

# RESEARCH PEARLS | FEDU PEARL #14

In our series “Research Pearls” we are providing first-hand insights into our dynamic and powerful diaries research. In the previous research pearl we delved into the lighting usage among our respondents. In this edition we will zone in on the viability of the light sources in use: how often is it reported that a device is not working and if this is the case, is replacement acquired and what are the preferences?

## Let there be more light

As has been discovered in the previous *Research Pearl*, the main type of light source used is the kerosene lamp, followed by the slightly less used lighting source “grid”.

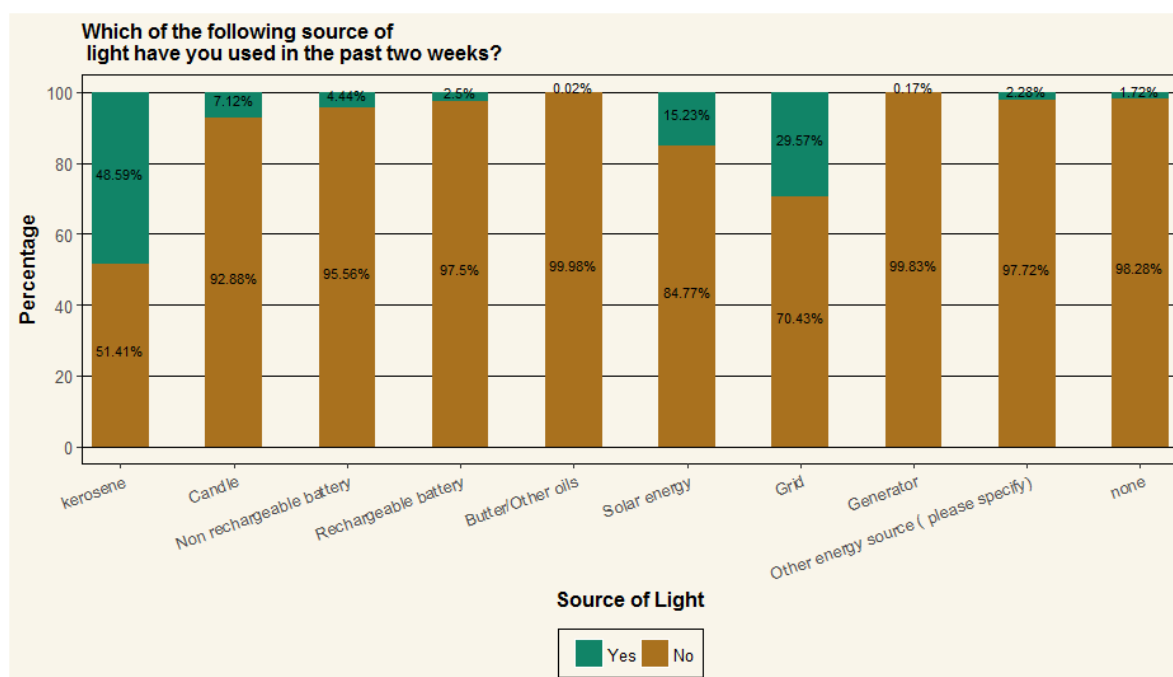


Figure 1: Different sources light

The main forms of light are:

Type	Percentage interviews
Kerosene	48%
Grid	30%
Solar	15%
Candle	7%
Non-rechargeable batteries	5%
Rechargeable batteries	3%

In total there are 272 reports about a light device that did not work. This means that in 4% of the interviews people had experienced that their form of light was not working.

