

EEP AFRICA IMPACT AND PERFORMANCE EVALUATION END-USER RESEARCH ZONFUL

Presented to the Nordic Development Fund



- 1. Context and objectives**
2. Sample overview
3. Using the Zonful Solar Home System
4. Impact on quality of life
5. Impact on business and finance

The objective of this presentation is to detail the results of the Zonful end-user research in Zimbabwe

Context

- The acquisition of the Energy and Environment Partnership Africa Trust Fund by the Nordic Development Fund in 2018 has **transformed it into an open-ended, multi-donor trust fund**
- NDF has mandated Altai Consulting to conduct the **first impact and performance evaluation of EEP Africa since the NDF acquisition and change of structure**

Evaluation approach and data collection

- To conduct the evaluation Altai has leveraged **three types of data**: desk review, stakeholders Key Informant Interviews (KIIs), end-user research
- **Three end-user studies of EEP-funded projects** have been performed



Countries

Uganda



Zambia



Zimbabwe



Services



Objectives

- The objective of the end-user studies is to provide an independent assessment of the impact of selected grantees
- The results will serve to confirm the underlying assumptions in EEP Africa’s Theory of Change and provide tangible examples and data for the final evaluation report
- Additionally, the results will be shared with Zonful

574 quantitative phone-based interviews have been conducted with Zonful customers

Zonful

- Zonful is a **Zimbabwean company** which offers access to clean energy through the distribution of solar home systems (SHS). Systems are sold both cash or through a **pay-as-you-go (PAYGo)** model
- The study includes three products: **two smaller SHS with multiple lights** (Solar Home 60 & Solar Home 120) and a **package with a solar TV and a solar radio** (Solar Home 400)



Sample size

- The **574 participants** were randomly selected from the customer database shared by Zonful

Data collection tools

- The questionnaire was written by Altai Consulting. It was composed of **close-ended questions**
- Enumerators **used tablets (CATI)**
- The questionnaire was administered **over the phone**

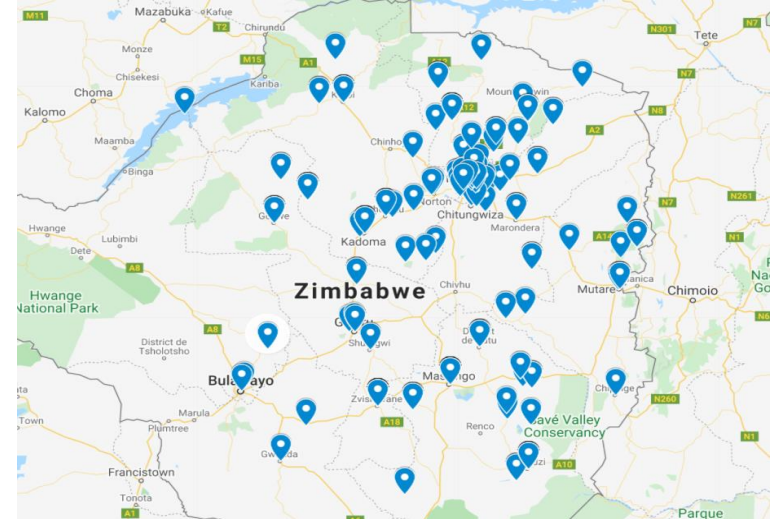
Fieldwork

- The data collection was conducted between July 30th and August 7th by enumerators of **Sagaci Research**, Altai's long-term field partner in Africa
- Before the data collection, enumerators received a **training on the questionnaire**

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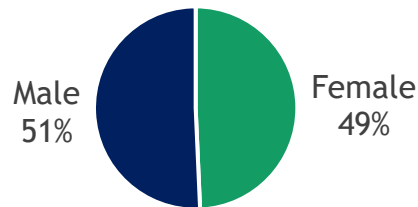
The average interviewee is a 45-year-old man

- Number of customers interviewed: **574**
- Among purchasers, half are women and half are between 35 and 49 years old
- The average age is **45**
- **Customers were interviewed across all of Zimbabwe**



