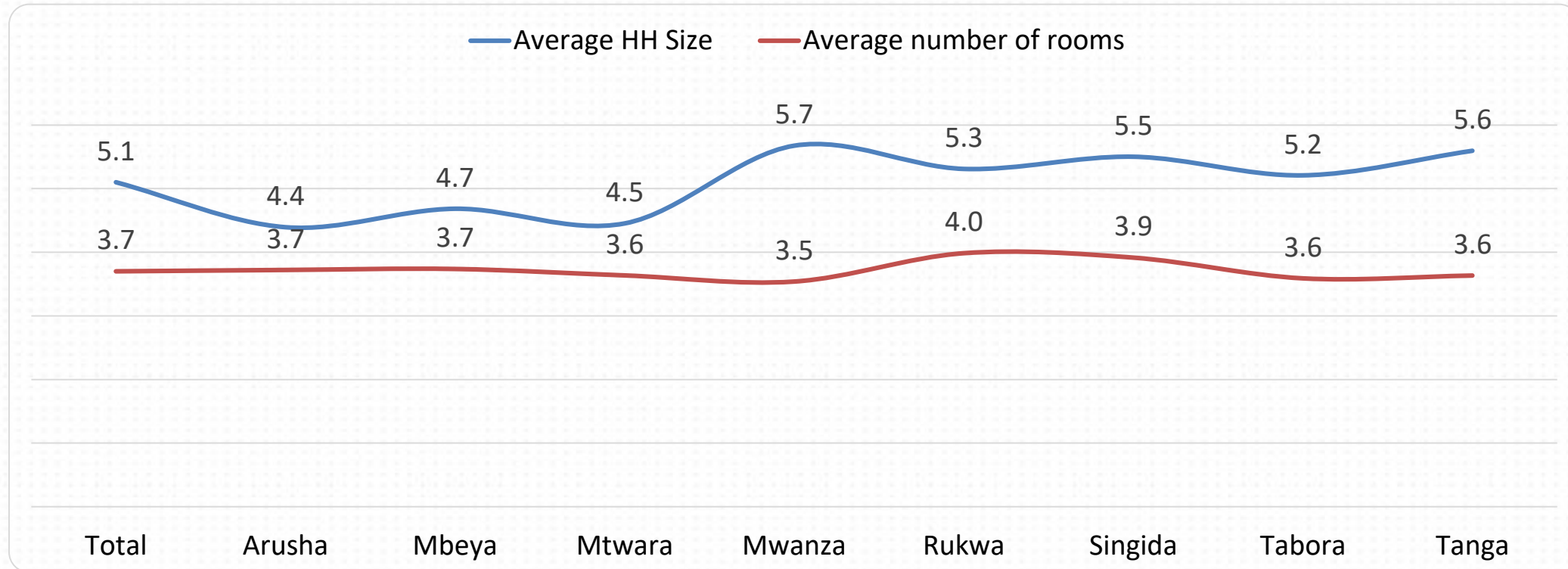


Average household size and number of rooms

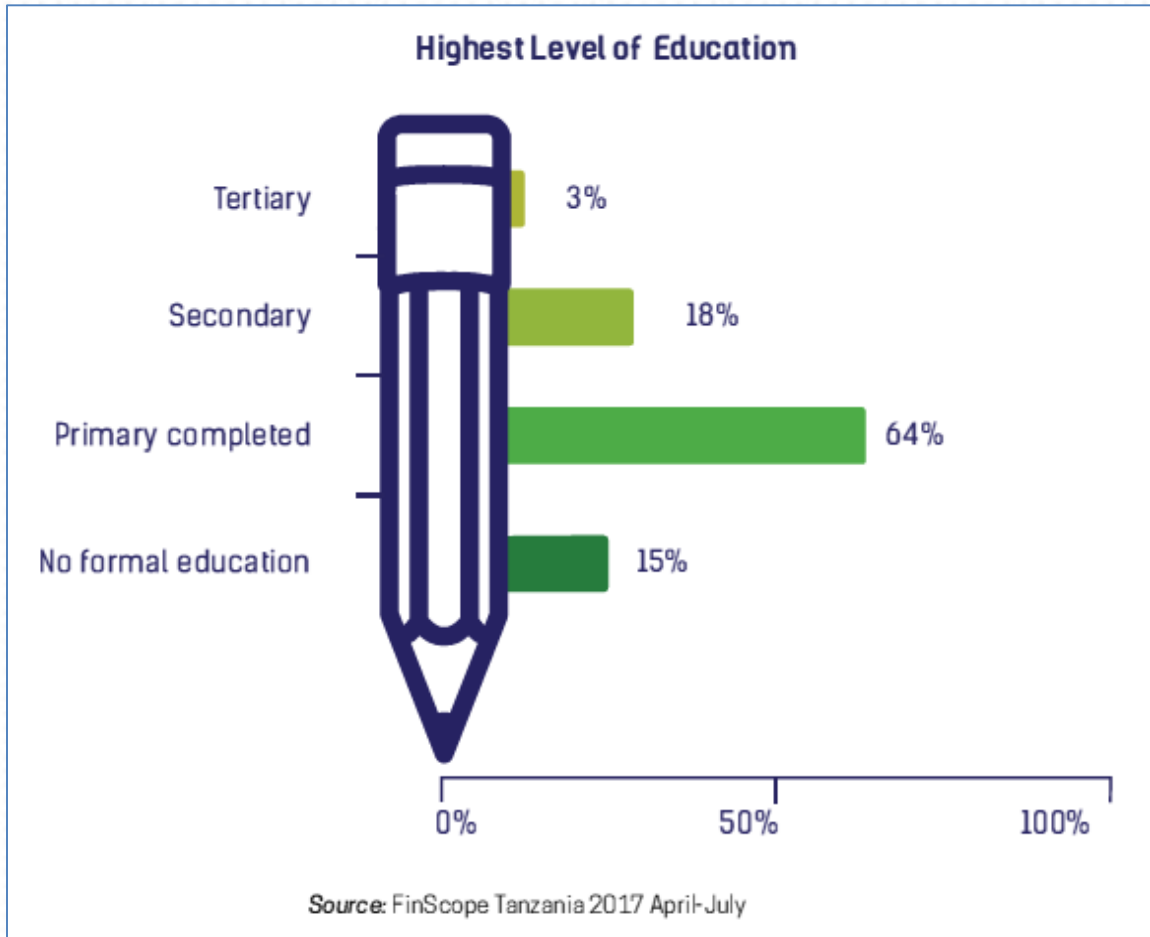
- Generally there are more household members than the number of rooms available (5.1:3.7).
- The findings have revealed households in Rukwa have more rooms as compared to other regions; given the low penetration of solar solutions in the region; more communication of solar solutions through local agents, TV adverts could help in creating awareness of the products and later increase penetration of solar in the regions.

H3. How many rooms do you have in this household?

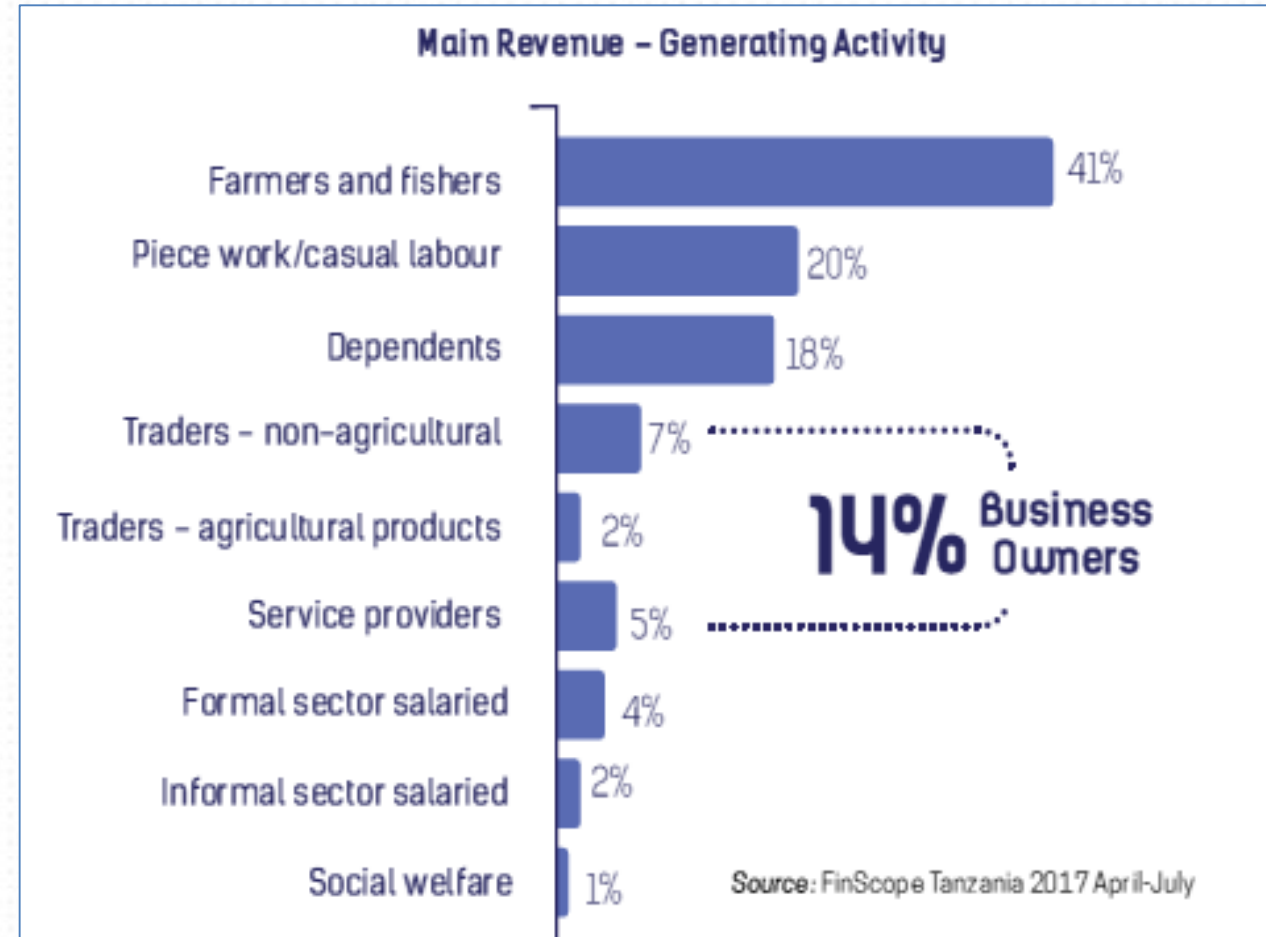
H4. Please tell me how many members are living in this household?