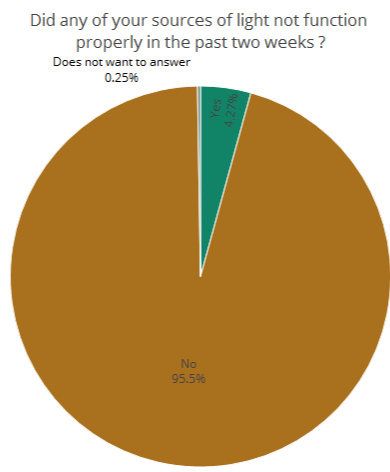


Figure 2: Percentage of non-functioning devices

The type of light sources that were not working were as follows:

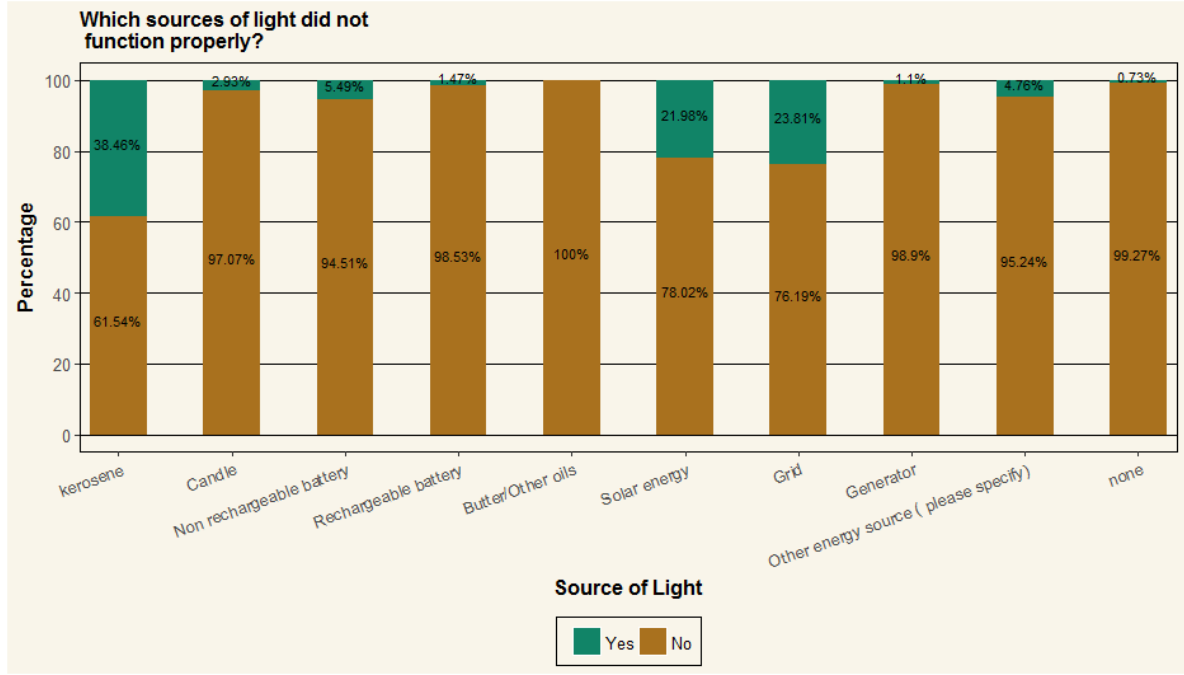


Figure 3: Non-functioning light sources

Comparing the usage frequency of the main forms of light and the relating percentage of incidences when they were not working:

Type	Percentage interviews	Non-functioning percentage	Above or below par
Kerosene	48%	39%	Less problems
Grid	30%	24%	Less problems
Solar	15%	22%	More problems
Candle	7%	3%	Less problems
Non-rechargeable batteries	5%	6%	More problems
Rechargeable batteries	3%	1%	Less problems

The above table shows that compared to the respective usage percentage, solar lights are more likely to not work (+47%). Hence, there is a higher occurrence of problems with these lights as compared to the usage frequency. For non-rechargeable batteries we also see a slightly higher incidence of problems (+20%). On the other hand, there are a number of light devices where the non-functioning percentage is lower than their usage frequency would predict. The scarcely used options of “rechargeable batteries” and “candles” present the least problems (-67% and -57% respectively). Grid also performs better than its usage would predict (-20%) and kerosene devices are also better than expected (-19%).

In conclusion, the solar devices are definitely most prone to malfunction across the entire spectrum of light devices.