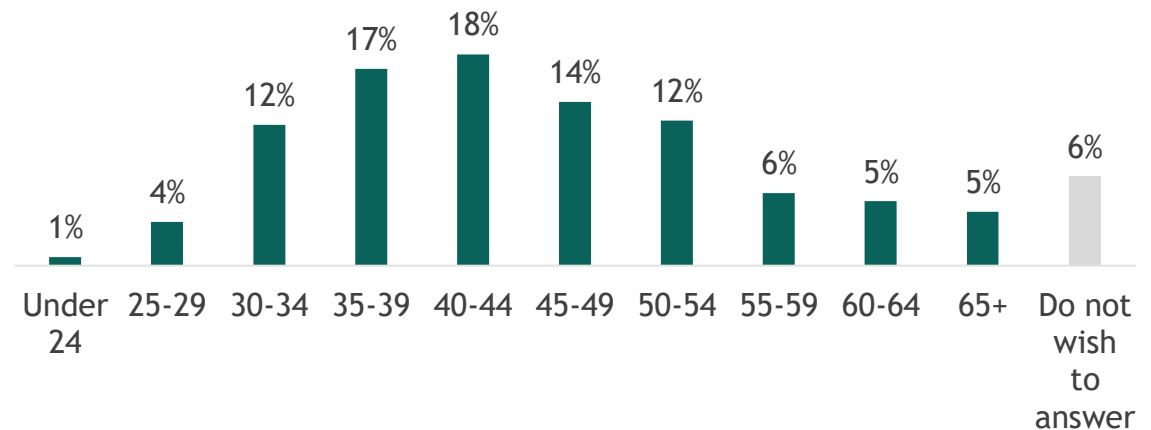
Gender of customer

N=574



Age distribution of customer

N=574

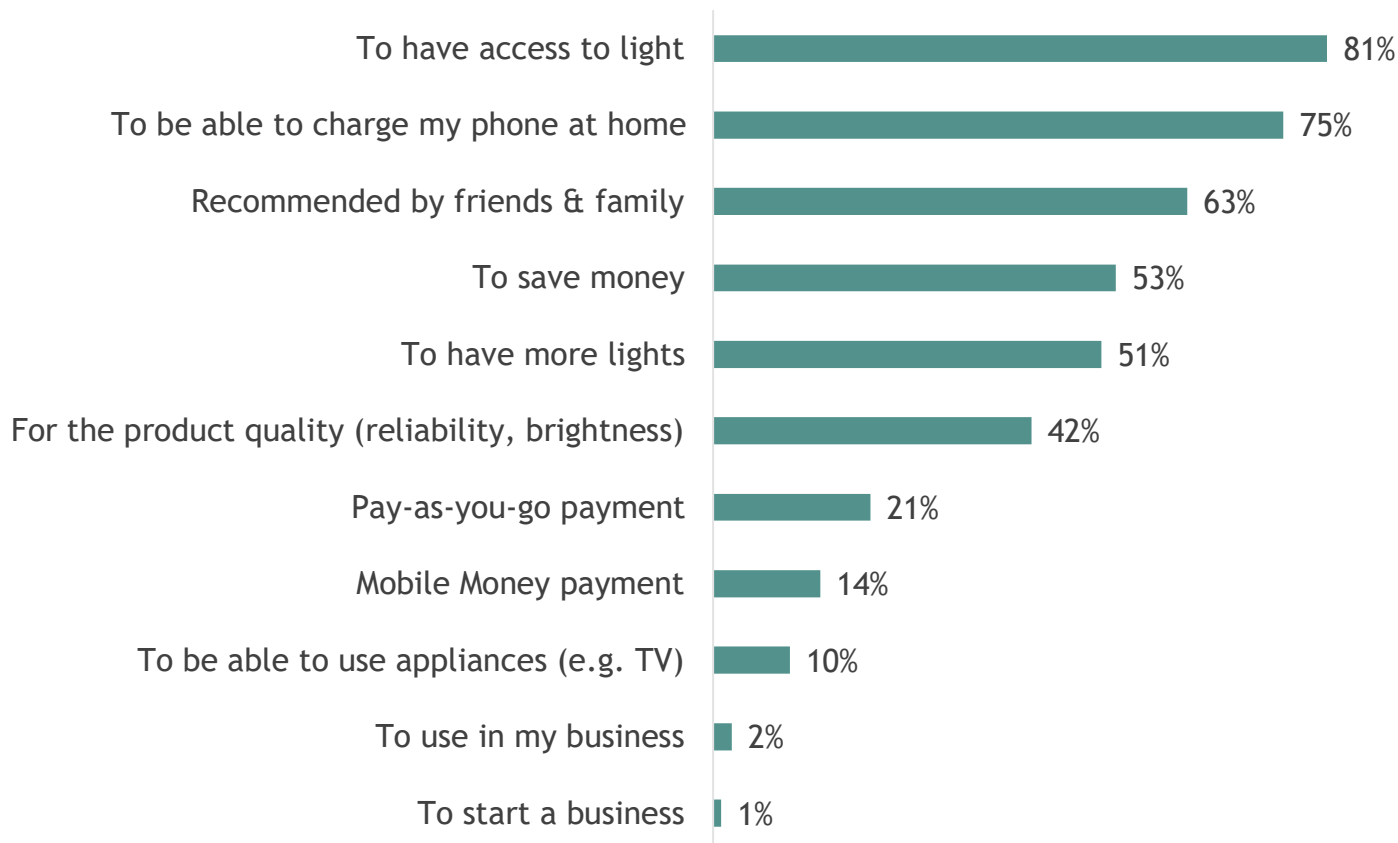


Sources: Questions used: “2. How old are you?”, “3. Gender”

Interviewees mostly bought the SHS to have access to light and phone charging. The perspective of savings on energy are also a strong factor

Reasons to buy the Zonful Solar Home System (share of households who mention the reason)

N=574



Key reasons to buy the SHS include:

- The willingness to have a new and better source of light (81%)
- 75% of the interviewees were interested in the phone charging system included
- 63% of the interviewees have been advised by friends or family to buy the product
- 53% of the interviewees wanted to save money on their energy expenditures

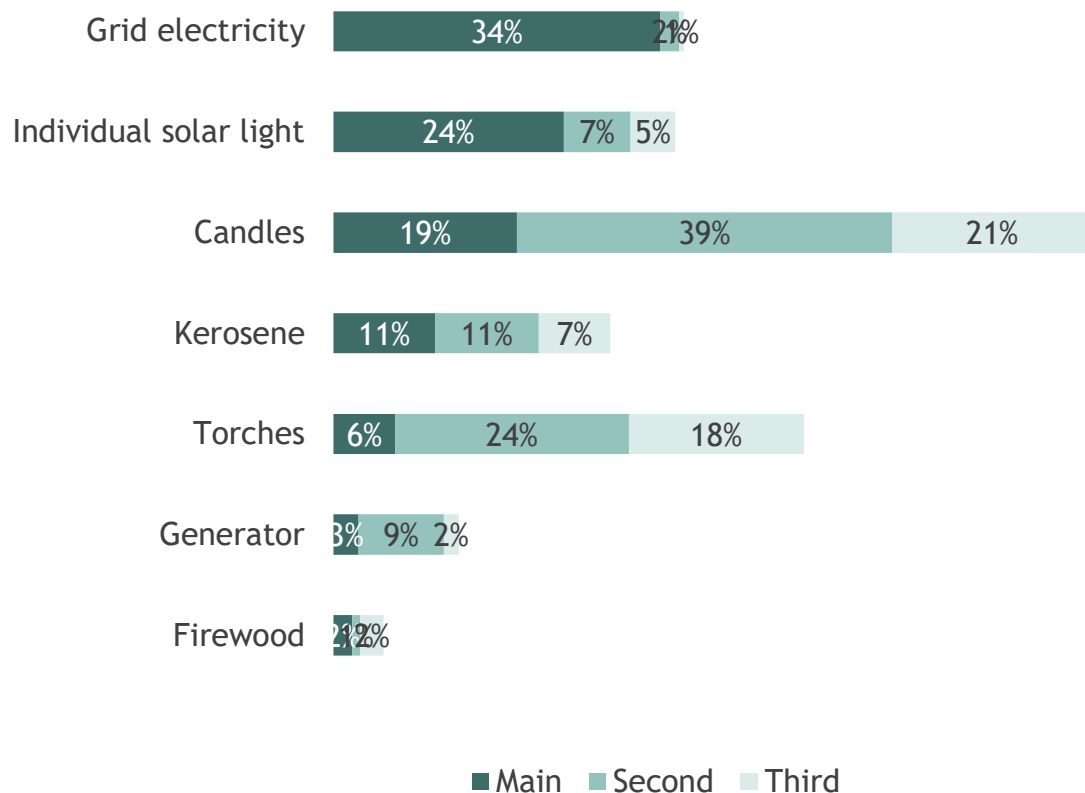
Sources: Questions used: "4. What were the main reasons to buy this Zonful solar home system?"

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Before the Zonful solar home system, many interviewees were using rudimentary sources of light. Over a third of customers were grid-connected

Sources of light used before the Zonful solar home system

N=574



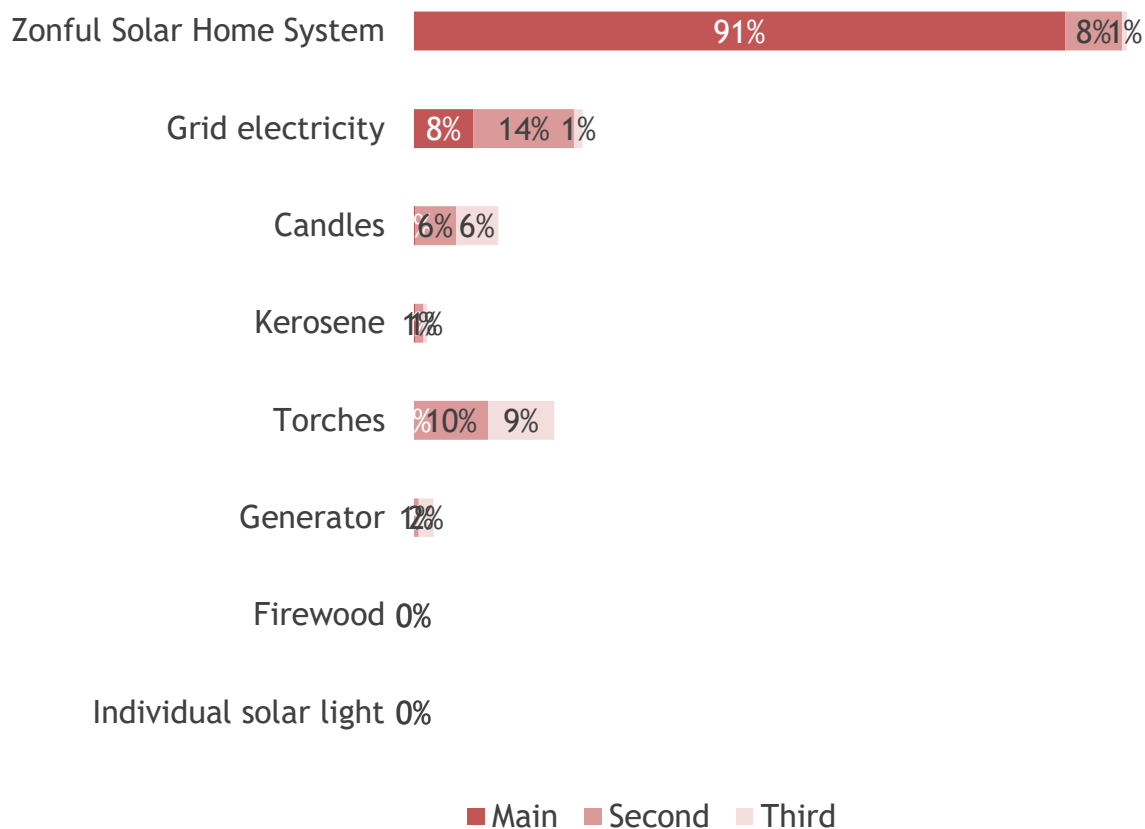
- Over a third of customers used the grid as a main source of light
- Almost a quarter had solar lanterns
- Even if mostly used as secondary sources of light, candles and torches were the most used sources overall
- Kerosene was used by 29% of the interviewees
- On average, interviewees mention two sources of light

Sources: Questions used: “11. What were the main sources of light you used before buying the Zonful solar home system?”
Sources of light are sorted by main source of light, and then by second source of light, if the main source figures are equal.

