

# LIGHTING AFRICA

*Catalyzing Markets for Modern Lighting*

Tanzania

## Qualitative Off-Grid Lighting Market Assessment

October 2008

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# 1. LIGHTING AFRICA OVERVIEW/ MARKET INTELLIGENCE PROGRAM



# What is Lighting Africa?

**Lighting Africa** is a World Bank – IFC initiative aimed at supporting the global lighting industry to catalyze a robust market for off-grid lighting products tailored to the needs of African consumers.

The Program's mission is to make affordable, environmentally sustainable, durable, and safe lighting available to the masses, who currently depend on kerosene lanterns and candles to satisfy their lighting needs.

# How does Lighting Africa support the development the lighting market?



The Lighting Africa program is a **market-based** approach, grounded in the recognition that:

- There is a considerable **commercial market opportunity** and willingness to pay for off-grid lighting, substantiated by annual expenditures on kerosene amounting to \$38 billion and \$17 billion, globally and in Sub-Saharan Africa, respectively
- Recent **technological advancements in lighting**, particularly in the area of Light-Emitting Diodes (LEDs), demonstrate increased promise to deliver affordable technological solutions tailored to the African marketplace and beyond
- The most expedient and sustainable way to bring affordable, reliable lighting to Africa is by **supporting the industry** to design and deliver an array of products tailored to the needs of African consumers



# How do we ensure Lighting Africa program activities respond to industry need?

All Lighting Africa program activities are designed *with* and *for* the industry and other stakeholders

Through *ongoing consultation* with a wide array of stakeholders (including private companies, NGOs, financiers, governments and other key players along the supply chain) opportunities are identified where Lighting Africa can play an appropriate role in accelerating the off-grid lighting market in Africa



# Lighting Africa: Program Areas

- **Policy:** Addressing policy and regulatory barriers
- **Financing:** Improving access to finance along the distribution chain- for example through partnership with financial institutions
- **Product Quality Assurance:** Addressing issues of quality with lighting products to help consumers make informed purchase decisions and prevent market spoilage
- **Business-to-Business Linkages:** Creating opportunities for different players along international supply chain to meet, exchange information and create business partnerships
- **Market Intelligence:** Collecting & disseminating key market information to support successful market penetration
- **Business Environment:** Facilitating market entry through the provision of relevant information, such as country-specific policy and regulatory information



# What will the market research provide?

**Key Market Information on consumer needs, preferences and finances.** The information will:

- Inform on the desired functionality and design attributes of different types of lighting products within several different product classes (Torch, Floodlight, Task Light, Lantern, Spot Light)
- Enable the industry to overcome potential challenges that are likely to accompany market entry in the African off-grid lighting market
- Create a baseline to quantify the size of potential market segments for appropriate lighting products in volume and value terms



# Structure of Market Research Work

- Currently the Lighting Africa market research program covers:
  - 5 countries: Ghana, Kenya, Zambia, Ethiopia and Tanzania
  - 2 key market segments: households & micro-businesses in rural and urban areas
- The research is divided into two phases:
  - **Surveys** on consumer lighting uses, preferences, and expenditures
  - In-depth **product testing** by focus groups

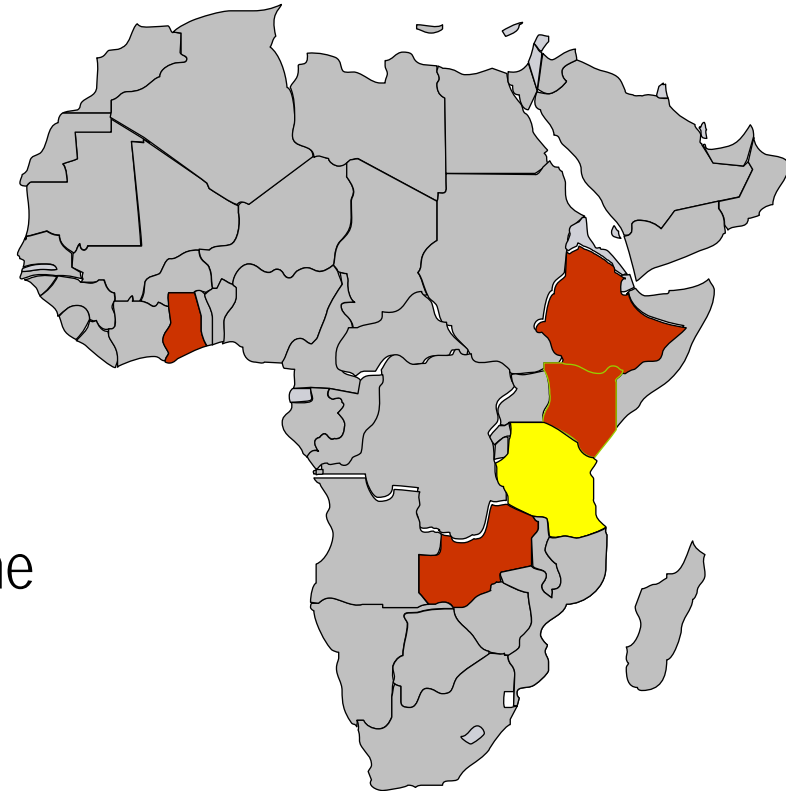


# Lighting Africa: Why Market Research?

- While anecdotal evidence shows a substantial opportunity in the off-grid lighting market in Africa, much of the industry lacks the information needed to develop and market products appropriate to meet the needs of African consumers
- This is the result of a premature and undeveloped market, but one with demonstrable potential – **the fuel-based lighting market in Africa is currently worth more than \$17 billion per year** – yet is still largely undefined, untapped, and unrealized
- In response to the industry's call to provide greater comprehension to the scope of this emergent market opportunity, Lighting Africa developed a **Market Research** program