Of the 272 cases where a light device did not work, the following issues were reported:

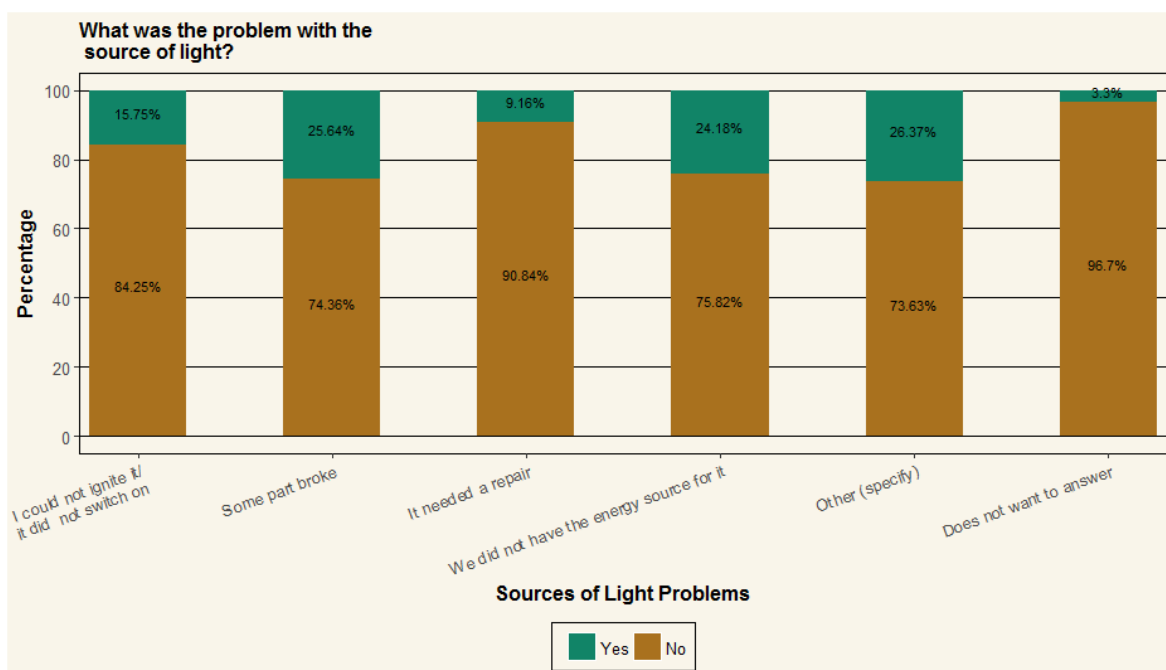


Figure 4: Issues related to light sources

The most common problem stated was that “some part broke”, “we did not have the energy source for it” (e.g. when there was no kerosene) and “I could not ignite it/it did not switch on”. Just over 25% of the issues reported were mentioned under “other”.

In each interview we also inquired whether people had obtained new light devices during the past two weeks. In total, 129 cases of new light device were recorded, which represents just 2% of the interviews.

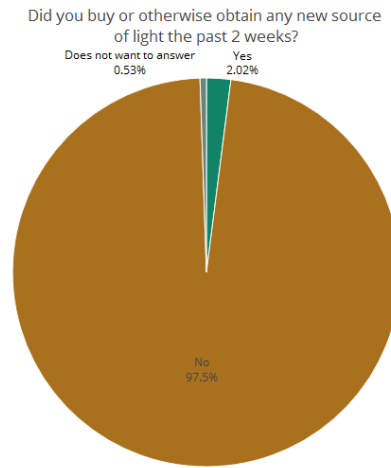


Figure 5: Percentage of new device acquisitions

Among those 129 newly obtained light devices, the following types of light devices were indicated:

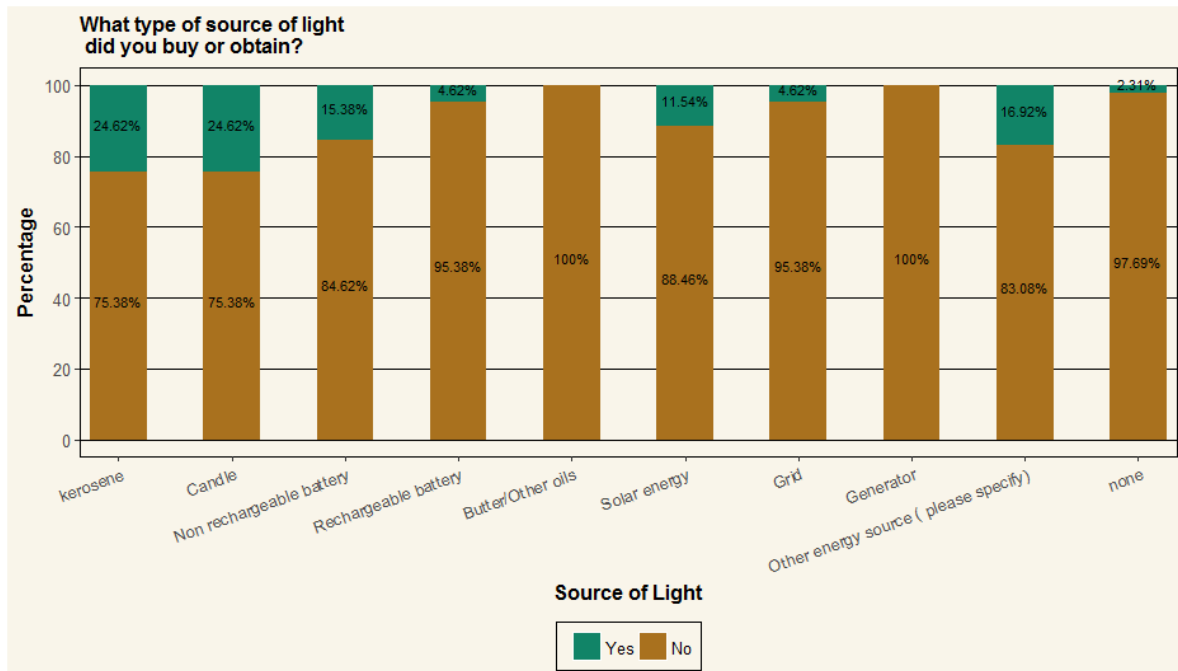


Figure 6: Types of newly obtained devices

Type	Percentage interviews	Percentage obtained	Obtaining more or less than status quo
Kerosene	48%	25%	Less ↓ -48%
Grid	30%	4%	Less ↓ -87%
Solar	15%	12%	Less ↓ -20%
Candle	7%	25%	More ↑ +257%
Non-rechargeable batteries	5%	16%	More ↑ +220%
Rechargeable batteries	3%	5%	More ↑ +67%
Other		17%	(needs to be analyzed more)

As can be observed in the table above, “kerosene” and “candle” are together representing 50% of all the devices obtained. Since in Uganda the word “candle” is often used for the simplest kerosene lamp, we assume that the two categories basically concern more advanced kerosene lamps as well as simple kerosene lamps.

Grid light devices, i.e. electrical lights, are seldom bought. On the one hand, this is probably an indication for the slow rate at which people obtain grid; on the other hand it might be related to the fact that existing electrical light devices have a longer lifespan.

Solar is also obtained below the prevalence of the status quo. While 15% of the respondents indicated that they are using solar, only 12% of the devices bought were solar.

