



## **Pro Pride**

### **Power to Read Pilot Project Report**

#### **Introduction**

For the millions of people living in remote rural areas of Ethiopia who lack access to the power grid or cannot afford electricity, solar energy represents an important first step on the energy access ladder. Instead of relying on kerosene, candles, dry cell batteries and other fossil fuel-based sources of power, they can now turn to off-grid solar to light up their homes, watch television and charge mobile phones, thanks to an initiative of the Government of Ethiopia supported by the World Bank. To enable off-grid solar to have a truly transformative impact on energy access and climate change mitigation in the country, off-grid products meeting Lighting have been imported and distributed and providing clean, safe lighting and modern energy services to millions of Ethiopians. One of the companies which strive for the betterment of Ethiopian society through accessing off-grid solar is the Little Sun. The company has the plan to sell 250 Million Solar Lamps to Rid African Homes of Kerosene. One of its targets is Ethiopia.

Since the first Early Grade Reading Assessment (EGRA) report by USAID in Ethiopia in 2010, reasons for low reading skills of early grade students have been researched. The same is true for intervention strategies. But one thing that all suggested intervention strategies have overlooked was unsuitability of reading places at their home for target students. Ample time, comfortable place and accessibility of lighting for reading are among the factors that should be included when we think about the suitability of reading places at home for students. To convert that overt



situation at least in some target schools, Pro Pride in collaboration with the Ministry of Education, the Little Sun Company and Amhara Region Education Bureau implemented a four months pilot project, between March-June 2017, with the main objective of creating access to solar energy for students to improve their reading skills.

### **Preparatory Works**

After Memorandum of Understanding was signed between Ministry of Education, Pro Pride and Little Sun; Pro Pride received 1000 portable solar lamps from Little Sun through Ministry of Education. Before the actual distribution of the lamps to the project location (Amhara Region) a meeting was held with Ministry of Education to set a framework guideline on the selection of target woredas, schools and children and implementation and monitoring modalities. Based on the guideline set with the MoE and in consultation with Amhara Regional Education Bureau selection criteria were developed and applied to identify target woredas, schools and students. Accordingly, Yigodi, Yibab & Wondata primary schools were selected from Bahir Dar Zuria Woreda.

After the identification of schools and students, Pro Pride facilitated distribution the lamps to target students by providing logistic and technical support during the process. As a result, a total of 1000 (M=522, F=478): 382 (172 female) from Yegodi, 303 (156 female) from Wondata, and Yebab 315 (150 female) students have received the lamps. The distribution was conducted on 5-6, March 2017.



Picture 1: Communities and beneficiaries gathered at the time of Solar Lamps Distribution (Wondata & Yibab) elementary schools.



Picture 2: A target beneficiary with his father at Yibab (right) & a parent signing to take Solar Lamp on behalf of his child at Wondata (left) elementary schools.



Picture 3: Beneficiaries at Yigodi (right) & Wondata (left) elementary schools

### **Monitoring and Evaluation Stages**

As agreed during the planning phase, monitoring and follow up activities of the pilot project have been integrated with the monitoring and evaluation system and activities of the IRS, DCD project Pro Pride have been implementing in the targeted schools. Hence the IRS, DCD project frontline staffs continuously followed up the proper utilization of the little suns by the beneficiaries, students. In addition to this, two additional supportive supervisions had taken place by Supervisors from the Ministry of Education and Amhara region Education Bureau management staff.

#### **i) A visit conducted by Ministry of education Staffs**

A team of experts accompanied by experts from Bahir dar Zuria Education Department and Pro Pride staff visited and contacted target school principals, teachers, PSTAs, some children parents and target children. In a two days visit he team visited Wondata primary school in the first day and the other two primary schools during their second day visit.



