EEP AFRICA IMPACT AND PERFORMANCE EVALUATION
END-USER RESEARCH SUPAMOTO

Presented to the Nordic Development Fund
1. **Context and Objectives**
2. Sample Overview
3. Using the SupaMoto Cookstove
4. Impact on Quality of Life
5. Economic Impact
The objective of this presentation is to detail the results of the SupaMoto end-user research in Zambia

1.1 Context and Objectives

- 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.

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 SupaMoto.

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

- Absolute Energy
- SupaMoto
- Zonful Energy
685 quantitative phone-based interviews have been conducted with SupaMoto customers

- SupaMoto is a **Zambian company** which offers access to clean energy through biomass cookstoves. The cookstove may be sold with a small **solar home system**
- It is a **pay-as-you-go** product

**SupaMoto**

**Sample size**

- The **685 participants were randomly selected** from the customer database shared by SupaMoto

**Data collection tools**

- The questionnaire was written by Altai. 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

Fieldwork
1. Context and Objectives
2. Sample Overview
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5. Economic Impact
The average interviewee is a 42-year-old woman

- Number of customers interviewed: **685**
- Among purchasers, 33% are men and 45% are 25-39 years old
- The average age is **42 y.o.**

**Gender distribution of customer**

- Female: **67%**
- Male: **33%**

**Age distribution of customer**

- Under 24: **3%**
- 25-29: **11%**
- 30-34: **14%**
- 35-39: **20%**
- 40-44: **14%**
- 45-49: **13%**
- 50-54: **9%**
- 55-59: **6%**
- 60-64: **5%**
- 65+: **5%**

Sources: Baseline questionnaire QE and QF.
1. Context and Objectives
2. Sample Overview
   3. **Using the SupaMoto Cookstove**
3. Impact on Quality of Life
4. Economic Impact
Before buying a SupaMoto cookstove, respondents mostly used charcoal and electricity as sources of heat for cooking

### Past sources of heat for cooking

*N=685*

<table>
<thead>
<tr>
<th>Source</th>
<th>Main</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charcoal</td>
<td>51%</td>
<td>28%</td>
<td>3%</td>
</tr>
<tr>
<td>Electric</td>
<td>35%</td>
<td>33%</td>
<td>5%</td>
</tr>
<tr>
<td>Wood</td>
<td>7%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Gas</td>
<td>8%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td>5%</td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Diesel</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Another biomass cookstove</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before they bought the SupaMoto cookstove:

- 82% of respondents were using charcoal as a source of heat for cooking, including 51% using it as their main source of heat for cooking.
- Charcoal and electricity accounted for 86% of the main sources of heat for cooking of respondents.
- Wood and Gas are respectively used by 18% and 17% of respondents.
84% of respondents now use the SupaMoto cookstove as their main source of heat for cooking

Now that they bought a SupaMoto cookstove:

- 100% of respondents are using it as a source of heat for cooking, and 84% as their main source of heat for cooking
- Electricity and charcoal remain sources of heat for cooking for respectively 62% and 58% of respondents, and seem to have become complementary or back-up sources
- Electricity is still the main source of heat for cooking for 11% of respondents
The SupaMoto cookstove reduced the use of other sources of heat for cooking, but these are still used by 92% of respondents as complementary sources.

Households using other sources of heat in addition to the SupaMoto cookstove
N=685

- 8% Using other sources of heat
- 92% Only using the SupaMoto stove

Households reporting they use other sources of heat less now than before using the SupaMoto cookstove
N=627

- 7% Yes
- 93% No
Most sources were abandoned as main sources of heat for cooking. Electricity and charcoal became the major complementary sources.

### Evolution of primary sources of heat for cooking

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage before</th>
<th>Percentage now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>35%</td>
<td>7%</td>
</tr>
<tr>
<td>Electric</td>
<td>11%</td>
<td>2%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>51%</td>
<td>2%</td>
</tr>
<tr>
<td>Gas</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Another biomass</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Cookstove</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Diesel</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Oil</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Solar</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- Electricity is almost as used as before overall, but is now the main source of heat for cooking for only 11% of respondents now (35% before).

### Evolution of all sources of heat for cooking

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage before</th>
<th>Percentage now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>18%</td>
<td>7%</td>
</tr>
<tr>
<td>Electric</td>
<td>73%</td>
<td>62%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>62%</td>
<td>58%</td>
</tr>
<tr>
<td>Gas</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>Another biomass</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>Cookstove</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>Diesel</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Oil</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>Solar</td>
<td>9%</td>
<td>6%</td>
</tr>
</tbody>
</table>

- Charcoal is used far less than before (decreased from 82% to 58%), and is almost never the main source of heat for cooking (2% now, 51% before the SupaMoto cookstove).
The SupaMoto cookstove turns out to be a considerable time saver for respondents, who spend far fewer hours per day cooking compared to other sources of heat.

**Hours of cooking per day from all sources**

- 47% spent 1 to 2 hours cooking per day.
- 27% spent 2 to 3 hours cooking per day.
- 24% spent 3 to 4 hours cooking per day.
- 23% spent 4 to 5 hours cooking per day.
- 12% spent 5 to 6 hours cooking per day.
- 5% spent 6 to 7 hours cooking per day.
- 1% spent 7 to 8 hours cooking per day.
- 1% spent 8 to 9 hours cooking per day.
- 10% spent 9 or more hours cooking per day.
- 1% did not know.

**Hours of cooking per day with primary sources of heat used in the past and with the SupaMoto cookstove**

- Wood: 4.28 hours before, 3.38 hours now.
- Electric: 3.32 hours before, 1.65 hours now.