The Zonful solar home system is now the main source of light for the vast majority of customers

Current sources of light (by order of use)

N=574



- The Zonful solar home system holds by far the **first place among primary sources of light**, with **91%** of the interviewees using it
- Only **grid electricity** may also be used as a **primary source of light**, with **9%** of the interviewees using it
- **Grid electricity** is the **second source of light overall**, with **24%** of the interviewees mentioning it
- **There are more people are using the grid as a back-up to the SHS than there are using the SHS as a back-up to the grid**
- **59%** of the interviewees are **only using the Zonful solar home system**

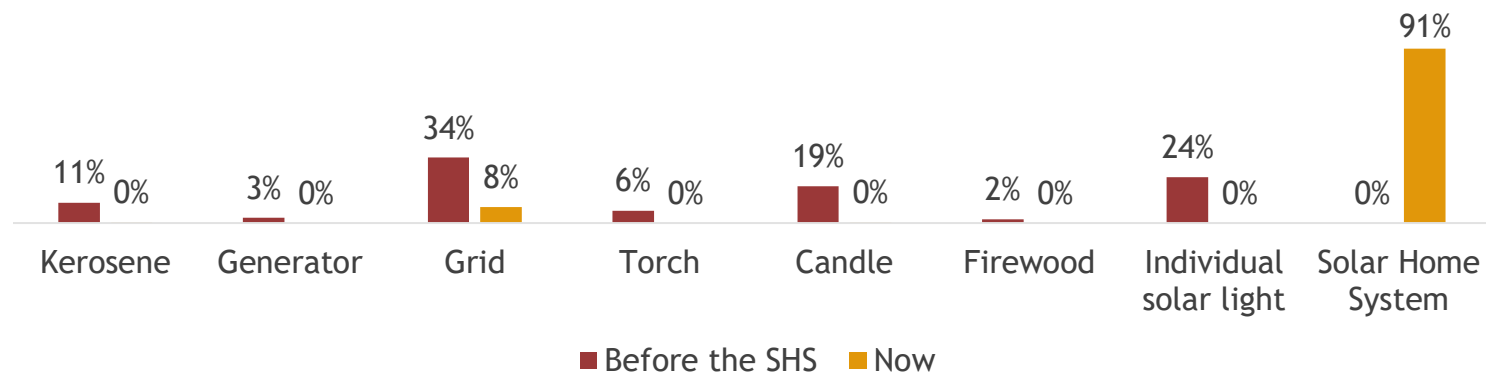
Sources: Questions used: “12. What are the main sources of light you currently use now that you have the Zonful solar home system?”

Sources of light are sorted by main source of light, and then by second source of light, if the main source figures are equal.

Use of rudimentary and/or health-endangering sources of light has declined in favour of the Zonful solar home system

Evolution of primary sources of light by household (share of households mentioning the source)

N=574

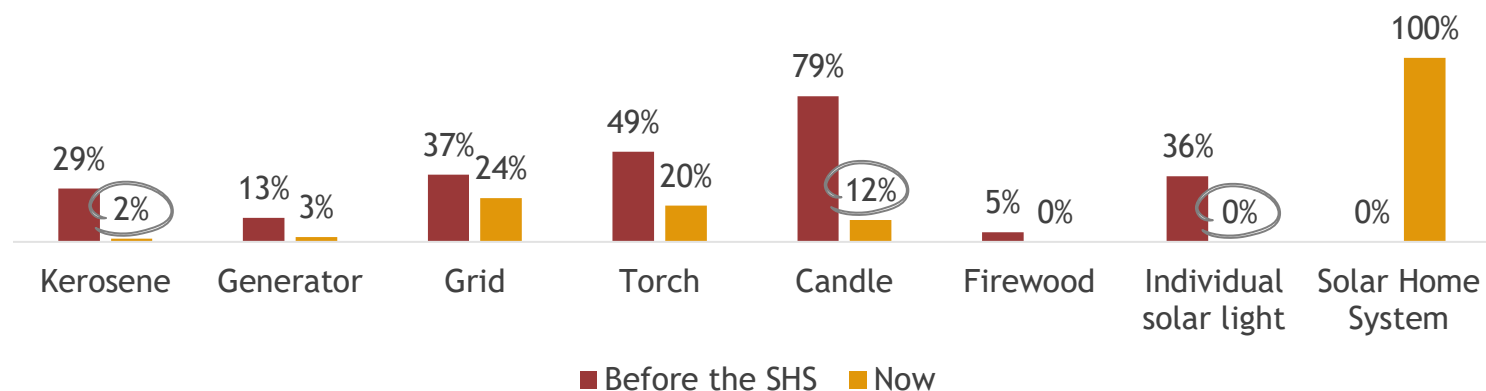


- Former primary sources of light have all declined to the benefit of the Zonful solar home system

- The greatest declines in overall use concerns individual solar light (-100% of overall use) hinting at an evolution on the solar energy ladder, kerosene (-93% of overall use) and candles (-84% of overall use)

Evolution of all sources of light by household (share of households mentioning the source)

N=574

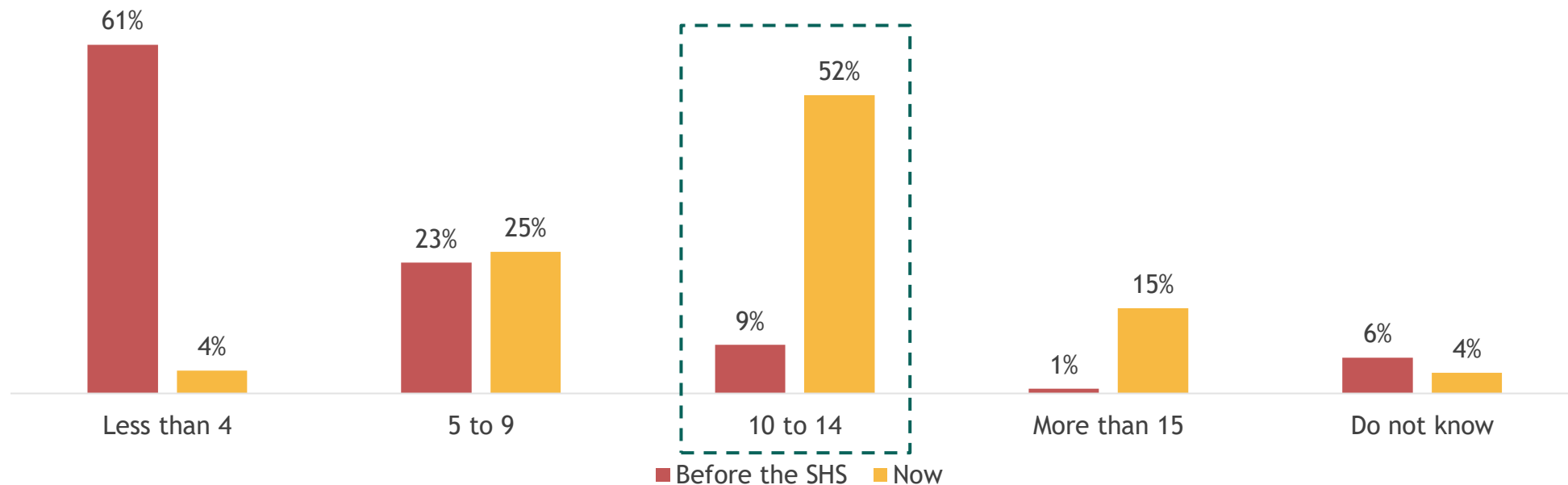


Sources: Questions used: “11. What were the main sources of light you used before buying the Zonful solar home system?”, “12. What are the main sources of light you currently use now that you have the Zonful solar home system?”