Almost 8 in 10 adult Tanzanians have no more than a primary school education

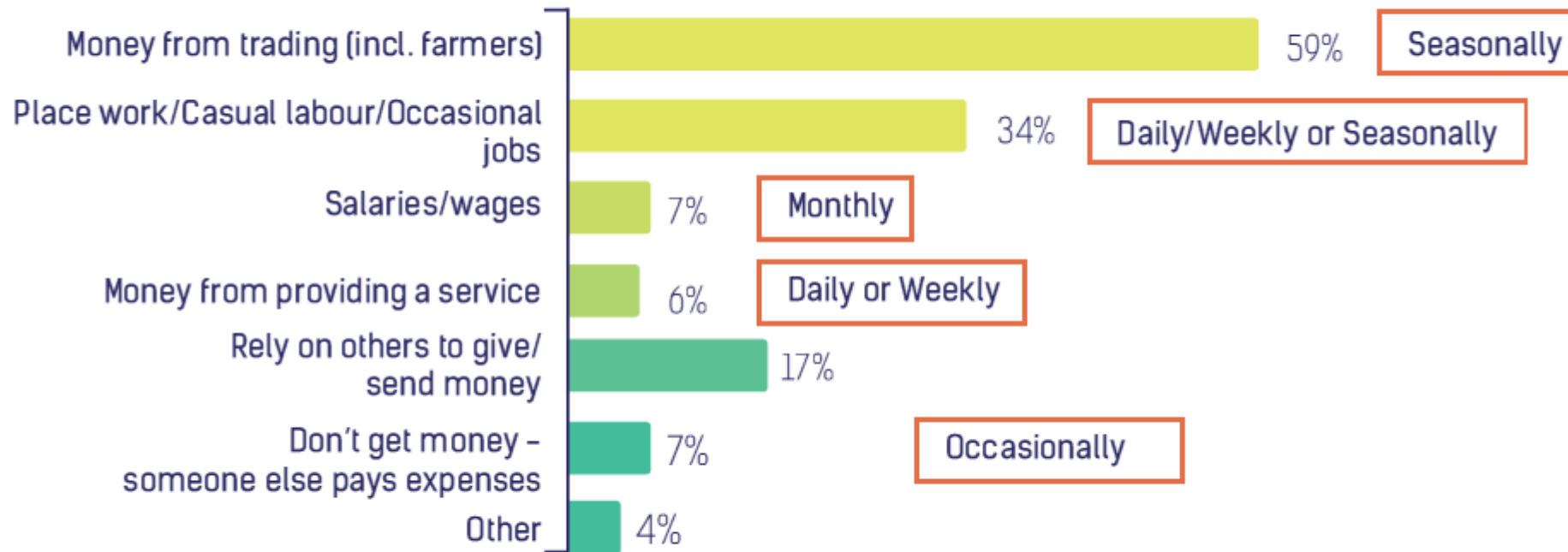


41% of adult Tanzanians meet the majority of their expenses through money generated from farming activities



Tanzanians do not have consistent sources of income

How is personal revenue generated and how frequently is money received from these sources of income?