# Qualitative Research Phase: Stage 1

- This report summarizes the **qualitative** findings of the first research phase for **Tanzania**.
- Analogous studies are available at [www.lightingafrica.org](http://www.lightingafrica.org) for the other 4 countries.
- Lighting Africa will soon issue the following complementary reports
  1. **Quantitative** analyses for each of the 5 countries
  2. A **cross-country summary** report
  3. Results of the in-depth **focus group product tests**





## 2. MARKET RESEARCH APPROACH

# Research International: Background and Related Experience



The research was conducted by the Research International Africa, a subsidiary of the global market research firm, Research International, the world's largest custom market research agency, with offices in 50 countries worldwide and 30 years of expertise.



# Research Methodology

- The market study involves studies of the market in Africa to provide insights that form the basis for innovative product ideas; and is comprised of two primary research methods:
  - An **Exploratory phase** involving a desk study of existing data on the market and a Habits and Attitudes survey of the population
  - **Concept testing, using the proprietary eValue methodology**, to quantify the acceptance and likely uptake of existing, new and revised product ideas for the market in Africa

- The test sample included 2 key market segments: (i) urban and rural households and (ii) urban and rural micro-businesses
- Interview respondents in each segment were selected at random in the following representative locations: Addis Ababa, Butajira, Debre Birhan and Nazareth

- Researchers conducted **55 in-depth, structured interviews** to gather information on current lighting practices, attitudes toward current lighting products, and perceptions of modern lighting products, etc
- **2** different test products were left for **3** nights with each respondent so they could evaluate them in the context of their daily lighting needs
- Researchers returned after 3 nights and invited respondents to complete a callback questionnaire on their experience with the test products



# Key Types of Consumer Information Collected



The market research interviews generate the following country-specific consumer information:

- Who are the consumers?
- How do consumers presently utilize light?
- What do consumers want in terms of the amount and type of light needed to satisfy their lighting needs?
- Which products do consumers prefer?
- How much are consumers willing to pay for different kinds of lighting products?



# Products Tested

## LANTERN

Dynamo or mains power,  
rechargeable battery



**LIGHT SOURCE**  
White LED

## TORCH

Solar, rechargeable  
battery



**LIGHT SOURCE**  
White LED

# Products Tested

**TASK LIGHT**  
Lantern & Torch  
Solar, rechargeable  
battery



**LIGHT SOURCE**  
CFL and LED

**TASK LIGHT**  
Mains power or  
replaceable battery



**LIGHT SOURCE**  
White LED

# Products Tested

**TORCH**  
Replaceable battery



**LIGHT SOURCE**  
White LED

**FLOOD LIGHT**  
Solar, rechargeable  
battery



**LIGHT SOURCE**  
Linear fluorescent

**SPOT LIGHT**  
Solar, rechargeable  
battery



**LIGHT SOURCE**  
White LED



### **3. DEFINING THE TANZANIAN CONSUMER**

### 3. Lighting Consumers: Households





# Dwelling Spaces

## LSM 1-4

- Respondents live in small houses which have between one single room to three rooms

*“It has two rooms; a bedroom and shop.”* -- Female, Trade

*“2 rooms.”*

--Female, Household

*“It is only single room.”*

--Male, LSM 1-4, Household

*“Three rooms.”*

--Male, LSM 1-4, Household



## LSM 5-12

- The consumers in the upper LSM's live in houses which have from three rooms to six rooms

*“Three rooms.”*

--Male, LSM 9-12, Household

*“6 rooms.”*

--Male, LSM 5-12, Household





# Dwelling Spaces

## Kitchen and Cooking Area

- Since the consumers live in relatively small houses, they do not prioritize the kitchen in their lighting needs. There is hardly any mention of the kitchen in Tanzania



## Bathroom and Toilets

- Bathrooms and toilets are usually shared in the case of the consumers who have between one and three roomed houses. In the upper LSM where respondents, have six rooms, the respondents have bathroom and toilets which they do not share





# Typical Day

## LSM 1-4

- Most of the consumer start their day fairly early, between 5am – 6am. In the evenings, respondents go to bed from about 9pm

*“At 5am because I some times looking for casual work from peasants and sleep at 9pm.”*

--Male, LSM 1-4, Household

## LSM 5-12

- Within the upper social classes, some respondents wake up later than those in LSM 1-4.