Interviewees now benefit from significantly more hours of light thanks to the use of the Zonful solar home system

Hours of light per day from all sources of light

N=574



- The average number of hours of light per day went from 5 before the solar home system to 12 now
- 68% of the interviewees have more than doubled their number of hours of light per day
- 67% of the interviewees have more than 10 hours of light per day, compared to 10% before the solar home system

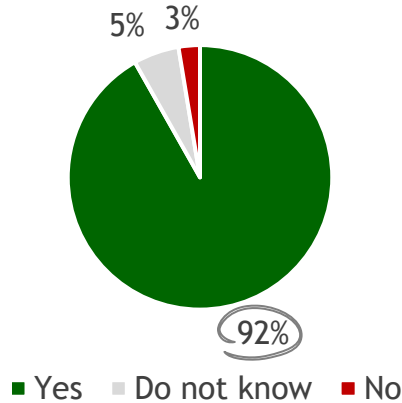
Sources: Questions used: “13. How many hours of light per day did you have before buying the solar home system, on average, across all sources of light used?”, “14. How many hours of light per day do you currently have, on average, across all sources of light used?”

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4. **Impact on quality of life**
5. Impact on business and finance

Interviewees are overwhelmingly positive about the Zonful solar home system and its impact on different aspects of their quality of life

Perceived general improvement in quality of life

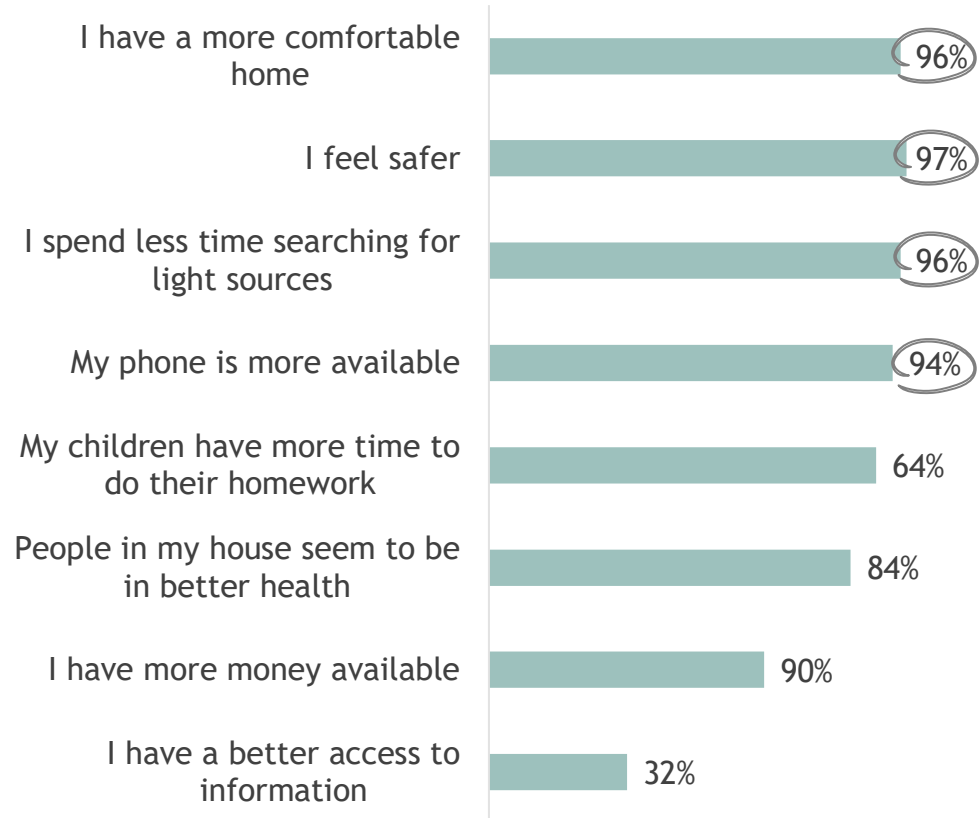
N=574



- **92%** of the interviewees perceive a general improvement in their quality of life. The three most mentioned factors are:
 - **97%** of the interviewees feel safer thanks to the Zonful solar home system.
 - The SHS also enables **96%** of the interviewees to save time because they do not have to search for fuel any more
 - **96%** of the interviewees find their houses more comfortable now

Perceived improvements (share of households that agree with the statement)

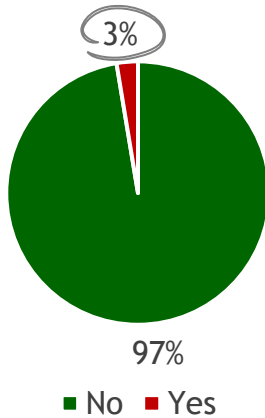
N=574



Sources: Questions used: “7. For each of the following statements, please tell me if you “Strongly agree”, “Somewhat agree”, “Neither agree nor disagree”, “Somewhat disagree”, “Strongly disagree””

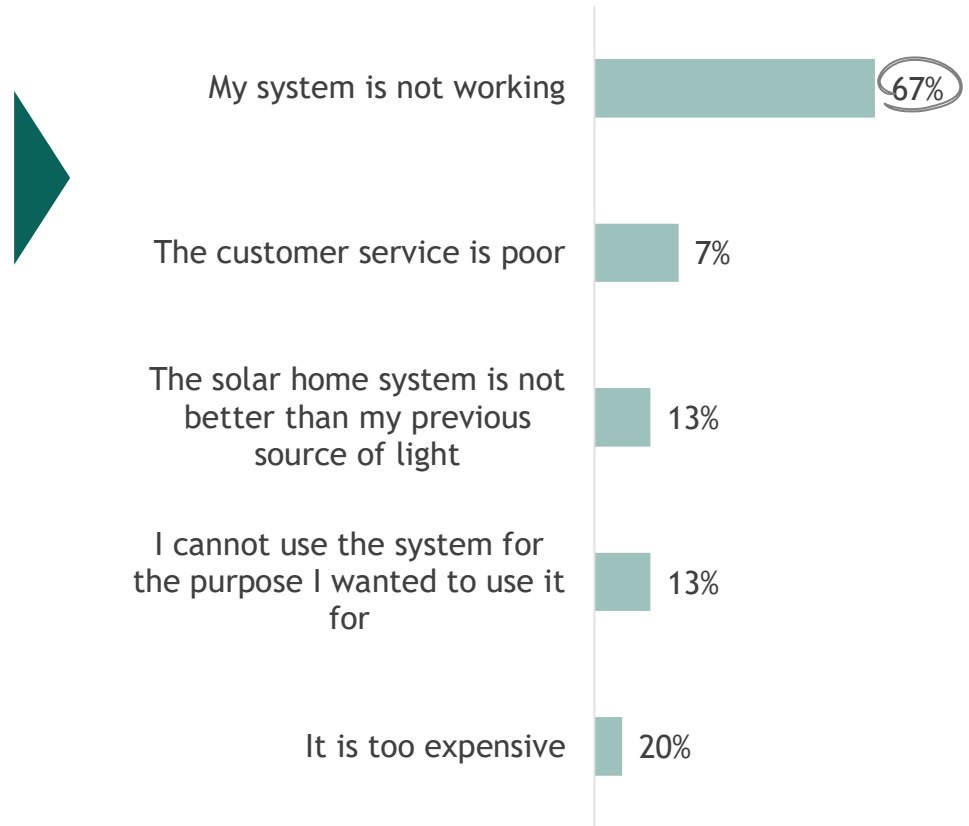
Very few customers report that the Zonful solar home system has had negative effects on their life