After the purpose of the visit was briefed, student from different grade levels were asked about how they are using the little sun. PSTAs and parents were also asked about their awareness on its usage. Teachers as well were asked how they make follow up and the changes they observe on the students. All students mention that they are solely using the little sun for reading and studying at night. Some teachers also mention that they repeatedly inform students to properly use the little sun. The team also confirmed parents' good level of awareness regarding the benefit and utilization of the lamp. Representative of the PSTA in Yigodi mentioned that their children are very protective of the little sun because of the instructions they received from their teachers. Teachers also responded that even if it is difficult to trace a dramatic change in short notice, it is obvious that the lamp is helping students to get extra time for reading at home and helped to do their homework at home. The school communities commented that the supply of the little sun should not be only for early grade students but also for second cycle (grade 5-8) students as well. The visiting team forwarded an on-site feedback to the communities and the implementing partner, Pro Pride.

## **ii) A visit conducted by Bureau of Education and Respective Level Staffs**

The second high level visit was conducted by the Amhara Region Education Bureau Education Management Information System (EMIS) Planning and Resource Mobilization Managerial Support Department Head accompanied by Pro Pride M&E Officer and Bahi dar Zuria Education Department Head Representative. The team visited Wondata primary school on 6<sup>th</sup> June, 2017. The main objective of the visit was to confirm the proper utilization of the distributed little suns, and to evaluate the changes so far registered on students reading skills being accessing the solar light. After the team discussed with the school communities, the team went down to a selected village namely '**Amari**' to contact beneficiaries. In that village, four students who had received the solar lamp were contacted. One of them was Meskerem Mulatie. She is a grade two and 11 years old student. She has two older brothers and a sister. Though her parents already have solar as a source of light at night, she narrated passionately and positively about the



impact of the newly arrived portable solar lamp on her reading skill and education. When the team asked her when and how she study, she said “before I received this solar, my reading habit at night was too limited. I had the difficulty to work out my assignment properly due to noisy environment at night. Her elder sister also confirmed “since we are living in a large family sharing the same room, it was too difficult to read properly before our families asleep. Especially Meskerem was highly affected by lack of light source than us because she asleep before us. But after the arrival of the solar lamp, firstly we have adjusted our reading place at separate room. Nowadays not only Meskerem but also I and our older brother spend more times on reading at night. In doing this not only our reading habit but also our result improved.” Also the team confirmed that parents are helping their children in adjusting reading places, allowing reading time and chagrining the little sun.

### **iii) Baseline vs. End line Survey Result**

Based on the templates distributed to target schools at the beginning of the project, data was collected at the beginning and ending of the pilot project from all target students. Though data was collected from the three schools and 1000 target students, due to its bulkiness, Pro Pride tried to analyze only one school data, i.e. Yibab Elementary school. In the school, the solar lamp was distributed to 315 students but only 294 (137 female) students were used for analysis purpose.

The following findings are drawn from the baseline and end line survey of this pilot project.

#### **1. Do you read at night time?**

Based on the result of the baseline survey all respondents claimed that they are practicing reading at night time. This is may be as a result of the Improving Reading, Defining Childhood Dreams Project Pro Pride have been implementing for more than three years. Since the project commencement, October 2013, the project have been promoting early grade reading by

supported target schools and communities through provision supplementary reading materials, establishment of reading corners, reading centres and reading parks, enhancing teachers' capacity on pedagogies of reading, parents sensitization on the importance of reading and the supports they should provide to their children etc. which we believe impacted in improving students reading habit.

## 2. What kind of light you used as source of light?

| <b>Sex * Light Kerosene Cross tabulation</b> |         |                         |                |        |        |
|--|---------|-------------------------|----------------|--------|--------|
| Sex * Light Kerosene Cross tabulation        |         |                         | Light Kerosene |        | Total  |
|  |         |                         | yes            | no     |        |
| Sex  | male    | Count                   | 107            | 50     | 157    |
|  |         | % within Light Kerosene | 53.80%         | 52.60% | 53.40% |
|  | female  | Count                   | 92             | 45     | 137    |
|  |         | % within Light Kerosene | 46.20%         | 47.40% | 46.60% |
| Grade Level * Light Kerosene                 |         |                         | Light Kerosene |        | Total  |
|  |         |                         | yes            | no     |        |
| Grade Level                                  | Grade 1 | Count                   | 41             | 29     | 70     |
|  |         | % within Light Kerosene | 20.60%         | 30.50% | 23.80% |
|  | Grade 2 | Count                   | 35             | 29     | 64     |
|  |         | % within Light Kerosene | 17.60%         | 30.50% | 21.80% |
|  | Grade 3 | Count                   | 41             | 36     | 77     |
|  |         | % within Light Kerosene | 20.60%         | 37.90% | 26.20% |
|  | Grade 4 | Count                   | 82             | 1      | 83     |
|  |         | % within Light Kerosene | 41.20%         | 1.10%  | 28.20% |