*“Wake up at 6am.”*

--Male, LSM 5-12, Household





# Weekends and Days Off

- In their leisure time, many respondents visit friends and relatives
- Some respondents spend their time listening to music and drinking alcohol



# Consumer Aspirations and Day-to-Day Challenges

## ASPIRATIONS

- The respondents have simple aspirations such as expanding or starting business and educating their children

*“To ensure education to my child.”*

*--Female, LSM 1-4, Mwakipesile*

*“To ensure better Education to my kids.”*

*--Female, LSM 1-4, Arusha*



## CHALLENGES

- The respondents say that they find life very challenging since making enough money to pay their bills is hard

*“Making ends meet has been a hustle that’s why we both have to contribute to the bread bucket.”*



## The Trade Consumer

# Business Types

- The traders were involved in various types of businesses such:
  - Retail shops
  - Kiosk
  - Restaurant
  - Madrasa classes
- On average, businesses have been in existence for two – eight years



***“I set up my stall outside the house where I sell my snack.”***  
**--Female, Trade, Majengo**



# Trade Premises

- The traders who have shops have one room, a few have their shops adjacent to their room where they reside

***"I have a room for my shop."***

**--Female, Trade**

***"One room."***

**--Female, Trade, Retail Shop**





# Operating Hours: Trade

## WEEKDAYS

- Typically, traders open as from about 7:30 am and start closing from about 7:30 pm. The majority of the traders work every day of the week. 7 days in a week

*“Opens at 8.00am and closes at 10pm ....  
Due to the insufficient light.”*

*--Male, Trade, Kiosk*

*“I open at 08.00am and closes at 7:00 –  
9pm..... Yes, I am forced to close early  
due to insufficient light. ”*

*--Male, Trade, Tailor, Dodoma, Rural*

*“Open 8am, close... 10pm”*

*--Male, Trade, Retail Shop*

*“Early in the morning 7;00-9pm.”*

*--Female, Trade, Retail Shop*

## WEEKENDS AND OFF DAYS

- The majority of the traders do not take time off
- Some of the traders who take a break before they start their work the following week, go to church

*“I use to go to Church.”*

*--Female, Trade, Restaurant*

*“To me, every day is working day. I have  
no resting days.”*

*--Male, Trade, Kiosk*

*“Everyday..... From 07.30am to 7.30pm.”*

*--Female, Trade, Hawker*





# Traders Aspirations

- The traders' main aspiration is to expand their businesses or establish other businesses

*“Allowing construction of permanent and fixed business structure (Kiosk).”*

*--Female, Trade, Kiosk*

*“Getting another big shop.”*

*--Male, Trade, Shop*

*“My future aspirations is to expand my business if not get a job myself. I have a certificate in secretariat but I couldn't work and take care of the kids any more, since we are not planning to have any more kid I can get a job.”*

*--Male, Trade, Tailor, Dodoma, Rural*

- Others hoped that they could use solar in future because

*“...its cheap because no other cost after installation.”*

- To be role models in the neighborhood

*“..bringing their kids to learn from me.”*

*“To expand my Madrassa center.”*

*--Male, Trade, Class Center, Morogoro, Urban*





# Consumer Summary

- **Dwellings of most of the respondents interviewed range from single rooms to three roomed houses**
- **For some of the consumers with two rooms, they use one room as a shop**
- **These dwellings are not self contained that is, they do not have bathrooms and toilets in them. These sanitation facilities are detached**
- **The majority of the traders work for 7 days a week starting from about 7:30 am. The traders start closing shop from 7:30 pm to about 9:00 pm**
- **The consumers (the household respondents) who considers Sunday a rest day, visit friends and relatives**



## **4. CURRENT LIGHTING BEHAVIORS**

## 4. Lighting Behaviors: Household

- Typical routine: main activities especially those affected by lighting:
  - Cooking
  - Reading (children studying)
  - Prayer
  - Bathing
- The sitting room and the bedroom are given priority when it comes to light usage

*“When I place my candle my first priority is given to my sitting room because this is the place where I cook my food.”*

*--Female, LSM 1-4, Household, Arusha*





# Lighting Behaviors: Household

- **Main types of lighting used:**
  - **Tin lamps:** Usually used in the kitchen or cooking area. It is also used to move about in other rooms e.g. if someone needs to visit the latrine, they would use the tin lamp, leaving the cooking area or kitchen in darkness
  - **Kerosene lamps:** It is used in the main room where the family sits in the evenings and children study at night. It is also used at “magharib” 6pm during prayers
  - **A few people use the candle**

*“The lantern is the most frequently used. Although I light both lamps on daily basis but the tin lamp is only used for at most 2 hours in the kitchen area before it put off. But the lantern serves the entire night because of the baby. So its always dimmed as we go to sleep.”*

*“Candle ...in the sitting room because we use ..... there a long time. ..I put it on at 1900hrs and off at 2200 hrs.”*  
--Female, Household

*“I put it on at 1900hrs and off at 2200 hrs.”*  
--Female, Household

*“I put it on at 1900hrs and off at 2100 hrs.”*  
--Male, LSM 9-12, Household

# Lighting Behaviors: Trade

- The main types of lighting the business premises use are:

- Paraffin lamp:

*“I buy a measure of Tsh 200 for this lamp, I have to put 4 measures which is about 800 Tsh per day.”*

- Candles: usually used as a second alternative to paraffin or kerosene lamps when the traders run out of kerosene
  - Electricity: connection mainly by TANESCO

*“.....electricity has more light....”*

*--Male, Trade, Shop*

- The chief reason for using each of the above types of lighting is:
  - Affordability
  - Easy availability