Households reporting negative effects
N=574



- Only 3% of the interviewees disagree with the fact that the Zonful solar home system has had a positive impact on their general quality of life
- In most cases (10 respondents) this is due to the fact they are experiencing technical issues

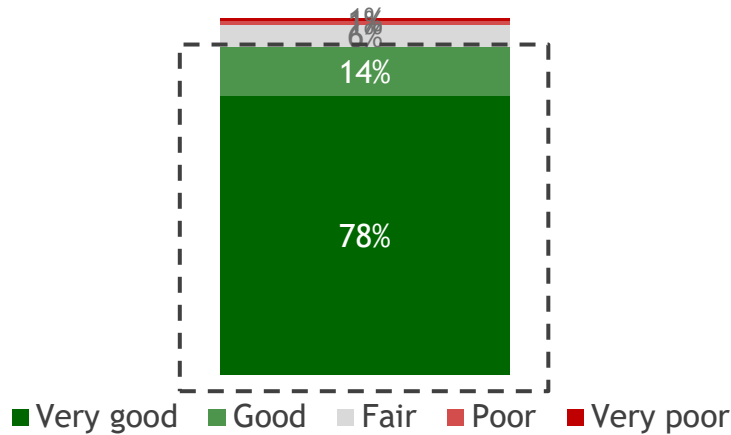
Negative effects reported
N(households reporting negative effects)=15



Sources: Questions used: “7. For each of the following statements, please tell me if you “Strongly agree”, “Somewhat agree”, “Neither agree nor disagree”, “Somewhat disagree”, “Strongly disagree””, “8. Why hasn’t the Zonful solar home system improved your quality of life?”

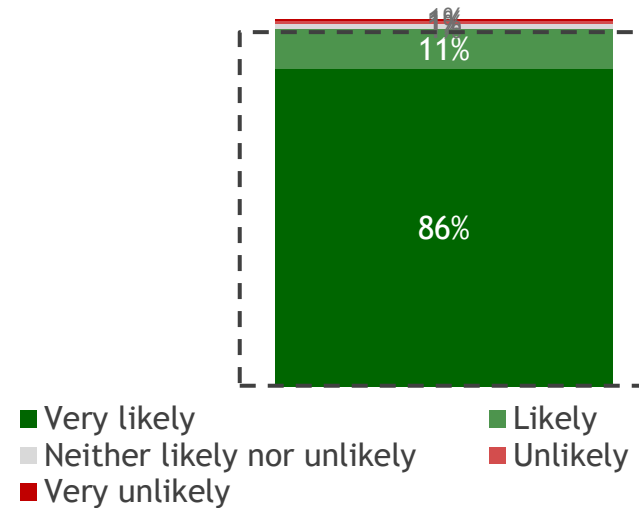
Most of the customers are satisfied with the value for money of the product and declare they are likely to recommend the Zonful solar home system

Perceived value for money
N=574



- **92%** of the interviewees are satisfied with the value for money of the product

Likelihood that the user will recommend the product
N=574



- **97%** of the interviewees are likely to recommend the product

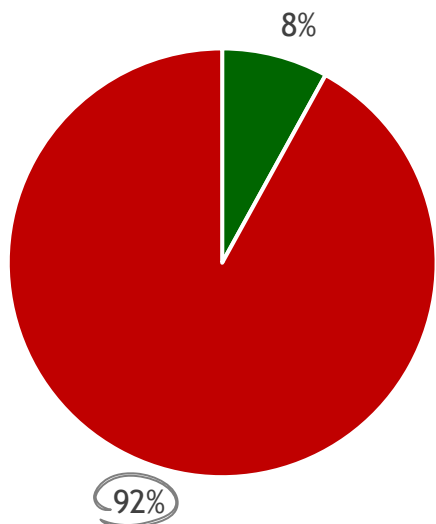
Sources: Questions used: “9. How do you rate the value for money of the solar home system?”, “10. How likely are you to recommend the system to a friend or a relative?”

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Only a few interviewees use their system for business purposes. Most of them were already running their business when they bought the system

Share of households using the SHS for a business

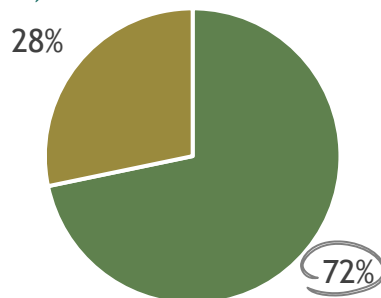
N=574



■ Yes ■ No

Share of households using the SHS for an income-generating activity from home

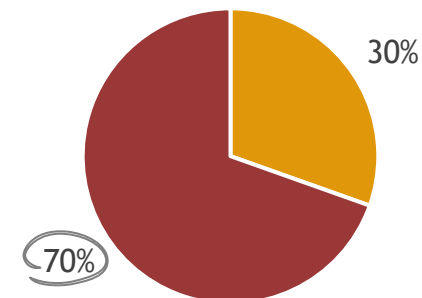
N(households using the SHS in a business)=46



■ From home ■ Not from home

Share of new and pre-existing business

N(households using the SHS in a business)=46



■ New ■ Pre-existing

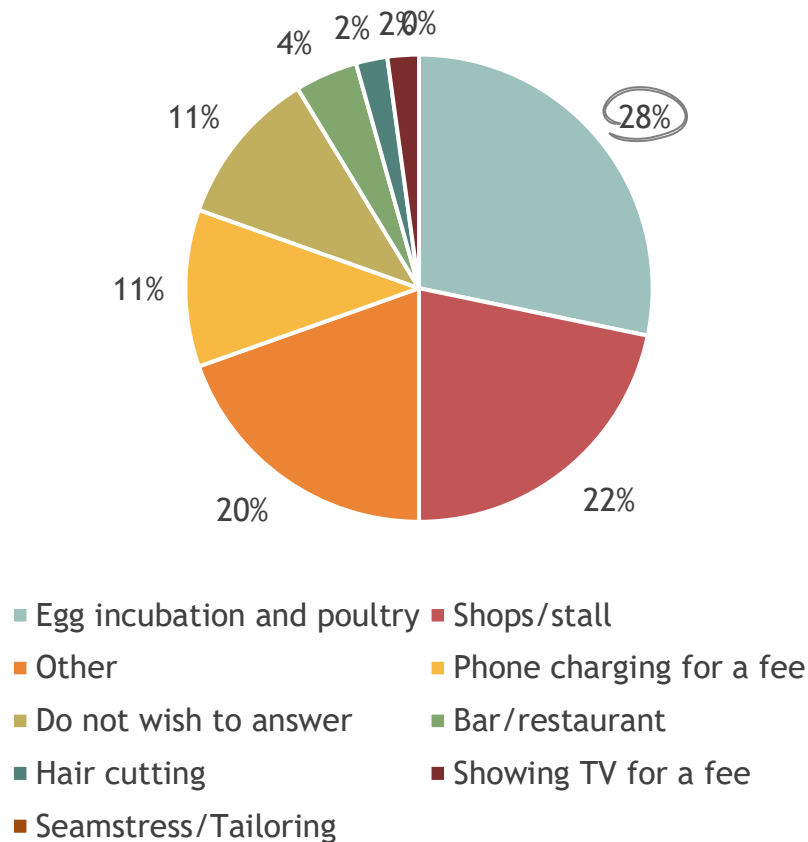
- Only 8% of the interviewees use the Zonful solar home system in a business. Of the 46 businesses, 63% are run by men and 37% by women
- These interviewees are mainly running their business from home
- 32 interviewees were already running their business when they bought the Zonful solar home system and 14 interviewees created their business after purchasing the system

Sources: Questions used: “5. Is the system used at home or in a business?”, “6. If the system is used at home, is it used for business purposes from home?”, “17. Has this activity been started since buying the system?”