Among the interviewed students, 67.7% were using kerosene for a source of light for night reading purpose. Males than females and grade four than other grade levels had used kerosene for their studying & reading purpose at night time. Others used wood and animal dung. This is clear that such factor have a long term impact in hindering students reading performance, health issues etc.



### 3. What Problems have you encountered using kerosene and woods for reading?

To know the negative impacts of kerosene and woods, target students were interviewed what challenges they had encountered?

| Challenges/Problems                                      |     | Frequency | Percent |
|--|-----|-----------|---------|
| Health problem   | yes | 125       | 42.5    |
| Discomforts at the time of reading                       | yes | 229       | 77.9    |
| Families discomfort to share traditional source of light | yes | 184       | 62.6    |
| Problem in keeping private hygiene                       | yes | 134       | 45.6    |
| Other challenges/ problems                               | yes | 62        | 21.1    |

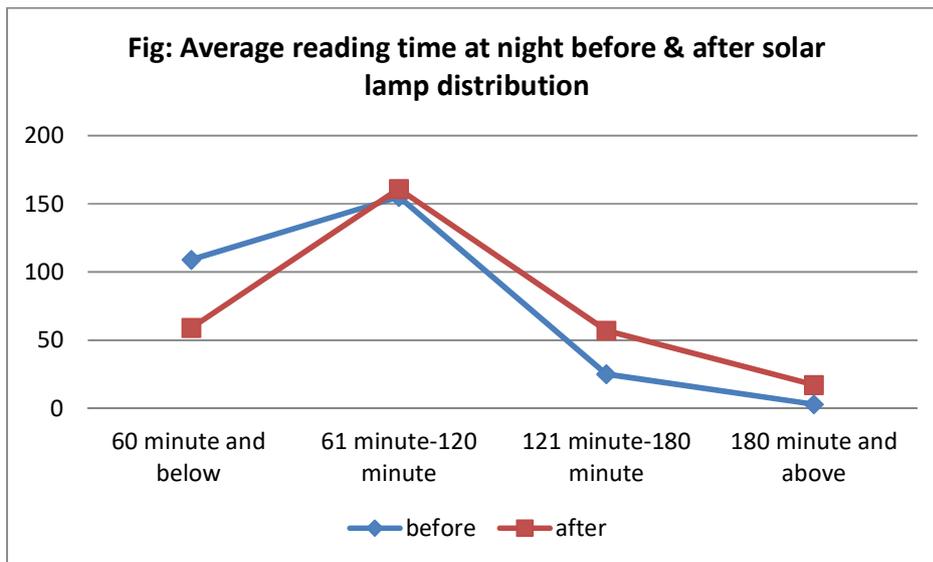
### 4. Do you want solar lamp?

The demand of solar need was asked. From the result we can understand that still there is high demand of the little sun. This is may be due to large family size in a house hold.

|              |        | Before    |         | After     |         | Remark |
|--------------|--------|-----------|---------|-----------|---------|--------|
|              |        | Frequency | Percent | Frequency | Percent |        |
| <b>Valid</b> | yes    | 277       | 94.2    | 261       | 88.8    |        |
|              | no     | 17        | 5.8     | 26        | 8.8     |        |
|              | Total  | 294       | 100.0   | 287       | 97.6    |        |
| Missing      | system |           |         | 7         | 2.4     |        |
| Total        |        |           |         | 294       | 100     |        |