# Lighting Behaviors: Trade

- **Typical routine: main activities especially those affected by lighting:**
  - **Serving customers:** The most affected businesses are the kiosks / restaurants where the customers are not comfortable being served in the dark or in dim places
  - **Close early:** Some of the kiosks open between 8am and 10pm
  - **Security of the business premises**
- **Perceptions and usage of electricity:**
  - **Most of the businesses were not connected to the grid and they felt that electricity would improve their business**

*“.....business would improve because there would be sufficient light.”*

*“..... I close early..... due to the insufficient light.”*  
--Male, Trade, Kiosk

*“ I Open at 9am and close at 7pm....No more customers from that time.”*  
--Female, Trade, Shop

*“A customer may come and not find a sitting place. We have benches outside but it is dark.”*



# Lighting Behaviors: Trade

- **Lighting products are classified as:**
  - **Security lights**
  - **Lights used by the customers (the restaurants and kiosks)**
  - **Lights used by the owner/ assistant**
- **Other sources that the respondents were aware of but few currently use are:**
  - **Electricity**
  - **Generators**
- **Preferences**
  - **Generators:**

***“....because we do not have electricity.”***



## **5. CURRENT LIGHTING PRODUCTS & EXPENDITURES**



## 5. Lighting Products and Expenses





# Currency Conversion Rate\*

▪ **TANZANIA**      **USD 1 = TZS 1162**

**\*Approximate, as of May 2008**

# Paraffin and Tin Lamps



- **Usage**
- Respondents, when using the lamps, put kerosene in them and light them
- **Disadvantages**
  - Smell of the kerosene is bad
  - The tin lamp can easily cause fire
  - Kerosene is expensive
  - Keeping the customers waiting
  - Dim light
  - Dangerous
  - Irritates the eyes
  - Smoke blackens the ceiling
  - Cooked food can taste of paraffin

*“I don’t like the smoke that they emit and the fact that you have to be extremely careful with these lights. i.e. the tin lamp if mishandled can easily cause fire.”*

*“when I run out of kerosene, I have to go and buy it while the customers are waiting for service. The hands can also smell kerosene/smoke, which is not good for customers. The kerosene is also expensive.”*

*“Tin lamp has insufficient light.”*  
--Male, Trade



# Mains Power (Electricity)

## Usage

- Consumers are merely happy that electricity has more light so they can see better

*“.....electricity has more light....”*

*--Male, Trade, Shop*

## Disadvantage

- Frequent power cuts - the alternative sources of lighting they use are candle and kerosene lamps



## Usage

- Consumers light the candle when there is no wind

*“I use candle when the air is still (no wind).”*

*--Male, Trade, Retail Shop*

## Disadvantage

- Burns out really quickly
- Produces smoke
- Can be dangerous

*“Candle is what I do not like very much since it can cause fire any time if not properly handled, burns out quickly.”*

*--Male, Trade, Retail Shop*

*“Candle light is weak compared to that of electricity..... Candle light is not sufficient and also when there is wind causes problems.”*

*--Female, Trade, Hawker*



## Usage

- A few consumers use torches
- Some of those who use torches, use them when there is wind

*“I use torch when there is wind.”*

*--Male, Trade, Retail Shop*

## Disadvantage

- Spot light, not good for general use
- Need to have it as a second light



## Usage

- Only one respondent said that sometimes he used a generator. But he rarely uses the generator because:

*“It is very expensive to use as fuel is expensive.”*

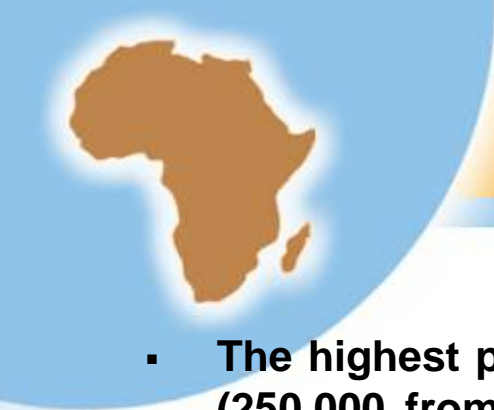
## Disadvantage

- It is expensive
- The smoke produced was a source of pollution

# Summary of Lighting Products Presently in Use

	ADVANTAGES	DISADVANTAGES
Paraffin/Kerosene Lantern/String Lamp	<ul style="list-style-type: none"><li>▪ Good for use by more than one person</li><li>▪ Can control the light intensity</li><li>▪ Can buy paraffin according to amount of money you have</li></ul>	<ul style="list-style-type: none"><li>▪ Paraffin is expensive</li><li>▪ Dangerous</li><li>▪ Irritates the eyes</li><li>▪ Smoke blackens the ceiling</li><li>▪ Cooked food can taste of paraffin</li></ul>
Torch	<ul style="list-style-type: none"><li>▪ Portable, used for toilet visits and when moving between dwellings</li></ul>	<ul style="list-style-type: none"><li>▪ Spot light, not good for general use</li><li>▪ Need to have it as a second light</li></ul>
Candle	<ul style="list-style-type: none"><li>▪ Easily available</li><li>▪ Cheap</li></ul>	<ul style="list-style-type: none"><li>▪ Burns out really quickly</li><li>▪ Produces smoke</li><li>▪ Can be dangerous</li></ul>
Wood	<ul style="list-style-type: none"><li>▪ Can be cheap or free</li><li>▪ Multiple uses (cooking, heating and light)</li></ul>	<ul style="list-style-type: none"><li>▪ Increasingly difficult to get hold of in urban areas (expensive)</li><li>▪ Creates a lot of Smoke</li><li>▪ Can be dangerous</li></ul>