The Zonful solar home system is mainly used in poultry businesses or shops. It is used for lighting but also to charge the phone of its owner

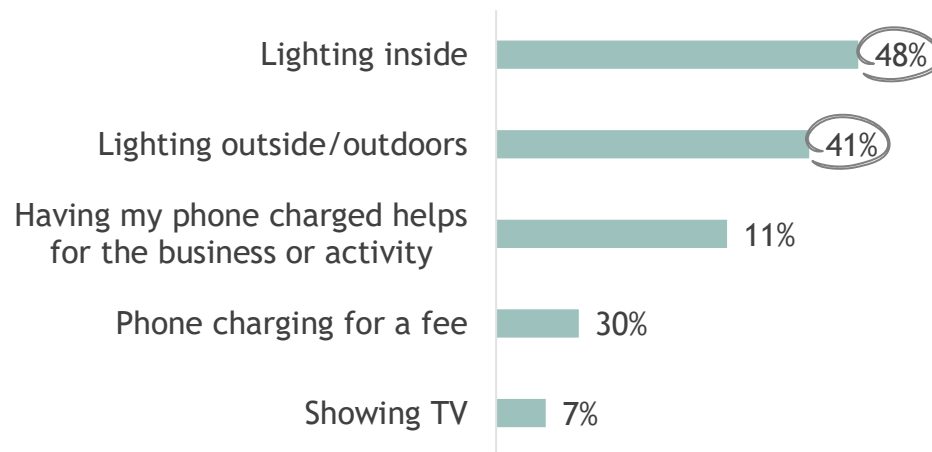
Main activity the SHS is used for: type of business

N(households using the SHS in a business)=46



Main activity the SHS is used for: type of use

N(households using the SHS in a business)=46



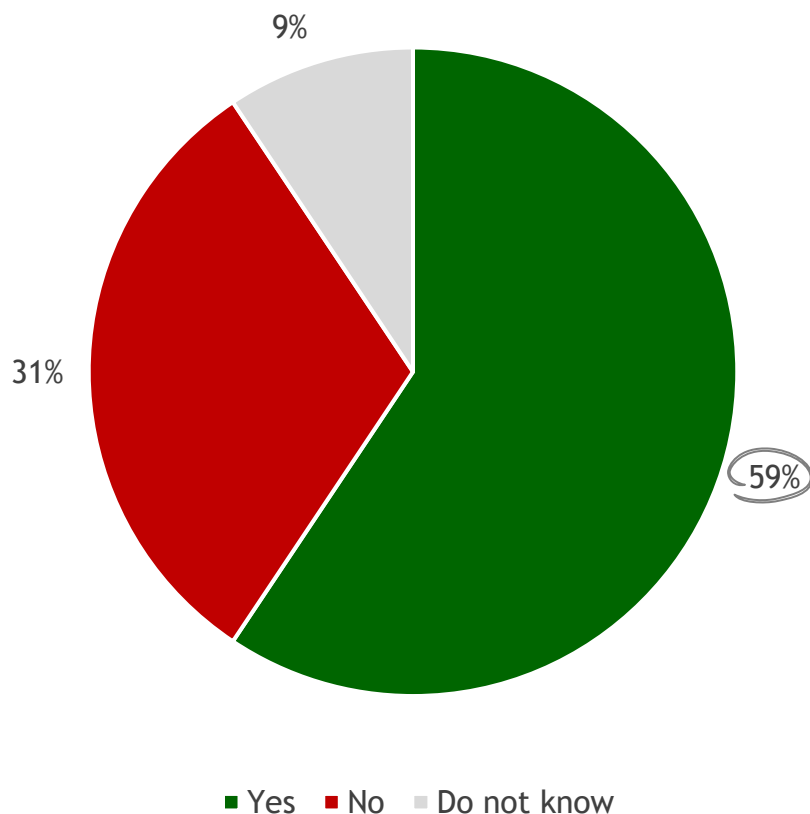
- The Zonful SHS is mainly used in poultry businesses (28%) or shops (22%)
- The Zonful solar home system is mainly used for lighting inside (48%) or outside (41%) but 30% of the interviewees using it for business purposes also mention that it enables them to have their phone always charged, which prevents them for missing business opportunities

Sources: Questions used: “15. What type of activity is the system mainly used for?”, “16. How is the system used for the business or income-generating activity?”

Most of the businesses using the Zonful solar home system have been able to extend their opening hours

Businesses which have been able to extend their opening hours

N(households using the SHS in a pre-existing business)=32



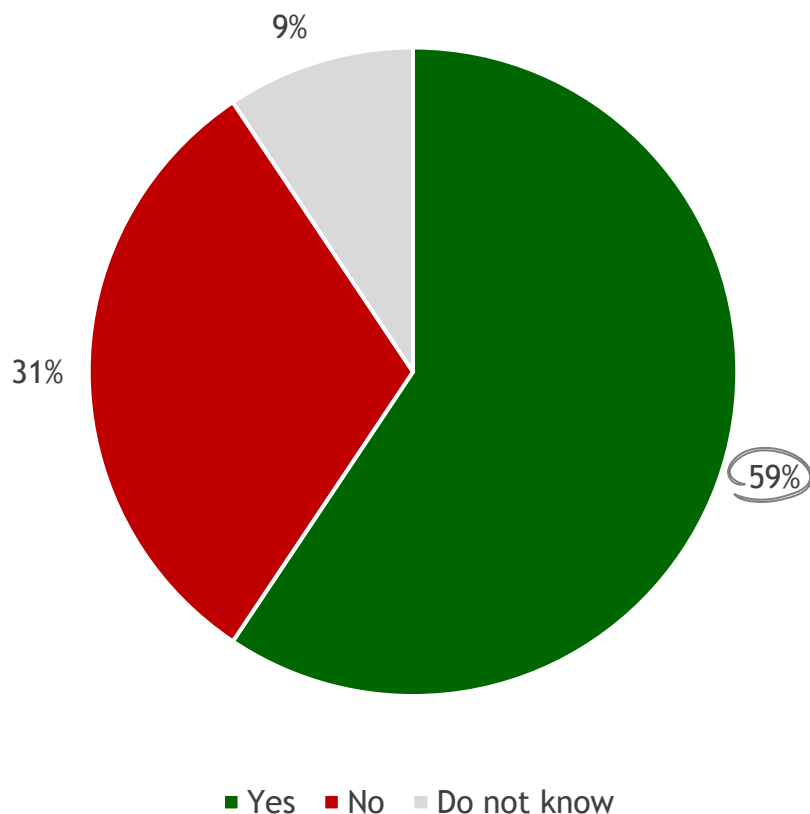
- **59%** of the businesses or activities supported by the Zonful solar home system have experienced an **increase in operating hours** since the purchase of the solar home system
- Of the 19 businesses which have been able to extend their opening hours, **63% are run by men and 37% by women**
- The **average increase is of 3 hours a week**

Sources: Questions used: “18. Did you manage to extend your opening hours thanks to the solar home system?”, “19. By how many hours did you manage to extend your opening hours thanks to the solar home system?”