5. Do you study at night? If yes, for how long of time?

Most strikingly almost even before the distribution of the solar lamps, students have developed reading at night. The difference is the average reading time they spent before and after the solar lamp distribution.



| Length of reading time |                       | Before solar lamp distribution |         | After solar lamp distribution |         | Remark |
|------------------------|-----------------------|--------------------------------|---------|-------------------------------|---------|--------|
|                        |                       | Frequency                      | Percent | Frequency                     | Percent |        |
| <b>Valid</b>           | 60 minute and below   | 109                            | 37.1    | 59                            | 20.1    |        |
|                        | 61 minute-120 minute  | 155                            | 52.7    | 161                           | 54.8    |        |
|                        | 121 minute-180 minute | 25                             | 8.5     | 57                            | 19.4    |        |
|                        | 180 minute and above  | 3                              | 1.0     | 17                            | 5.8     |        |
|                        | Total                 | 292                            | 99.3    | 294                           | 100.0   |        |
| <b>Missing</b>         | System                | 2                              | .7      |                               |         |        |
| <b>Total</b>           |                       | 294                            | 100.0   |                               |         |        |

6. Light expense



Students were also asked about the amount of money that their parents incurred for source of light at night. Since the respondents are children who can't correctly assume their parents expense except for kerosene. The minimum and maximum expense for kerosene was 9 birr/month and 400 birr/month. On average, a child's parent incurred 36.83 birr/month for kerosene. If we assume that at least a child's parent incurred this average expense for 8 months in a year, the total expense for kerosene will be 294.64 birr. If we include the cost of kerosene other than reading purpose, the average amount of birr incurred by the target students and their families would be much higher. In a society whose daily income is below \$1.25/day, such expense surely indicates to how much parents are striving to teach their children though the yoke of poverty is not still shattered down from their shoulder. There is an insignificant difference about monthly expense for kerosene being a male or female student. But as students grade increase, kerosene expense also increases. On average parents who has a grade one and four student incurred 28.27 birr/month and 47.52 birr/month for kerosene respectively.

#### Descriptive Statistics

|                     | N   | Minimum | Maximum | Mean  | Std. Deviation |
|---------------------|-----|---------|---------|-------|----------------|
| Light Expense       | 245 | 9       | 400     | 36.83 | 30.528         |
| Valid N (list wise) | 245 |         |         |       |                |

#### Light Expense \* Sex

| Sex    | Mean  | N   | Std. Deviation |
|--------|-------|-----|----------------|
| male   | 36.82 | 129 | 22.331         |
| female | 36.84 | 116 | 37.713         |
| Total  | 36.83 | 245 | 30.528         |



Light Expense \* Grade Level

| Grade Level | Mean  | N   | Std. Deviation |
|-------------|-------|-----|----------------|
| Grade 1     | 28.27 | 45  | 11.260         |
| Grade 2     | 22.67 | 46  | 6.498          |
| Grade 3     | 38.93 | 71  | 45.734         |
| Grade 4     | 47.52 | 83  | 24.986         |
| Total       | 36.83 | 245 | 30.528         |

7. Are you willing to pay for a single solar lamp? If yes, how much?

Among the interviewed respondents 88.4% of them are willing to pay for the solar lamps. This shows there is high demand for solar lamps. Males than females and grade four than other grade level students are ready to pay more if they are asked to procure solar lamp. On average a male and female student wants to buy a single solar by 27.37 birr and 23.65 birr respectively. If this question is posed to them after one or two year, their demands would probably be much higher than the current one. This is mainly because of they have not truly checked the durability of the solar lamp (within 4 months), currently their demand with such price may not be bad.

| How Much You Pay * Sex |       |     |                |
|------------------------|-------|-----|----------------|
| Sex                    | Mean  | N   | Std. Deviation |
| male                   | 27.37 | 133 | 27.748         |
| female                 | 23.65 | 127 | 15.542         |
| Total                  | 25.55 | 260 | 22.658         |

| How Much You Pay * Grade Level |       |     |                |
|--------------------------------|-------|-----|----------------|
| Grade Level                    | Mean  | N   | Std. Deviation |
| Grade 1                        | 11.56 | 63  | 7.170          |
| Grade 2                        | 21.40 | 48  | 15.196         |
| Grade 3                        | 29.51 | 69  | 15.382         |
| Grade 4                        | 35.65 | 80  | 31.908         |
| Total                          | 25.55 | 260 | 22.658         |