# Purchase Habits: Household

- The highest paid respondent was a soldier who earned about Tsh 950,000 (250,000 from salary and 700,000 from business-shop) every month. The other employed respondents were casual laborers who are paid daily wage.
- Other respondents were either housewives or business people who were not willing or were unable to approximate how much they earn. Some termed their earning as *“little”*
- The respondents spend more on food that they purchase daily. Most of the respondents claimed that they were not saving anything
- The major items that the respondents purchased daily were:
  - Food
  - Fuel for lighting: This was purchased almost daily e.g. the kerosene at Tsh 400 and candles at Tsh 150. A housewife estimated the amount she spends on kerosene at about Tsh 12,000 per month.
- The products are purchased locally in the nearby shops

*“...about 210 Tsh. Per week.”*

**--Male, Household**



# Purchase Habits: Household

- The respondents spend between Tsh 150- 6000 on the lighting products while fuel, 150-300 Tsh. The following amounts on the current lighting products they use.
  - Tin lamp cost about Tsh 250
  - Kerosene cost - 300 Tsh per day
  - Pressure lamp – 6,000 Tsh
  - Candles – 150 Tsh
- The respondents perceive this cost as expensive, proportionate to their overall household budget
- The respondents purchase their current lighting products and fuels on cash basis.

*“Kerosene is very expensive ..... I do not have an income. I am a housewife. But our daily expenditures is about 3,000 ...on kerosene? About 12,000.”*

**--Female Household**



# Purchase Habits: Trade

- The traders earned approximately Tsh 50,000-200,000 per month
- Major items purchased
  - Stock
  - Transportation
- The respondents purchased their current lighting products and fuels on cash basis

*“.... I earn about 50,000”*

*--Male, Trade, Class Center, Morogoro Urban*

*“I earn 90,000 TSH”*

*--Male, Trade, Shop*



# Perceptions Towards Modern Lighting Devices: Household

- **Expected benefits**
  - The expected benefit would be that all houses would stop using their current lighting devices such as tin lamp.
- **The respondents thought that such a device should:**
  - Not have negative effects on the users
  - Have sufficient light
  - Be affordable
- **Usage**
  - **Expected performance:** The respondents thought that the modern device should last longer than what they are currently using.

***“Yes I would like to use it. If assured there will be no negative effects caused by its use and its affordable.”***

# Perceptions Towards Modern Lighting Devices: Household



## Needs

- To improve lighting in the home and have no effects on the health of the household members

## Positives

- They would be able to conduct more activities e.g. ironing.
- Certain activities e.g. cooking would not be interfered with or stopped because the light is been used elsewhere.
- The latrines/ toilets would be well lit.
- Adequate light that can serve all areas of the room

*“I would like to see something new and different from what we are used to. Like its light should be different, it should not be using fuel whatsoever and it should not produce any fumes.”*

- To some respondents modern lighting devices was an advanced technology such as solar power. Such a lighting device could be used in other electronic appliances such as refrigeration and TV. Using solar was deemed as cheap because *“sunlight is free.”*



# Environmental Considerations

- **Most of the consumers interviewed do not have an opinion of the environments considerations relating to the light that they use.**
- **A few however said that:**
  - **The smoke produced by generators causes pollution**
  - **The candle can harm the environment**

***“Yes, candle is very destructive to the environment. Look at the roof here, all this soot is just because of the candle. Even some customers do not like to stand near it and they tell me to blow it out.”***

**--Male, Trade, Retail Shop**



# Health Beliefs and Reported Effects

- Health problems are not at top of mind. However, chest and eye problems were mentioned by consumers as being caused by the light they use
- The tin lamp was also perceived as harmful to health

*“...eye problems (can’t see properly, this is more serious), chest problems (can’t run),  
Dusting the selling products due to smoke.”*

*--Male, Trade, Shop*

*“It causes eye and chest problems.”*

*--Male, Trade, Kiosk*

*“Yes, flue and eyes problem.”*

*--Male, LSM 1-4, Household*

*“Yes, such as respiratory complications.”*

*--Female, Trade, Hawker*

*“Yes, smoke is not good.”*

*--Female, Trade, Shop*



# Summary of Present Lighting

- Respondents are not satisfied with the current lighting source but they cannot afford anything else. The lighting source is not adequate because there are some activities that they were unable to do as a result of the lighting they have e.g. ironing.
- How lighting products are classified:
  - Product to light the main room: usually not portable and bright. The family used the light when eating and children for studying.
  - Portable light: mainly used in the kitchen. This portable light is what would be used in other rooms e.g. bathroom or latrines.
- “Choice of product” drivers and justification
  - Safety
  - Affordability





# Summary of Present Lighting

- The kerosene lantern lamp was deemed to be affordable compared to other sources of lighting.
- Electricity is not reliable because of power cuts, and is defined as ‘*white colour.*’
- The main reason for using each of the above types of lighting is:
  - Affordability
  - Availability
  - Safety

*“It’s affordability and my ability to operate it on daily basis. Then I look into the finer details like its quality.”*