Most of the businesses using the Zonful solar home system have experienced an increase in income

Businesses which experienced an increase in income thanks to the Zonful solar home system

N(households using the SHS in a pre-existing business)=32



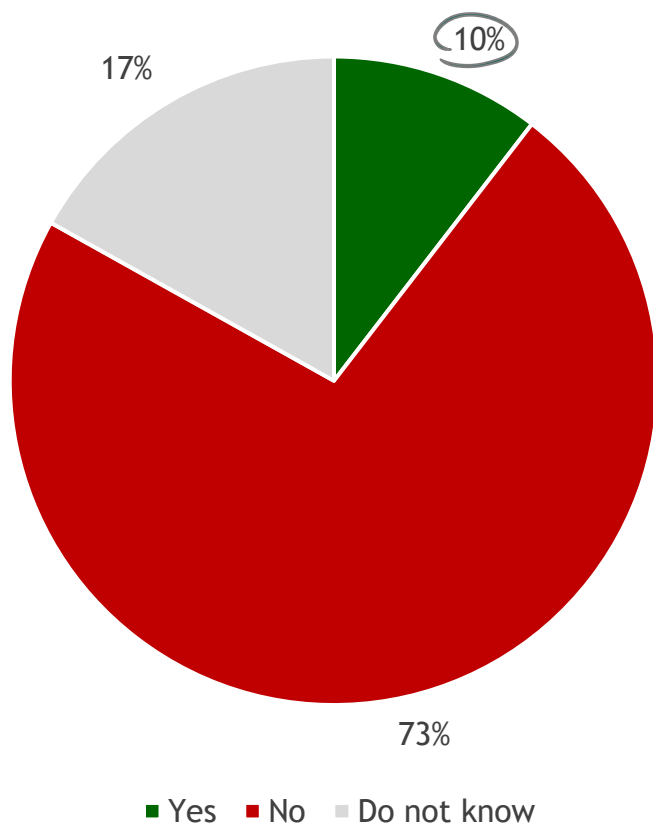
- **59%** of the businesses supported by the Zonful solar home system have experienced an increase in income since the purchase of the solar home system
- Of the 19 businesses which have experienced an increase in income, **68% are run by men and 32% by women**
- The results are **correlated** to the proportion of businesses which have experienced an **increase in operating hours**
- Most of the interviewees **refused to say** how much they had earned
- The Zonful solar home system has also **contributed to launch 14 new businesses**

Sources: Questions used: “21. Has the solar home system allowed you to improve your income from this activity?”, “23. Approx. how much more income does this generate on an average week (in USD)?”

Some individuals were able to spend more time working outside the home, the SHS enabling them to reorganise their time

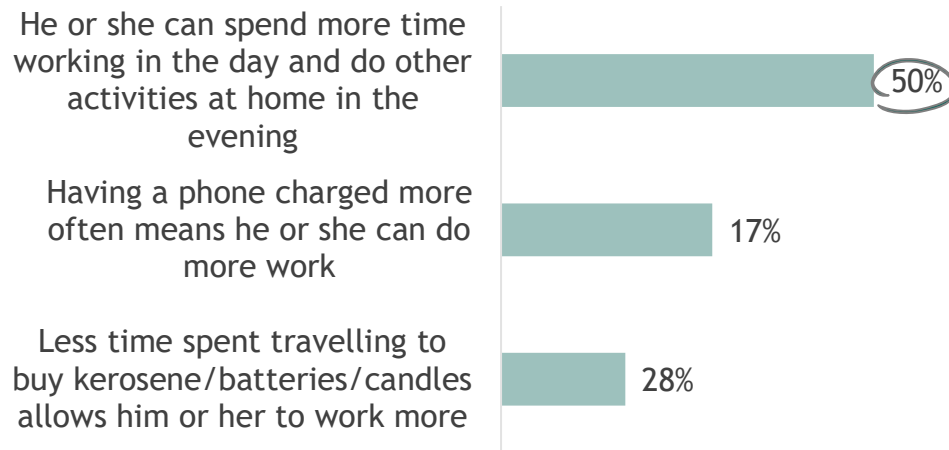
Households where an individual has been able to spend more time working outside the home thanks to the SHS

N=574



Reasons why individuals have been able to spend more time working outside the home

N(households spending more time working outside the home)=60



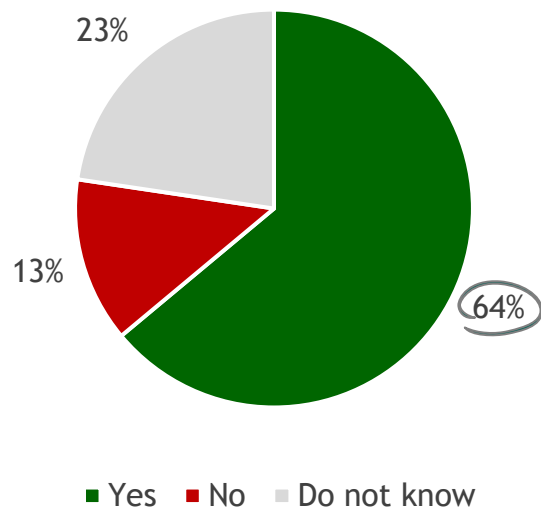
- Of the 60 interviewees who have been able to spend more time working outside, **57% are men and 43% are women**
- The main enabling factor is that the ability to **do households activities in the evening** thanks to the light from the SHS, hence **providing more time during the day to work outside the home**
- The main activities undertaken are **selling products and agriculture**

Sources: Questions used: “24. Has the system allowed members of your household to spend more time working outside the home?”, “27. How has your system allowed this/these household member(s) to spend more time working outside the home?”

The Zonful solar home system appears to have a positive impact on the finances of the majority of households interviewed

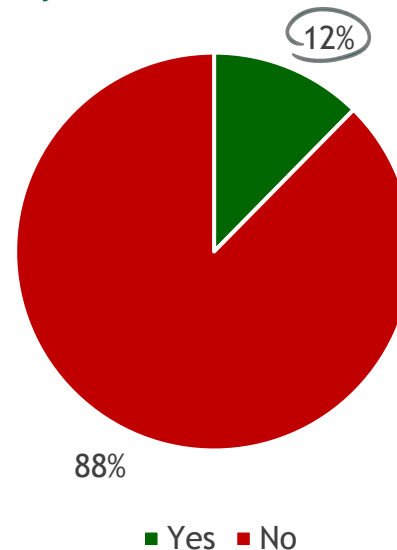
Households declaring they have more money available to spend since purchasing the Zonful solar home system

N=574



Households declaring they have generated more income through a business or more time to work since purchasing the Zonful solar home system

N=574



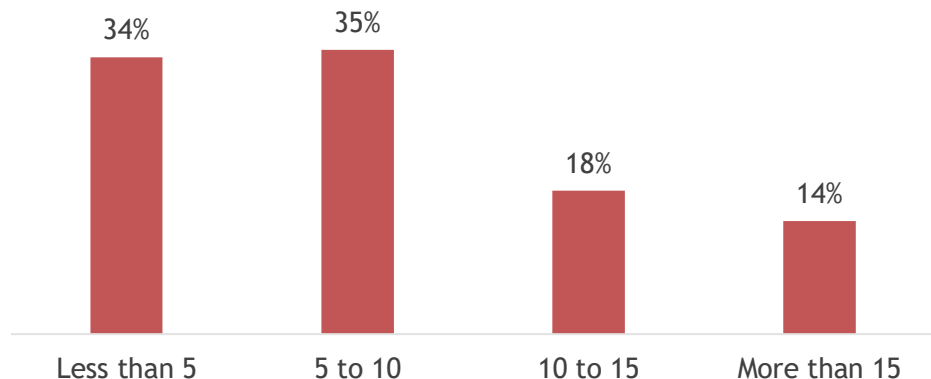
- 64% of the households have more money available to spend since purchasing the Zonful solar home system
- 12% of the households have generated more income (either through a business or more time spend working outside the home) since purchasing the Zonful solar home system

Sources: Questions used: “7. For each of the following statements, please tell me if you “Strongly agree”, “Somewhat agree”, “Neither agree nor disagree”, “Somewhat disagree”, “Strongly disagree””, “22. How has the system helped to improve the income from this activity?”, “25. Approx. how much more income does this generate on an average week (in USD)?”