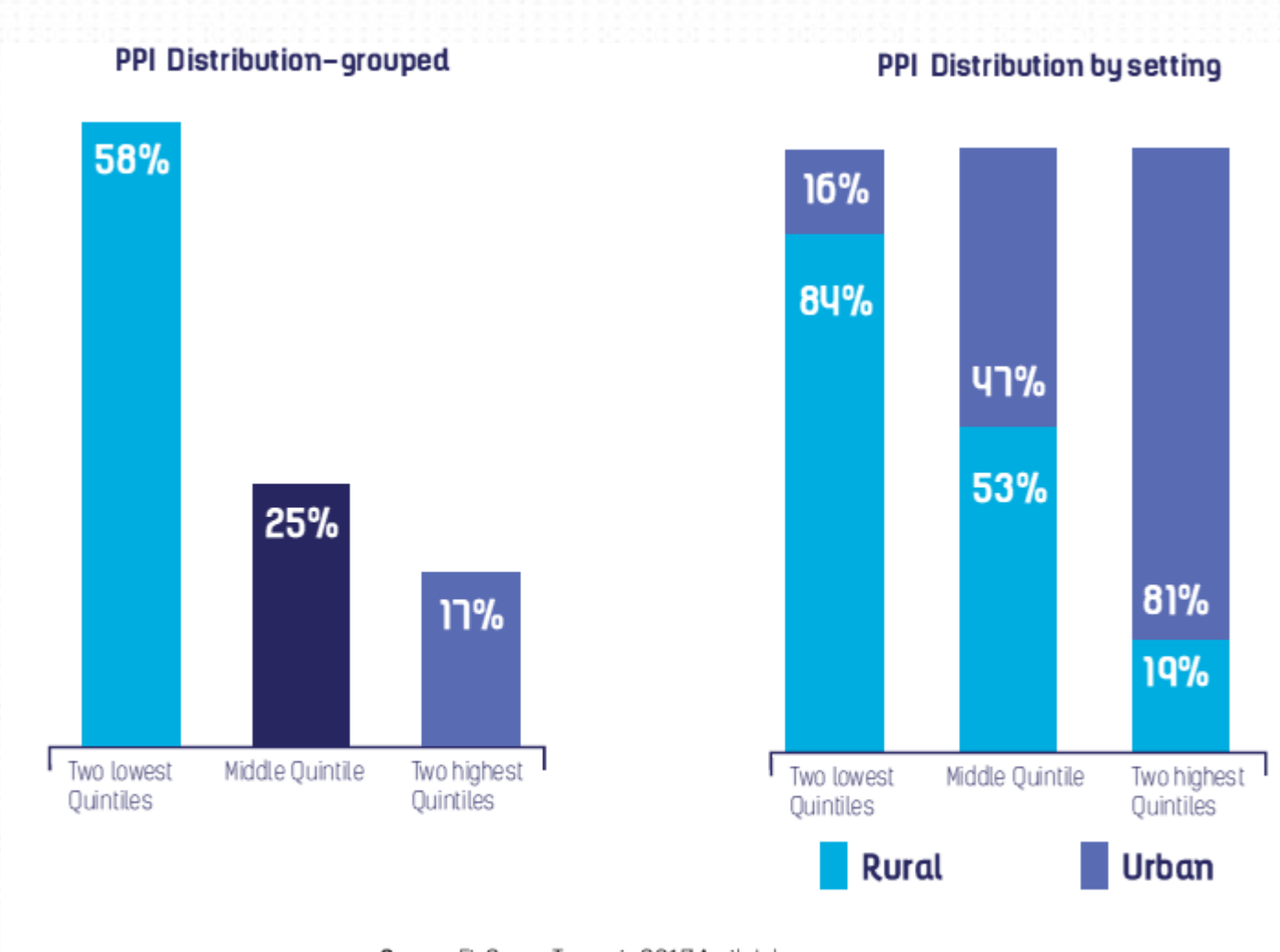


*orange boxes show frequency of receipt of income

Source: FinScope Tanzania 2017 April-July



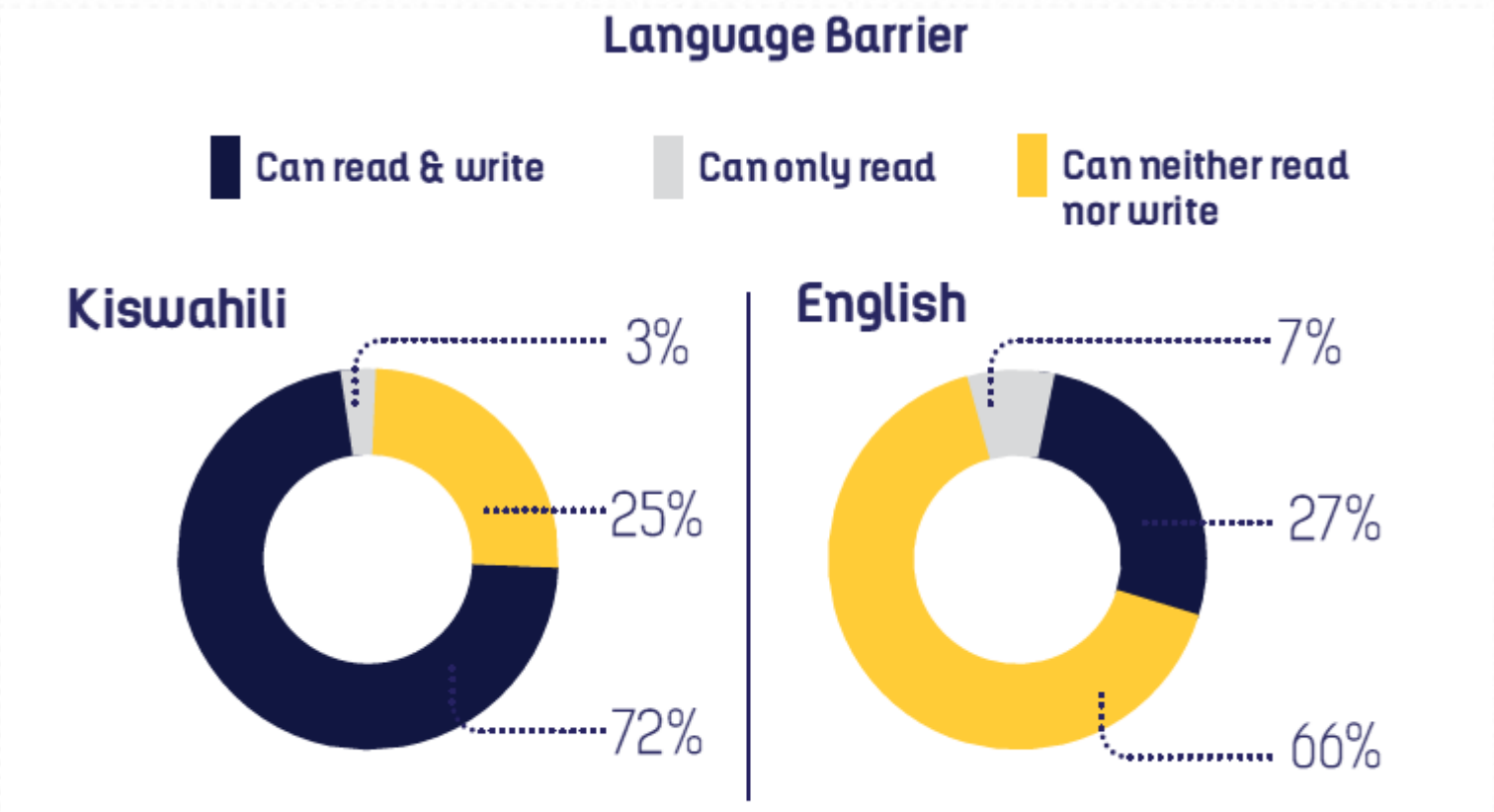
58% of Tanzanians fall under the two lowest quintiles of the Progression out of Poverty Index (PPI), with a majority of them being in rural areas



Source: FinScope Tanzania 2017 April-July



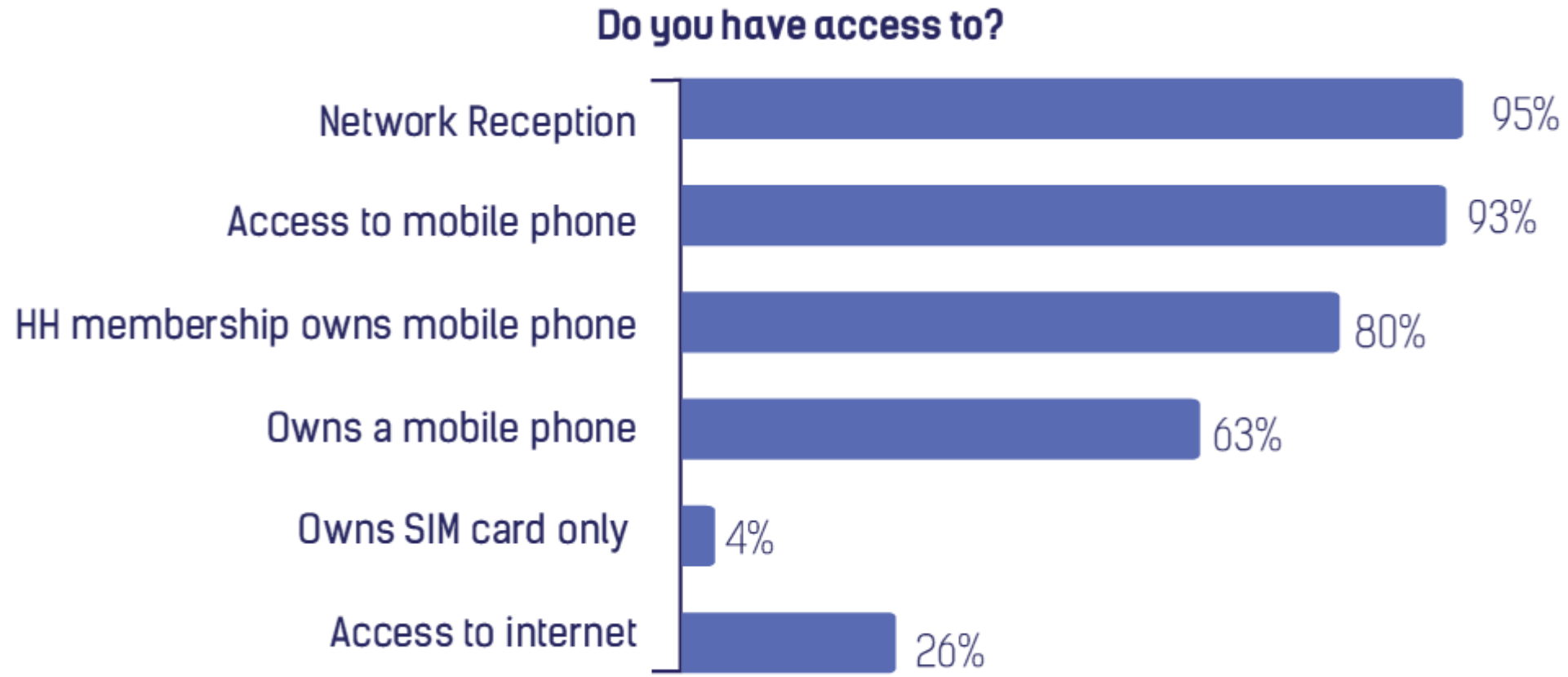
Kiswahili is the language of the consumer – and communication is better ‘said’ than ‘read’



Source: FinScope Tanzania 2017 April-July



Access to mobile telephony at household is very high – the mobile revolution drives a need for ‘charging’



Source: FinScope Tanzania 2017 April-July



Incidence of using solar solutions

Total solar penetration stands at 74% with Singida having the highest penetration (87%) as compared to other regions. Arusha and Mwanza regions have maintained their penetration as per the initial wave >>>> higher penetration of solar solutions in Singida is influenced by the fact that most households/areas in the region are not connected to grid electricity.