## 6. Consumer response to Modern, Off-Grid Lighting Products



## 6. Lantern: Solar, CFL

### ADVANTAGES

- Gives off adequate light intensity enough for a large area
- Familiar design - similar to a paraffin lantern
- Safe
- Perceived as durable due to its durable plastic casing
- Convenient and Easy to handle: can be used to walk around with due to the handle
- Attractive
- Cheap because of using solar power
- Simple switch – easy to operate

### DISADVANTAGES

- Lead between the light and the solar panel should be longer so that the product can be left inside the house when charging
- Would be good to have a dimmer switch
- Looks fragile

*“The material looks strong, I think it can last for long but as I said durability depends on how its handled.”*

*“It is easy to carry and you can hold its handle and go anywhere.” --Male, Trade, Bagamoyo, Rural*

*“Its easy to use because unlike my lantern I don’t need to wipe the glass caused by smoke.”*





# Lantern: Solar, LED (bi-level)

## ADVANTAGES

- Familiar design (lantern)
- Dimmer switch is seen as a useful extra and similar to current paraffin lamp
- Easy to handle
- Economical due to solar charging and rechargeable batteries
- Adequate light intensity
- Aspirational image
- It is fairly portable

*“It has a good appearance and its brightness is a light should be.”*  
--Male, LSM 1-4, Household, Mtuma, Urban

## DISADVANTAGES

- Seen as an expensive product due to design
- The fact that the plastic is not see-through means that respondents perceive the lamp to give less light than it could
- It needs to be taken care of when charging and it cannot be left with children
- It cannot be hang because it is too big



*“The glass is big and wide and produces a lot of light.”*  
--Male, Household, Rural

*“It needs to be watched when it is charging.”*  
--Male, Household, Rural



# Lantern: Dynamo, LED

## ADVANTAGES

- Nice lamp
- It is light in weight making it easy to handle
- Multi purpose
- Economical: no batteries and mechanical charging
- Easy to handle
- Adequate light intensity to some
- Good size-does not require a lot of space
- Durable glass panel is protected when not in use (fold away)
- Handle is modern
- The lamp cannot get rust



***"I have liked it because the light it produces is white."***

**--Female, LSM 6, Household, Dodoma, Rural**



# Lantern: Dynamo, LED

## DISADVANTAGES

- Looks like it can easily break
- Unfamiliar design: some thought it was a food flask
- Fragile winding element
- Tiring to operate, have to allocate resource to charge it i.e. time, energy
- The 'white' light is not sufficient
- The lamp can be damaged by water



***“The light intensity is little then charging it is tedious..... the hand gets tired when charging it.”***

**--Female, LSM 6, Household, Dodoma, Rural**





# Task Light: Solar, CFL

## ADVANTAGES

- It is portable. One can move around with it since it has a good wide handle
- Gives enough light because the light is 'white' and bright
- Economical due to rechargeable battery and solar recharging
- Attractive, despite unfamiliar design for a lighting device
- Easy to handle
- Multipurpose: can be used as a torch when going to the toilet or as a lantern to light the whole room
- The solar panel has no expense since it comes with the product
- It is possible to hang it on a nail on the ceiling
- There is no improvement required



***“There is nothing to improve leave it the way it is.....you can carry it anywhere even to the toilet.”***

***--Male, Trade, Bagamoyo, Rural***

***“... its white light.”***

***--Female, LSM 2, Household,  
Dodoma, Rural***



# Task Light: Solar, CFL

## DISADVANTAGES

- It can easily break
- Perceived to need a lot of care
  - Fragile as solar flap can break easily
- Produces too much heat at night
- Charging process a concern due to the fact that the product needs to be left outside
  - Very likely to be stolen





# Task Light: Replaceable battery, LED

## ADVANTAGES

- Easy to handle and use because it is good since it has a handle
- Looks nice
- Structural design is good
- Good size that does not occupy much space
- To some respondents the light is adequate because
  - it is white and bright therefore it increases the duration for business

## DISADVANTAGES

- Can only be used to light one area of the room at a time
- Inconvenient as has to be placed on a flat surface
- Only uses batteries as thus perceived expensive to maintain
- Inadequate light intensity
- Unfamiliar intimidating design
- Fragile



***"It has bright light and it is adequate to serve customers....I have faith it will last."***

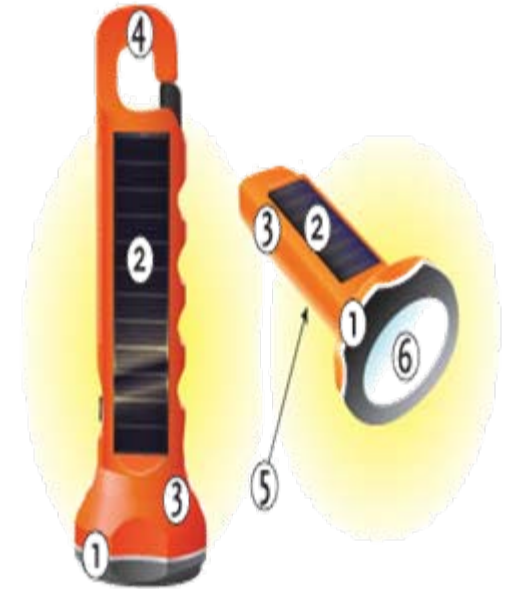
***--Male, Trade, Small Duka, Bagamoyo, Rural***