The reason for selecting a specific light device was primarily cost related:

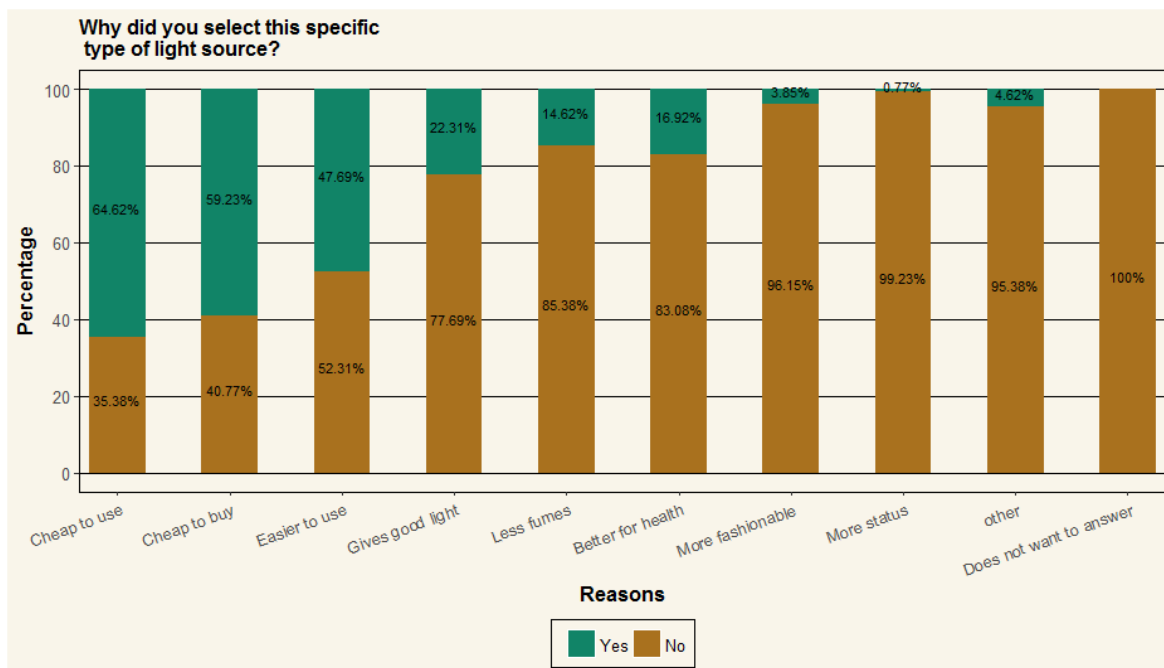


Figure 4: Reasons for lighting tendencies

More than 50% of the devices were selected based on the reasons “cheap to use” (65%) and/or “cheap to buy” (59%), while the quality of the light device seems to bear less weight (just 22% selected that as a reason). Also health issues were indicated by only a few as the selection criteria: “less fumes” (15%) and “better for health” (17%). On the contrary, “ease to use” was quite a common argument (48%).

### Conclusions

From the FEDU research we can draw a couple of conclusions regarding different light devices that people use. First of all, the most commonly used device is kerosene-fueled light. Most of the time light devices are functioning across all types. In only 4% of the biweekly interviews a non-functioning device was reported. As compared to other devices, the number of malfunctioning incidences is slightly higher for solar and non-rechargeable battery devices. Hence, these devices are more prone to damage or repair works.

The more surprising (and disappointing) finding is that very few people chose solar when buying new devices. Even though respondents were very well informed about solar lights, only 12% of the new lights obtained were solar. This percentage is even lower as compared to how many people reported about

current solar device usage. The reasons for not choosing solar devices were primarily related to the costs, either the costs of buying or the costs of using.

### **Implications for solar companies**

Solar companies really have to take cost aspects of their offers into account. People report that they are primarily driven by purchasing cost as well as by costs that occur through usage. The cost argument is even brought up when a preference towards obtaining kerosene lamps is witnessed (while we know that kerosene usage is costly). It can be assumed that the cost argument is a “perceived cost to use”, because kerosene lamps are expensive to use. Hence, solar companies may need to focus on how to build awareness about the costs of kerosene compared to the costs of solar lamps. It might be the case, that many people are simply not aware how much they spend on kerosene over the years. Compared to the rest of the population, it is assumed that respondents’ knowledge about lighting options was considerably increased through the many questions asked. Therefore, this research demonstrates that the act of solely making people aware of solar light offers is not enough to encourage people to purchase solar.