		Tier 1	Tier 2	Tier 3
Singida	87%	95%	83%	86%
Mwanza	86%	83%	91%	92%
Arusha	76%	63%	71%	76%
Tabora	73%	57%	81%	74%
Mbeya	72%	45%	83%	71%
Tanga	70%	69%	69%	71%
Mtwara	69%	50%	89%	66%
Rukwa	69%	59%	81%	65%



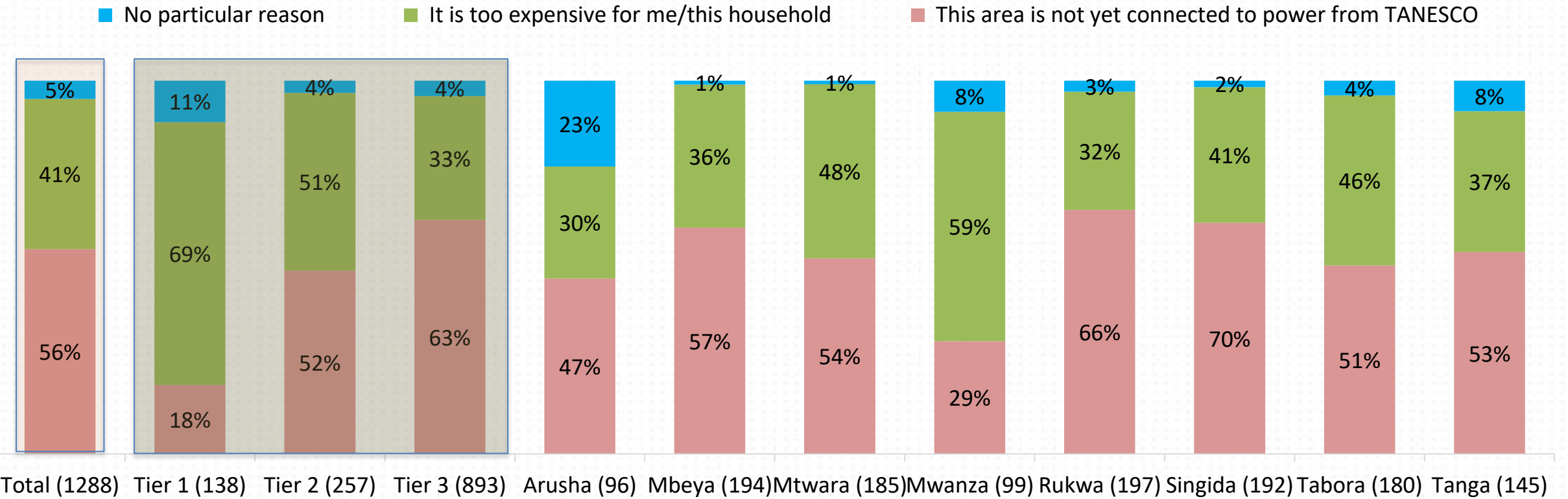
What explains the high penetration of solar in sampled regions?

- 2006 - 2007 SIDA /MEM collaboration –over 1.5 Million USD
- 2008 – SIDA seed money - Private Sector Support programme (seed cash of 100,000\$) opened markets. No quality control programme, so the market was flooded with unverified products
- 2010 - Lighting Africa came in with a quality verification programme
- 2010 - Lighting Rural Tanzania competitions - 10 winners each getting USD 100,000 to create Solar distribution networks - no restriction on what to sell (lanterns, home kits or mini grids),
- 2010, 2011, 2012 - REA activities of - targeting markets and Teachers / Saccos promoting of-grid systems
- 2012 – 4.7 million \$ off-grid lighting programme in Kigoma, with significant consumer education campaign
- 2012 – 15 winners of Lighting Rural – funding targeted to off-grid systems in schools and dispensaries
- 2014 – Sustainable Solar Markets Programme over 1.5 Million \$ programme
- 2015 – 18 Winners of Lighting Tanzania Competitions, each given TZS 235 Million
- 2016 – DFID / Sweden results based funding for mini grids (ongoing) – 23 shortlisted
- Renewable energy day – since 2008 to date / Solar days that champion on Technicians training, Bonanzas, displays, etc in selected districts



Why are you not connected to the grid?

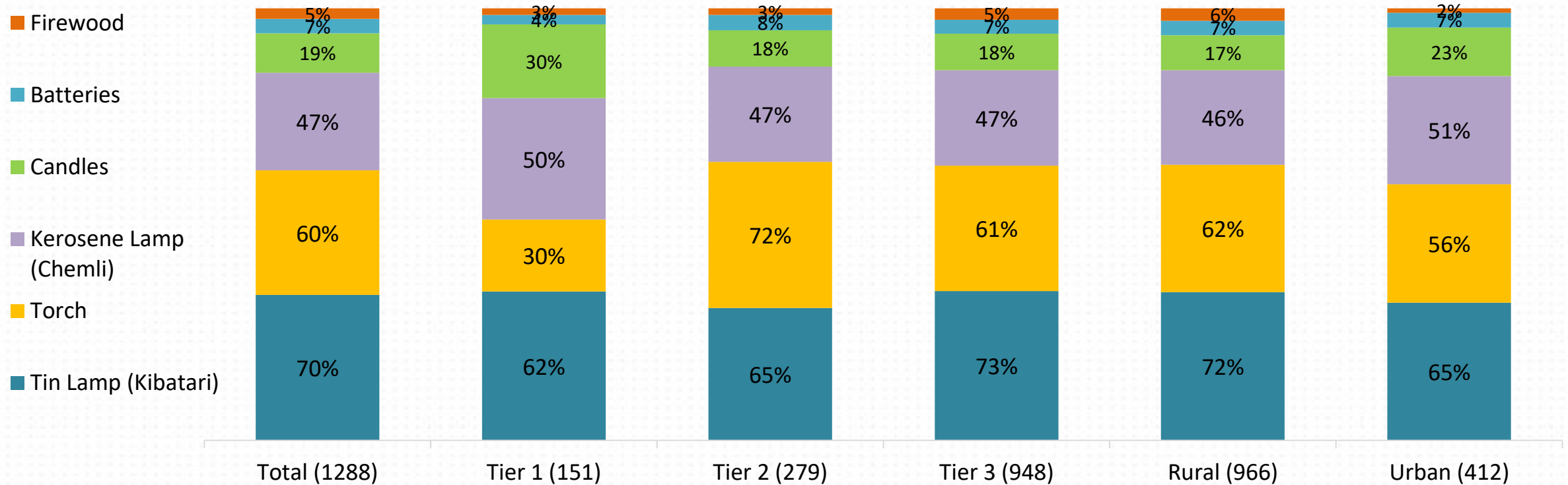
Q4a. Why are you not connected to electricity from TANESCO?



Alternative source of lighting used before switching to solar

- Tin lamp and torch were the main sources used for lighting before households switched to using solar. Findings from the qualitative groups revealed that the move from other sources of lighting to solar was driven by **the need for light**, cutting down costs (economical benefits), health and catering for the needs of the family.
- **Light= Civilization**

Q6. What sources of light was this household using before subscribing to solar lighting products?



Drivers to using solar as a source of lighting

Economical and security/safety factors are the top drivers to use solar across all regions

Q8. What informed the decision by this household to shift from other sources of lighting to solar lighting products?

REASONS FOR SWITCHING TO SOLAR AS A SOURCE OF LIGHTING

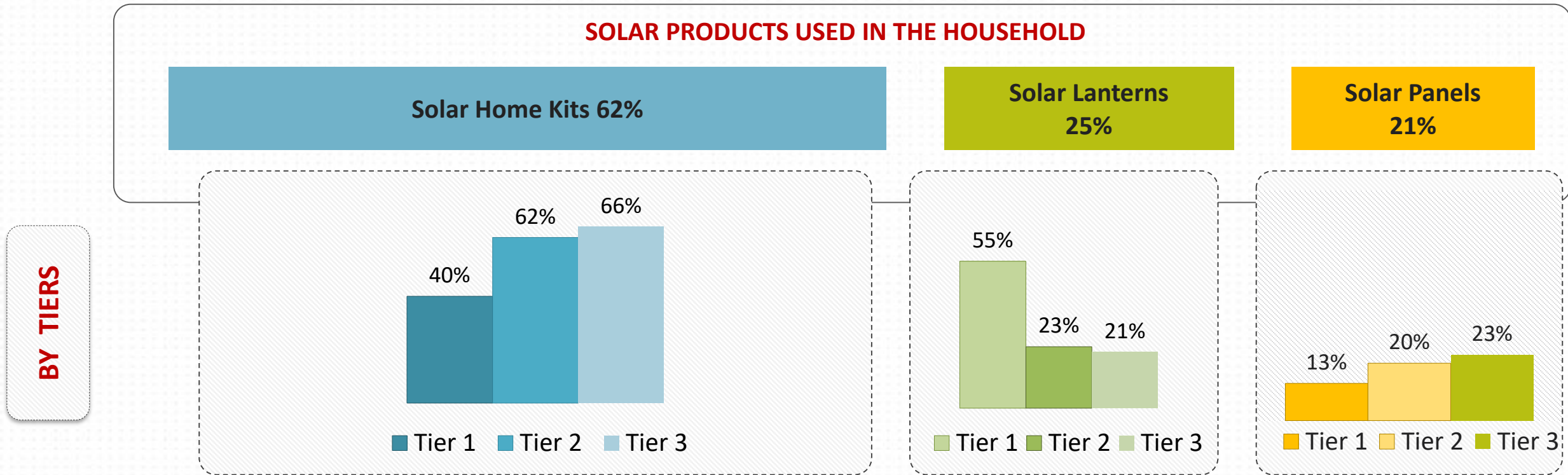
	Total	Arusha	Mbeya	Mtwara	Mwanza	Rukwa	Singida	Tabora	Tanga
	N=2482	N=668	N=209	N=203	N=644	N=204	N=202	N=202	N=150
The other sources were expensive for this house	67%	62%	66%	78%	75%	49%	88%	60%	53%
Solar is clean and safe	56%	64%	38%	31%	52%	46%	88%	72%	54%
We were introduced to solar by someone/referral	21%	32%	5%	24%	21%	7%	25%	9%	17%
Frequent power black outs from TANESCO	5%	9%	3%	4%	6%	1%	1%	4%	1%



Solar products used in the household by tiers

- Generally two thirds of the households surveyed use solar home kits as compared to other solar products.
- By tiers; solar home Kits and solar panels are dominant in tier 3/rural by 66% and 23% respectively.
- Solar lanterns are mostly used by households in tier 1 (55%) as opposed to other tiers.