# Torch: Solar, LED

## ADVANTAGES

- Easy to use and it is easy to grip
- Has a beautiful look
- Seems durable and long lasting (some respondents)
- Portable
- Economical
- Environmentally friendly due to solar as the source of energy
- Very bright
- Color not affected by dust
- The 'white' light does not hurt eyes
- The 'white' light is adequate
- It is good to have the solar panel right on it
- Some products were not lighting well



***“The light intensity is good and white.”***

***--Female, LSM 6, Household, Dodoma, Rural***

***“The light (glare), which does not hurt eyes .... Its glare is good.”***

***--Male, LSM 9, Household, Dodoma, Rural***



# Torch: Solar, LED

## DISADVANTAGES

- Little product security during charging
- Not practical for trade premises because the light is not adequate
- The product is not durable since it can be spoilt by water but dust cannot affect it



***“It can easily be stolen because you cannot be there all the time waiting for it to be charged.”***

# Torch: Replaceable battery, LED

## ADVANTAGES

- Durable: The product was termed as *“strong-looking”*
- Strong light intensity
- The light produced is very intense
- The handle is small and easy to carry
- The small size is a positive aspect and it can be carried in the pocket
- It appears to be durable

*“Its light is very intense.”*

--Female, LSM 3, Household, Dar es Salaam, Urban

*“The light was enough.”*

--Male, LSM 1-4, Household, Kopa, Urban



*“The small size is appealing.”*

*“It has been made with durable plastic... it is safe since it can even be put in the pocket.”* --Male, Trade, Dar es Salaam, Urban

# Torch: Replaceable battery, LED

## DISADVANTAGES

- Perceived as expensive to buy
- Batteries are not rechargeable
- Not multipurpose: cannot be used as a task light- e.g. whilst cooking or for children to study with



***“Such a device would last forever if the bulbs were not to be replaced.”***

**--Male, LSM 1-4, Household, Kopa, Urban**

# Flood Light: Solar, Linear Fluorescent

## ADVANTAGES

- Perceived to emit adequate light intensity
- Cost effective
  - There is no bill or battery cost
- Can act as an emergency light
- Can reduce electricity consumption
- Safe
  - There is no risk of electrocution
- The light is very bright
- It is not attractive
- It is stable if put on a table



***“If you fasten it on the wall, it will be like you have electricity in the house or at your business premises.”***

***--Male, Trade, Morogoro, Rural, Urban***

# Flood Light: Solar, Linear Fluorescent

## DISADVANTAGES

- Perceived expensive
- Bulky
- Can easily be stolen if not fixed to the wall
- Not portable
- Perceived as hard to maintain
  - Spare parts



***“The shape of the lamp is not attractive. I would like it to look like other lamps.”***

**--Male, Small Scale Trader, Kongowe, Urban**

# Spot Light: Solar, LED

## ADVANTAGES

- Some respondents like how it is shaped
- Its colour is good to some
- Respondents like the fact that it sheds light in large areas
- Some respondents dislike the fact that it does not have an off switch
- Some were defective

## DISADVANTAGES

- Can easily be stolen
- The design is:
  - Unfamiliar
  - Not appropriate for a household or small business premises
  - Not suited to the respondents in terms of image and respondents needs
  - Hard to handle, cannot stand it or hang it
  - Lacks a switch
  - Inadequate light intensity



*“.....placed it on the table with the solar panels facing down because we could not fix anywhere.”*  
--Male, Trade, Fixed Hawker,  
Kumasi, Urban





# Wind-up Rechargeable Lantern

## ADVANTAGES

- Perceived to be strong
- Easy to use
- The light is good, bright and white but does not last
- It is small therefore can be easily carried
- It appears water proof but dust can spoil it

*“.... It went off on its own.”*

--Female, LSM 3, Household, Dar es Salaam,  
Urban

## DISADVANTAGES

- It does not give enough light





# Lighting System Concept

## ADVANTAGES

- It looks beautiful
- Can be used in different rooms

## DISADVANTAGES

Looks expensive

- Difficult to install
- Looks like it needs a lot of maintenance



*“This devise needs to be used in a secure area or it will be stolen”*

*“Looks very expensive”*

*“Suggested price between 500,000 Tsh – 1,000,000 Tsh”*




# Lighting Costs



# Modern Lighting Products

## How much is Tanzania willing to pay?

		Household	Trade
	Lantern	10,000 Tsh	5,000 - 10,000 Tsh
	Torch	5,000 Tsh	2,000 - 5,000 Tsh
	Task Light	20,000 Tsh	20,000 Tsh
	Flood Light	2,000 Tsh	2,500 Tsh

# Modern Lighting Products

## How much is Tanzania willing to pay?

	Household	Trade	
	Solar Torch	2,000 Tsh	2,000 Tsh
	Task Light	10,000 Tsh	8,000Tsh
	Solar/Shed	N/A	10,000 Tsh
	Crank Lantern	10,000 Tsh	10,000 Tsh