The Zonful solar home system has enabled many households to reduce their energy expenditure

Expenses on all past sources of light per week (in USD)

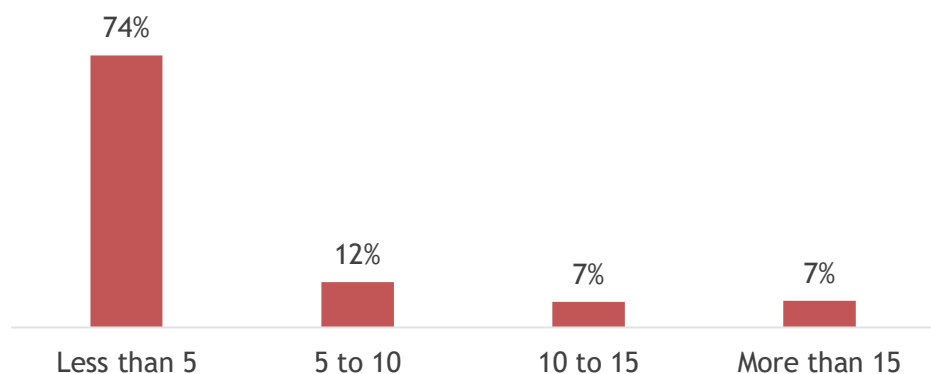
N=325 - excl. Do not wish to answer & unreliable data



- Of the **147 households** interviewed who **only use the SHS** and know their expenses, **90% have saved money** thanks to the transition to the SHS. The average savings are of **USD \$7** per week
- Of the **43 households** interviewed who **use other sources of light in addition to the SHS** and who know their expenses (past and present), **90% have saved money** thanks to the transition to the SHS. The average savings are of **USD \$11** per week

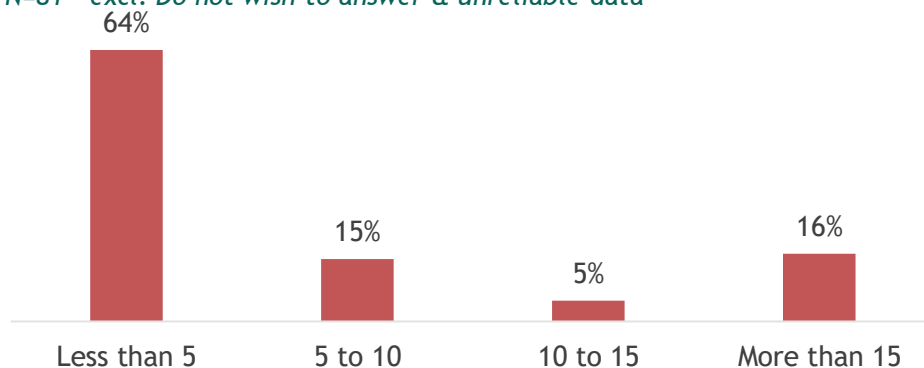
Expenses on SHS per week (in USD)

N=333 - excl. Do not wish to answer & unreliable data



Expenses on all other additional sources of light per week (in USD)

N=81 - excl. Do not wish to answer & unreliable data

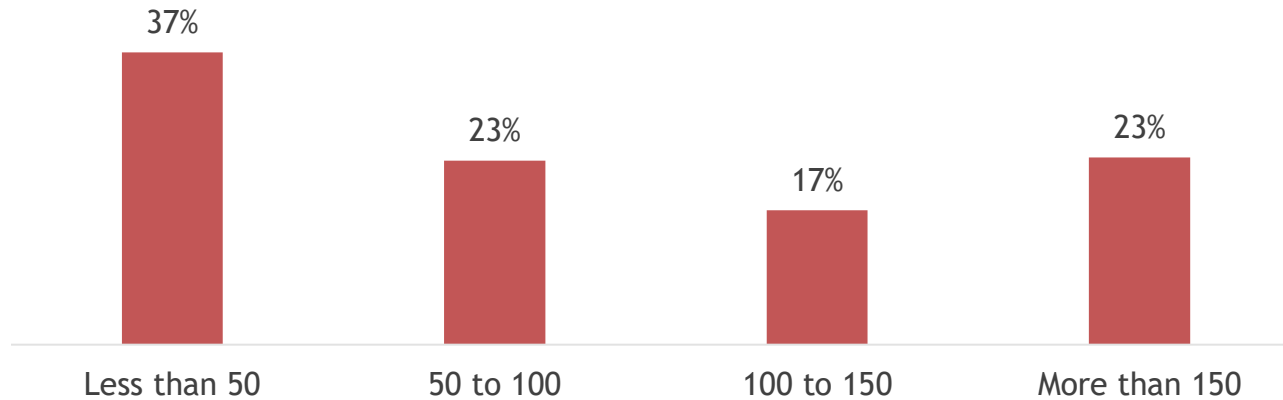


Sources: Questions used: “28. How much, on average, did you spend on all light sources per week before buying the SHS?”, “29. How much, on average, do you currently spend on the SHS?”, “30. How much, on average, do you currently spend on other light sources per week?”

None of the households interviewed report spending more than what they earn

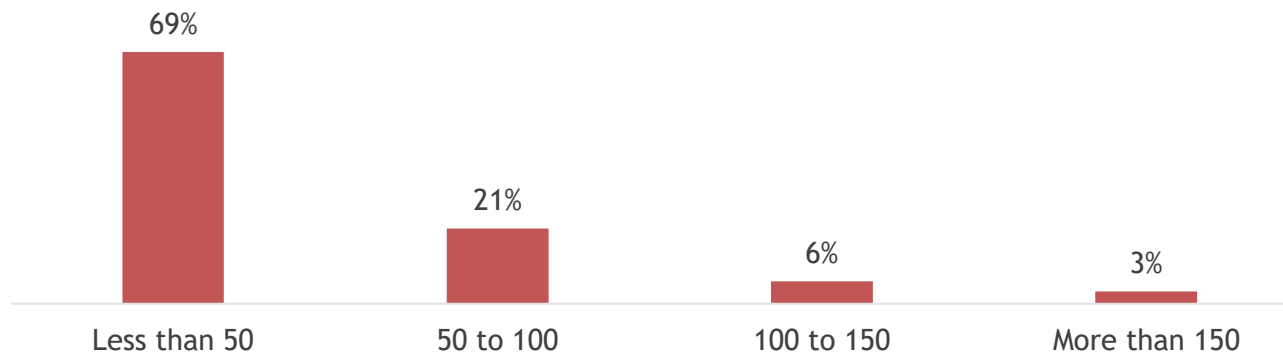
Income per week (in USD)

N=273 - excl. Do not wish to answer & unreliable data



Expenditures per week (in USD)

N=289 - excl. Do not wish to answer & unreliable data



Weekly GDP per household
(average HH size 4.2):

~244\$

Average weekly income per interviewed household:

~131\$

Average weekly expenditures per interviewed household:

~46\$

None of the 252 households displaying both income and expenditures spend more than what they earn

12% of them spend everything they earn

Sources: Questions used: “31. How much income does your household bring in in a typical week (in USD)?”, “32. How much income does your household spend in a typical week (in USD)?”; GDP per capita: World Bank 2017 (constant 2017 international US\$); average size of household: UNFPA Zimbabwe 2017