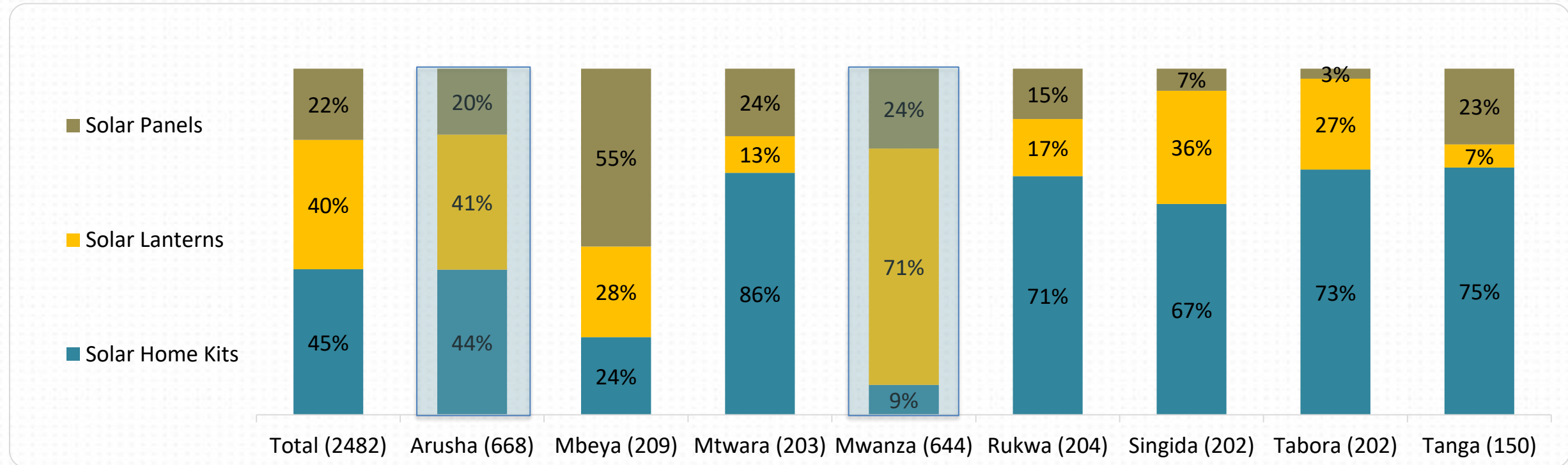
Q9. Please tell me, Which of the following solar products do you use in this household?



Solar products used in the household by region....2

- Use of solar products vary with regions however solar home kits products are mostly used in most of the regions surveyed.
- Solar home kits is commonly used with households in Mtwara.
- Solar lanterns is commonly used in with households in Mwanza.
- Solar panels is commonly used with households in Mbeya.

Q9. Please tell me, Which of the following solar products do you use in this household?

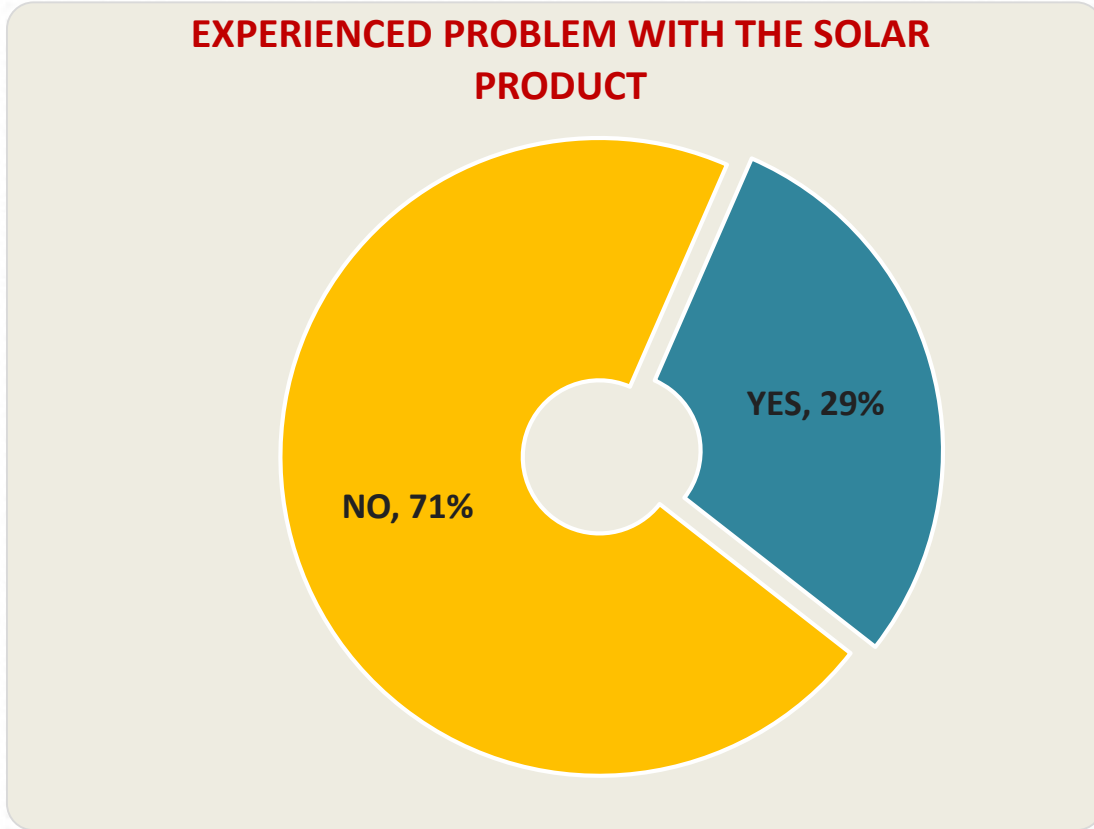


PRODUCT EXPERIENCE

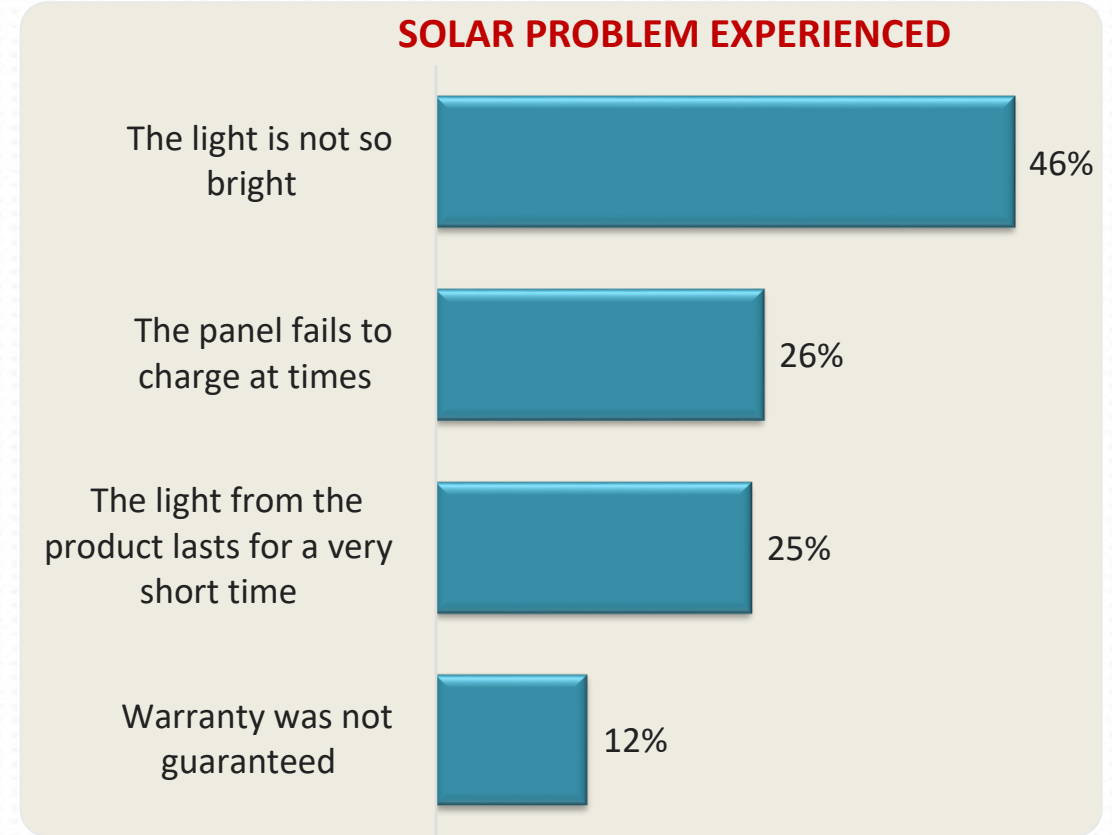
Product experience/ challenges faced when using solar