- 74% of respondents now spend less than 3 hours cooking (25% before).
- The time spent cooking with the SupaMoto cookstove is considerably lower than with all other sources.
The SupaMoto cookstove turns out to be a considerable time saver for respondents, who spend far fewer hours per day cooking

Share of households spending less time cooking now they are using the SupaMoto cookstove
N=604 (excluding “Do not know”)

- 82% Less time now
- 5% As much time now
- 1% More time now

Use of additional time
N=559 (Among respondents spending less time cooking)

- Rest: 33%
- Other domestic work: 31%
- Spend time with my children: 22%
- Business activity: 11%
- Other: 3%
- Exercise: 0%
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Quality and price are the main motivations for buying a SupaMoto cookstove, which was recommended by relatives to 73% of respondents.

### Reasons to buy the SupaMoto cookstove

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended by relatives</td>
<td>73%</td>
</tr>
<tr>
<td>It's cheaper/to save money</td>
<td>63%</td>
</tr>
<tr>
<td>For the product quality</td>
<td>57%</td>
</tr>
<tr>
<td>To have a cookstove in my home</td>
<td>37%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>To use in my business</td>
<td>1%</td>
</tr>
<tr>
<td>To start a business</td>
<td>1%</td>
</tr>
<tr>
<td>Loadshed</td>
<td>0%</td>
</tr>
</tbody>
</table>

- The SupaMoto cookstove was recommended to 73% of respondents.
- The two other most cited motivations for purchase are: quality (57%) and price (63%).
The SupaMoto cookstove considerably improved the quality of life of respondents in many different ways

Perceived improvement in quality of life
N=685

- 96% of respondents agree that the SupaMoto cookstove improved their quality of life
- All the reasons proposed in the questionnaire were approved by more than 75% of the respondents

Reasons for quality of life improvement
N(Households reporting improvement in quality of life)= 675

- People in my house seem to be in better health: 97%
- I save time collecting cooking fuels: 96%
- I feel safer outside when collecting cooking fuel: 92%
- My household saves money on cooking fuel: 90%
- I save time cooking each day: 88%
- There is less smoke when I cook: 87%
- The air in my house is cleaner: 79%
- It’s easier to engage in multi-tasking while cooking: 77%
Almost no respondents reported negative effects, and almost half of them noted an improvement in the taste of food.

Households who do not perceive improvements from use of the SupaMoto cookstove

N = 685

- Perceived no improvements: 1%
- Others: 99%

Opinion about the cookstove’s impact on the taste of food

N = 685

- Food tastes the same: 48%
- Food tastes better: 51%
- Food is not as good as before: 1%
92% of respondents consider the SupaMoto cookstove to be worth its price, and this opinion is even a bit stronger among women.
99% of respondents are likely to recommend the SupaMoto cookstove, irrespective of their gender.
Among the 37% of respondents who received a solar lighting device, 63% are using it for cooking at night.
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The use of the SupaMoto cookstove for business purposes is very marginal and concerns only 6 respondents out of 685.

Households using the SupaMoto cookstove for an income-generating activity

$N=685$

- The SupaMoto cookstove helps for a business or income-generating activities for 6 respondents.
- Among those 6 respondents, 2 use the SupaMoto cookstove 35 hours a week for their business or income-generating activity, while the 4 others use it only 4 to 5 hours a week for their business or income-generating activity.
- The 6 respondents indicated that the SupaMoto cookstove improved their income.
- Among those 6 respondents, 3 indicated that their started their activity after buying the SupaMoto cookstove. The others increased their productivity.
Only 7% of respondents spend >100 ZMW per week on fuel for cooking with the SupaMoto cookstove, but 14% still spend >100 ZMW on other fuels for cooking.

### Expenses on SupaMoto cookstove

- **More than 100**: 7%
- **76 - 100**: 4%
- **51 - 75**: 14%
- **25 - 50**: 28%
- **0 - 25**: 39%
- **Do not know**: 5%
- **Do not wish to answer**: 3%

### Expenses on other fuels

- **More than 100**: 14%
- **76 - 100**: 13%
- **51 - 75**: 7%
- **25 - 50**: 31%
- **0 - 25**: 18%
- **Do not know**: 12%
- **Do not wish to answer**: 6%
The share of respondents who spend more than 100 ZMW per week on fuel for cooking decreased from 51% to 35% thanks to the SupaMoto cookstove.

Expenses on fuel before the SupaMoto cookstove

<table>
<thead>
<tr>
<th>Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 25</td>
<td>1%</td>
</tr>
<tr>
<td>25 - 50</td>
<td>11%</td>
</tr>
<tr>
<td>51 - 75</td>
<td>16%</td>
</tr>
<tr>
<td>76 - 100</td>
<td>20%</td>
</tr>
<tr>
<td>100-200</td>
<td>29%</td>
</tr>
<tr>
<td>More than 200</td>
<td>22%</td>
</tr>
</tbody>
</table>

Total expenses on fuel after the SupaMoto cookstove

<table>
<thead>
<tr>
<th>Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 25</td>
<td>5%</td>
</tr>
<tr>
<td>25 - 50</td>
<td>16%</td>
</tr>
<tr>
<td>51 - 75</td>
<td>28%</td>
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<td>76 - 100</td>
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<tr>
<td>100-200</td>
<td>22%</td>
</tr>
<tr>
<td>More than 200</td>
<td>13%</td>
</tr>
</tbody>
</table>
The majority of respondents’ households are significantly poorer than the global population of Zambia

- Based on GDP per capita data, the average household income in Zambia was 2,386 ZMW in 2019*.
- As a result, out of the 480 respondents (excluding Do not know and Do not wish to answer), only 26 households report a weekly income above this national average.

\*GDP per capita per week (based on the World Bank’s annual figure for 2019) was multiplied by the average number of persons per household to obtain an estimate of the country’s weekly household income.