## **7. SUMMARY & CONCLUSIONS**

# 7. Summary and Conclusions

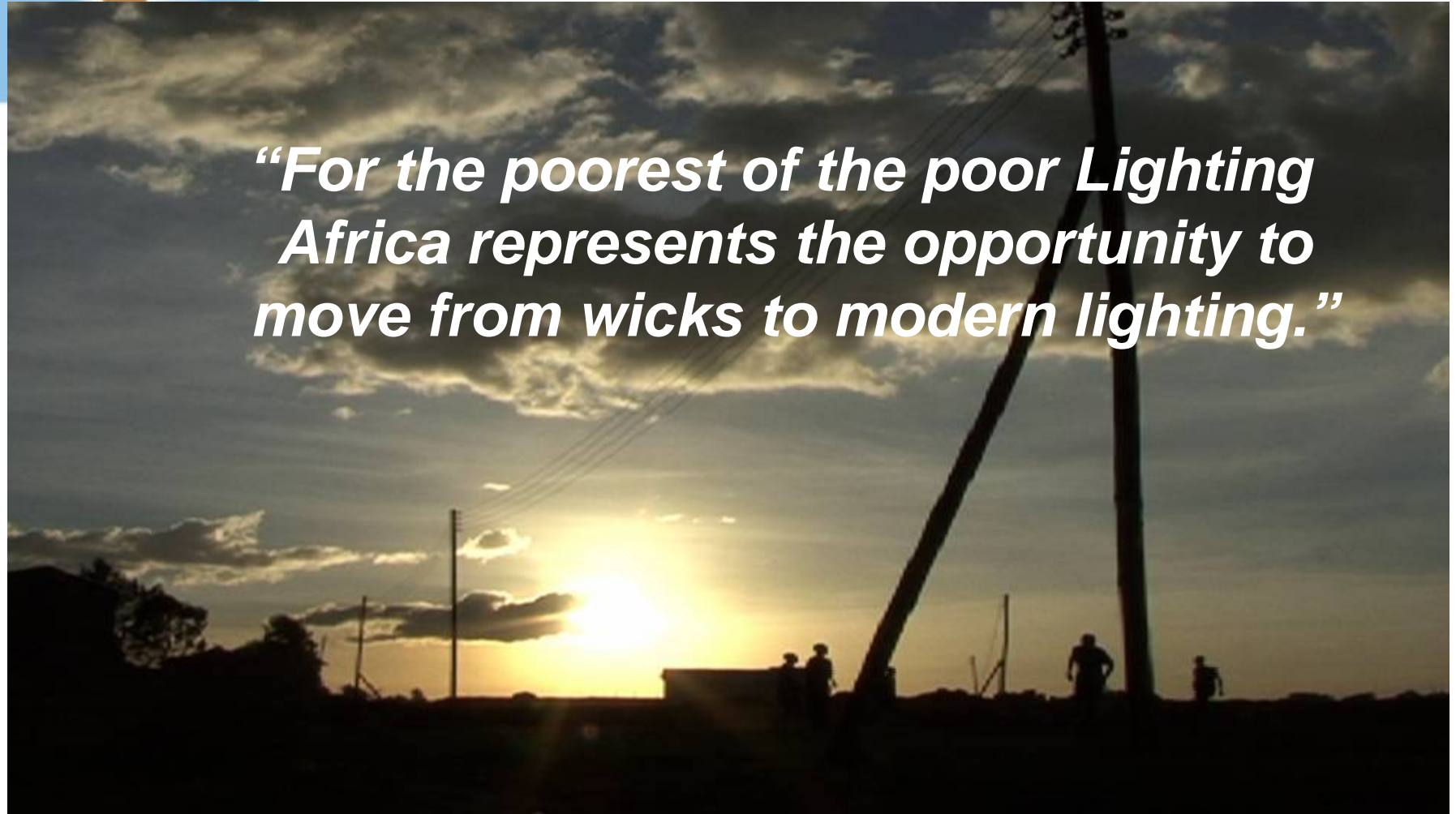
- **Most consumers in Tanzania live from day to day with only enough money to fulfill basic needs such as food, lighting, children's education etc.**
- **Although modern lighting products are looked at positively they are still considered to be expensive, difficult to get hold of and many consumers see them as being out of their reach.**
- **Amongst those products that were tested those that were best received were the lanterns due to their ability to light the entire room so that more people can make use of the light at the same time.**
- **The Home Lighting System concept was seen as something very positive but considered to be expensive and difficult to maintain – many respondents wondered where they would be able to get spare parts such as light bulbs and plastic light covers – if these were to break.**
- **Consumers feel that, proportionately to their income, they spend quite a lot of money on lighting their household or place of business.**
- **The maximum amount which they are willing to spend on any type of modern lighting device is 10,000 Tsh. (around USD 7.50) – therefore Tanzania seems like it will be a tough market to crack in terms of pricing as consumer expectations are well below what manufacturers would be able to deliver**





# Salient Thought

***“For the poorest of the poor Lighting Africa represents the opportunity to move from wicks to modern lighting.”***





- For more information about LIGHTING AFRICA, please visit the Lighting Africa website at [www.lightingafrika.org](http://www.lightingafrika.org)
- Contact: info@lightingafrika.org



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## **DISCLAIMER**

**The opinions stated pro and con regarding products shown or used in this market research study are solely those of the interviewees and do not reflect the opinion or endorsement of the interviewers, the sponsors or their respective staff. Researchers procured a variety of products with typical features to stimulate feedback from interviewees about lighting in general. Quotations are translated to English from the original language; they are not attributable to the individuals shown in the photos.**

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