Faint light from the solar products has been one of the greatest challenge that more than quarter (43%) of the households surveyed faced when using the solar products

Q20. Please tell me, have you ever had any issues with your solar lighting products?



Q21. What issues have you had with your solar lighting product(s)?



n=2482

n=717



Purchase drivers on solar products

Price and multi functionality of the brand are key determinants on what solar products to purchase- this is linked to consumers financial capacity and the brands capability to cater for the basic needs of the households such as lighting, charging phones etc.

MULTI FUNCTIONALITY OF THE PRODUCT

PRICE

Quality

Brightness of the light

ACCESSIBILITY

Promotions/ discounts

PRODUCT WARRANTY

"...before I buy solar I look at if the product is able to perform a variety of services at the same time e.g. lighting a room and charging a phone"

"...nowadays life is tough there is no loose money so I will buy a product that is not too expensive- Arusha"

"...I will buy a product that I can easily get close to where I live because I do not want to incur transport costs- Tanga"

"...when I go to the shop I usually look at products that I can easily afford and products that have warranty- Mwanza"

"... last time I went to buy my solar lantern I asked the retailer to light it so as I can see the brightness of the light because I wanted a lantern that emits enough light - Singida"

"...for me I will purchase a product that I am sure I will get the after sale service. For example I have M-PAWA product and anytime I have a problem I will call the technicians and they will come right away - Mwanza"

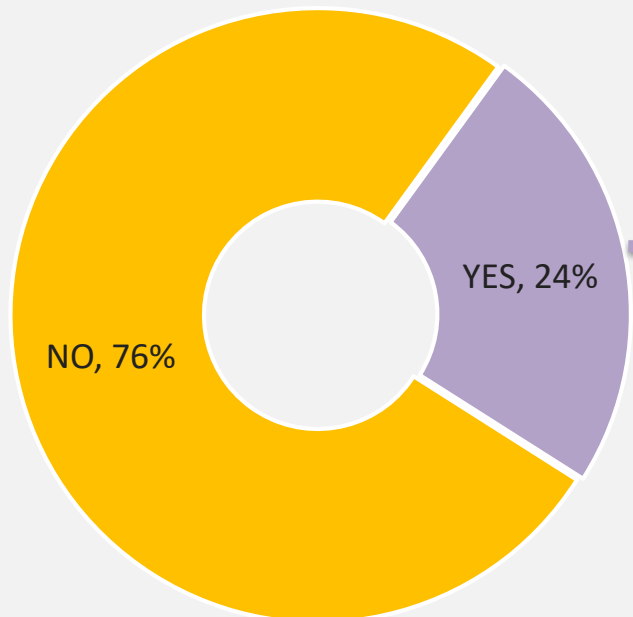


Incidence of second purchase

Of every 10 households using solar products; 2 households have made a second purchase because of multi-functionality of the second product. Other drivers for a second purchase include the drive to have a product with bright light and affordability.

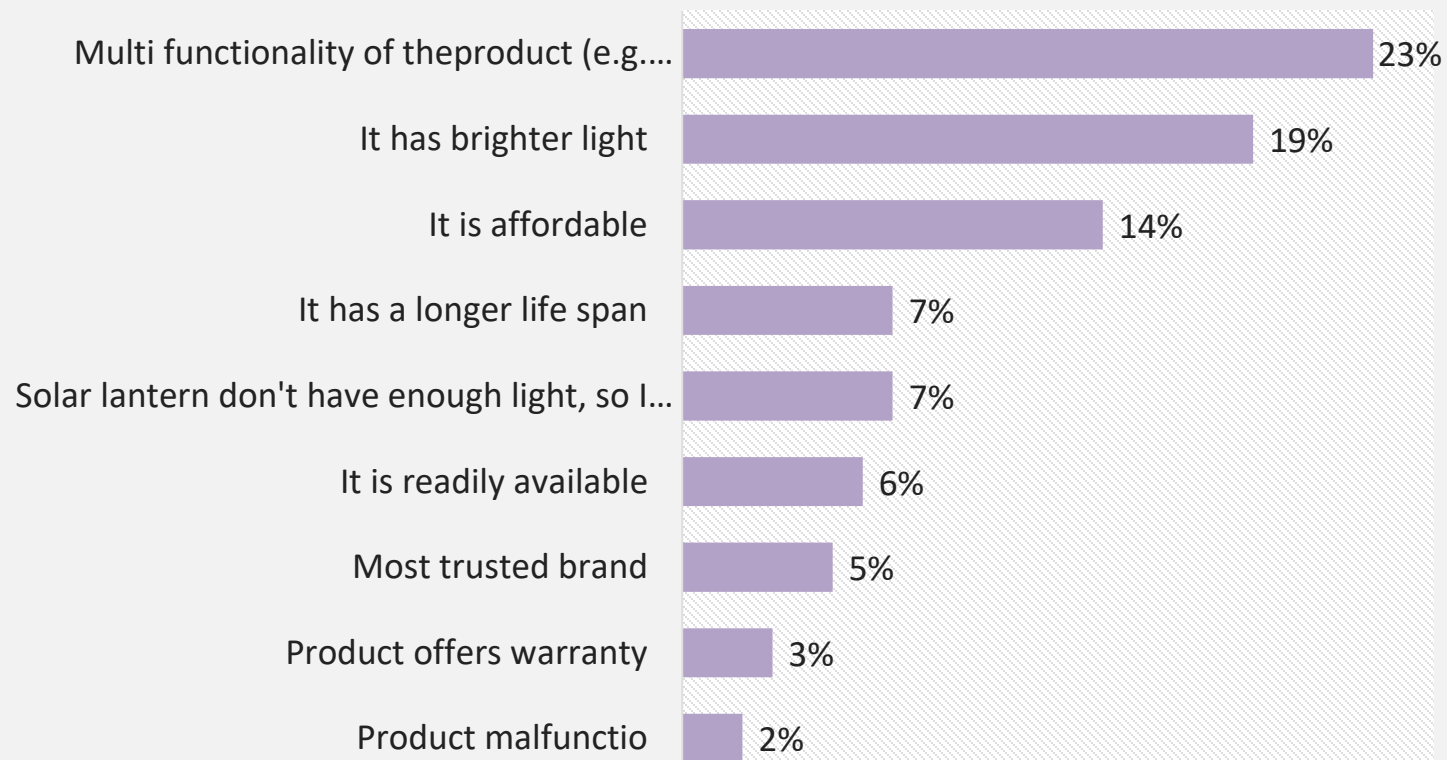
Q15. Please tell me, before purchasing the solar lighting product that you currently use, did you have any other solar lighting product?

EVER MADE A SECOND PURCHASE



Q18. What led you to a second purchase of the solar lighting product?

REASONS THAT LED TO A SECOND PURCHASE

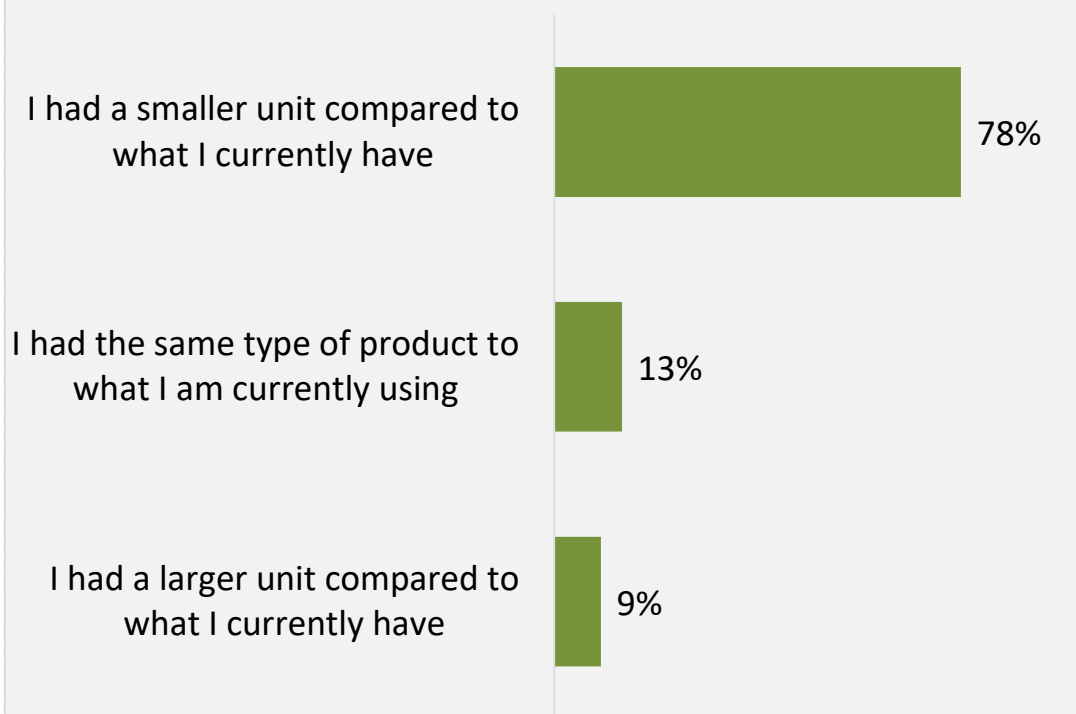


Nature of the second purchase

7 out of every 10 households surveyed upscaled to a larger unit compared to the product/ brand they were using before

Q17. Which of the following statements best describes the type of solar unit you had before the one you are currently using?

NATURE OF THE SECOND PURCHASE



Q16. How long did it take you to purchase the second solar lighting unit?

PERIOD TAKEN TO MAKE A SECOND PURCHASE OF A SOLAR PRODUCT

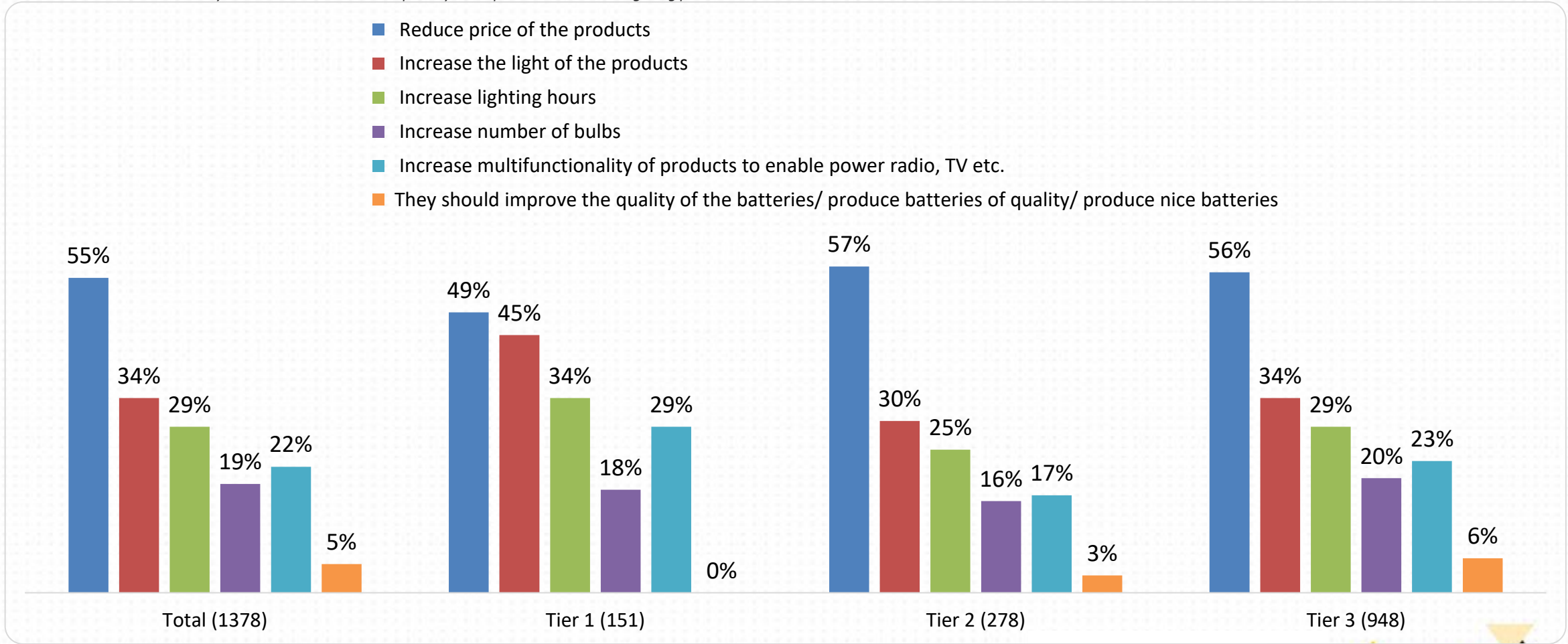
	TOTAL	TIER 1	TIER 2	TIER 3
Less than 3 months	18%	22%	21%	17%
Between 3-6 months	16%	14%	17%	16%
Between 6-12 months	18%	22%	20%	16%
Between 12-24 months	18%	22%	11%	20%
More than 24 months	29%	22%	32%	30%

	Total	Solar lanterns	Solar Home Kits	Solar Panels
	n=330	n=76	n=203	n=74
Less than 3 months	18%	30%	12%	28%
Between 3-6 months	16%	13%	14%	19%
Between 6-12 months	18%	11%	22%	14%
Between 12-24 months	18%	20%	19%	16%
More than 24 months	29%	26%	33%	23%

Consumers voice on areas of improvement for solar products

More than half of the households surveyed have recommended for a reduction in price on the solar products. Other concerns included brightness of light and a longer duration of lighting of the solar products

Q25. What do you think can be done to improve your experience with solar lighting products?



Consumers understanding of counterfeit products

Consumers definition of a quality product is more linked to a product that has a longer lifespan i.e. a product that lasts for a longer period of time without malfunctioning which also has been linked to the difference between a genuine and counterfeit product. Other factors that consumers determine that a product is genuine or not is product warranty- this ensures them with after sale services such as product replacement or a technical support during the warranty period.

"...because when a product has warranty you are assured its original because you can return the product to where you bought it - Mwanza"

DURABILITY

LIFE SPAN

OVERHEATING WHILE CHARGING

"...for me I think once you are charging and the battery or charger becomes very hot it is fake because most of such products are from China-Tanga"

"...my neighbor recommended me a product that she was using in her house because she has been using it for the past two years and it had no problem-Arusha"

WARRANTY

LONG LIGHTING HOURS

BATTERY STRENGTH

"... you know if a product can be used for a long time then the product is original not the other ones that you have to call a fundi every week- Mwanza"

"...If a battery can be emit light for almost the entire night then it is original because there are those products that only light up a room for an hour and that's it.....those ones must be fake- Tanga"

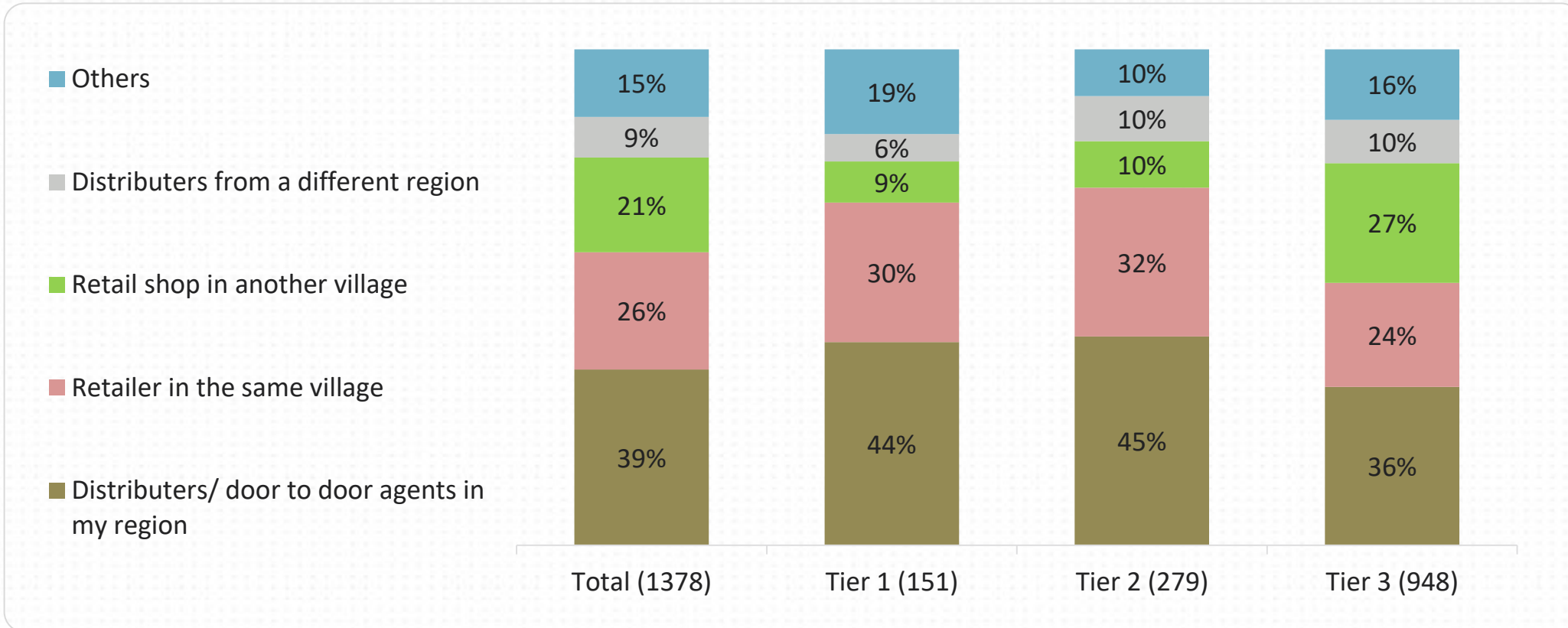


ROUTE TO MARKET

Consumers route to markets by tiers

Almost a quarter of the households surveyed (39%) purchased their solar products from local distributors. Other points of purchase include purchase of products from a school, from vikobas (ROSCA), given by neighbors/ relatives and bought from an individual who was buying another solar solution.

Q28. Where did you purchase your solar lighting product from?



Consumers route to market by region

Households in Arusha purchase their solar products from wholesalers/ distributors in the same region.

Q28. Where did you purchase your solar lighting product from?

CONSUMERS ROUTE TO MARKET PER REGION

	Total	Arusha	Mbeya	Mtwara	Mwanza	Rukwa	Singida	Tabora	Tanga
	n=1378	n=104	n=209	n=203	n=104	n=204	n=202	n=202	n=150
Distributors/ door to door agents in my region	39%	75%	29%	36%	13%	35%	47%	33%	49%
From a retail shop in the same village	26%	5%	17%	32%	34%	34%	21%	39%	19%
From a retail shop in another village	16%	5%	26%	21%	15%	22%	13%	10%	9%
From a retail shop in another region	5%	3%	5%	4%	7%	1%	9%	7%	5%



Consumers route to market- key brands of solar products

Door to door agents are selling more of home kits. A third of the consumers purchase their solar lanterns and panels at the retailer shop.

Q28. Where did you purchase your solar lighting product from?

	KEY BRANDS OF SOLAR HOME KITS				KEY BRANDS OF SOLAR LANTERNS				KEY BRANDS OF SOLAR PANELS			
	Sundar Solar	Mpower M30	Oceanic	Mobisol Family SHS-19"	d.light S2	PRO Solar	Super bright	d.light S20	Sundar Solar	Oceanic Solar	Sunshine Solar	Mobisol Solar
	n=427	n=78	n=44	n=36	n=148	n=65	n=24	n=14	n=48	n=42	n=25	n=17
Distributors/ door to door agents in my region	35%	65%	43%	72%	27%	24%	55%	31%	24%	40%	44%	82%
From a retail shop in the same village	29%	15%	27%	6%	30%	47%	23%	31%	30%	21%	-	12%
From a retail shop in another village	21%	8%	25%	6%	15%	7%	9%	8%	40%	17%	-	-
From a retail shop in another region	6%	-	5%	6%	8%	5%	5%	8%	6%	7%	12%	12%





SUPPLY INSIGHTS

Distribution Channels – Door to Door Agents



Market Approach

- Door to door selling
- Target both urban and rural areas

Volumes Moved

- Agents move about 12-40 units per month per person depending on the size of the unit and demand



Main Products Moved

- Majority move the solar kits
- Kits with TV are said to be of higher demand
- Solar lanterns have the least demand



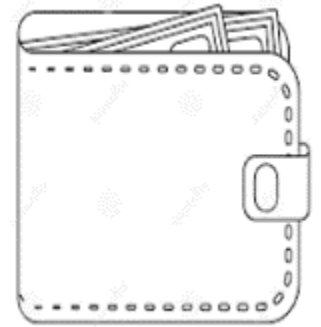
Agent Payment

- Agents are paid on commission based on the units that they push



Customers Payment Modules

- Credit facilities are accepted where by a down payment is done and later on monthly/weekly/daily instalments are paid within 2-3 years
- Cash is also accepted and is a bit cheaper compared to buying on credit



Stock Movement

- Agents move around with stock
- Stock is taken from the main office /branch
- Agents cater for their own transport



Retailers route to market

Retailers route to market is determined by the size of the shops/stores. Retailers whose shops are mid-sized or big purchase their products from key cities because products are bought on bulk hence cheaper and availability of a variety of products while the small retailers (with small stores) purchase their products from the big retail shops in the same area because they are limited with capital and are not ready to incur transport costs.



“...I go to key cities like Arusha and Dar es Salaam to purchase my solar products because that’s where I can get a variety of products to choose from- Tanga”

“...I believe that in Dar es Salaam there are quality products as compared in the rural areas- Singida”

“....for us we have one brand that is Mobisol and we import the products from abroad then we supply- Tanga”

“I mostly purchase this products from big shops; so, I purchase them in big shops at Arusha and if I miss them here then I do to big shops in Dar es salaam-Arusha”



Purchase drivers

Given the current economic situation; retailers restock products which are on high demand and affordable (both for retailers and consumers) to ensure maximization of profit and ease flow of products from the store.

Affordability

“...before buying the product I check or confirm with the wholesale price in the market , because customers also like to have discount of products which we also have to consider before making a purchase”
Arusha

“.....as traders, we must consider the price of these products, otherwise products that are highly priced are likely not to be purchased by consumers or the stock takes a long time before it is purchased-Arusha “

Durability and efficiency of the product

“.....yes I do; I always look at how efficient the product is example the batteries in terms of their life span- Arusha”

“...first we look at the battery and get to know its quality because all dry cell batteries that are very hard mostly have a *life span of 4 to 5 years where it can sustain without having major problems- Tanga*”

Market Demand

“...I normally consider the demand from my customers, if they demand sunshine more then I stock more sunshine products than other brands”
Arusha

“...I normally factor in demand to ensure easy flow (in and out) of products in my store- Arusha”

Country of manufacture

“....I normally look at the country the product is manufactured because this can also tell if a product is genuine or not- Mbeya”

“....when buying most consumers look at where the product is manufactured from as they believe German products are of high quality e.g. when they come to my shop to buy panels-Singida”



How retailers define quality products and differentiate from counterfeit products

There has been no variations with how retailers define a quality or a genuine product. Country of manufacture is the key indicator of a product that is of high quality- retailers believe that German products are more genuine than brands from other countries. Other key indicators include price and consumers demand.

PRICE
BRIGHTNESS OF THE LIGHT
Brand name
MARKET DEMAND
COUNTRY OF MANUFACTURE

"I normally confirm with the price to know if a product is genuine or fake because genuine products are expensive while the fake products are cheap-Arusha"

"I always look for the name or symbol of the brand because most of the fake products don't have a brand name while genuine products do-Singida"

Symbols/inscriptions inserted on the product

".....I consider the company that has manufactured the product and the price because most cheap products are of low quality- Tanga"

Long lighting duration

".....I normally consider products with a high consumer demand to be high quality and genuine because consumers wont demand a product that is fake or of low quality- Arusha"

".....normally genuine products have very bright light while fake ones have a dim light-Mwanza"



IPSOS POINT OF VIEW

HOW DO WE DEAL WITH QUALITY? IPSOS POV

COST IS A BIG CHALLENGE

- Willingness to pay for higher capacity products is real, but the capacity to pay is a barrier

QUALITY = TARGET POPULATION

- 'QUALITY' as a stand alone is not a concept the mass market understand well, rather they have issues with low level of brightness, batteries not charging and short lighting span – all which define product quality (**all these issues worry consumers**)
- Sales agents driven purchases carry the day – low quality, unverified products, but cheap

MARKET IS MOVING FROM PICO TO HIGHER CAPACITY SYSTEMS

- Need driven by multiple functions. The future is in higher capacity home systems (at an affordable price)

COMMUNICATION TARGETING

- Repeat purchase and upgrade to higher capacity systems
- Target Informal distribution networks (training days? Incentives? Accreditation?)



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GAME CHANGERS

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