## 8. What improvements so far have registered?

### 8.1 Problems solved after the little sun support

Students were asked about the problems they have solved as a result of getting access to the solar lamp. Significant percentage of respondents argued that they are able to keep their health, minimize kerosene cost, improve their social interaction and feels comfortable at the time of reading.

| Problems solved regarding to      |     | Frequency | Valid Percent |
|-----------------------------------|-----|-----------|---------------|
| <b>health</b>                     | yes | 264       | 90.1          |
| <b>discomfort at reading time</b> | yes | 263       | 89.8          |
| <b>expense</b>                    | yes | 279       | 94.9          |
| <b>social interaction</b>         | yes | 247       | 88.8          |
| <b>Personal hygiene</b>           | yes | 242       | 88.0          |
| <b>Other issues</b>               | yes | 216       | 88.5          |



### 8.3 Families are able to use solar lamps also for extra purposes

When children sleep, parents are using the solar lamp for other purposes. 41.2% of the respondents said that when their children finished their reading at night, we are able to use the solar lamp for other purposes. And this also helped parents to minimize the cost for kerosene.

| <b>Use solar for Other Purpose</b> |                       |           |         |               |                    |
|------------------------------------|-----------------------|-----------|---------|---------------|--------------------|
|                                    |                       | Frequency | Percent | Valid Percent | Cumulative Percent |
| <b>Valid</b>                       | 60 minute and below   | 26        | 8.8     | 21.5          | 21.5               |
|                                    | 61 minute-120 minute  | 51        | 17.3    | 42.1          | 63.6               |
|                                    | 121 minute-180 minute | 29        | 9.9     | 24.0          | 87.6               |
|                                    | 180 minute and above  | 15        | 5.1     | 12.4          | 100.0              |
|                                    | Total                 | 121       | 41.2    | 100.0         |                    |
| <b>Missing</b>                     | System                | 173       | 58.8    |               |                    |
| <b>Total</b>                       |                       | 294       | 100.0   |               |                    |

### 8.4 Parents attitude towards reading improved

The solar lamp recipient children parents argued "seeing our children motivation to read at night time, we have understood to allot more time to them, adjust reading places and help them as and when they required us." This shows to what extent the supply of solar lamp improves their attitude towards reading.



## 9. What to be done for future scale up?

- The distribution should be holistic except those students who have on-grid electricity accessibility.
- Rather than direct supply to the students, agreement should be taken with their parents to supply with credit. It can possible to link with credit delivery institutions to apply a revolving fund and to benefit large number of students in many schools.
- Some parents may not be poor to procure such kind of solar lamps, but their awareness towards technology utilization and adaptation is limited. Hence strategies should be designed to enhance their awareness.
- Selection criterion should be developed in consultation with the school communities, education offices and parents at different levels.
- Not only students but also teachers are in need of such lamps. So mechanism should be devised to address them.

## Success story

### Solar Lamp Brightens Students Dream

One of the intervention schools in the power to read pilot project is Yibab primary school. Of 627 early grade students in the school, 315 of them have received the little sun company product, solar lamp. One of the beneficiaries is Habtemariam Dessie. He is a grade three and nine year's old student. When he turns back to home from school, he looks after cattle. Also at night time, it's too difficult to read having one fixed solar lamp as a family. Habtemariam said, "Before the arrival of this little sun, I was forced to overlook reading practice at home. But now I have improved my reading practice at home.



His mother, Wubalem Kebie, narrates the importance of the solar lamp that her child has got with the one the family procured a year ago with 1150 birr. She said that on average we had incurred 100 birr/month for kerosene lantern. But with the solar we procured at the market, we are able to save such amount of money. Our children had the problem to study at night because we had only one fixed solar lamp in our home. But thanks to the portable and easy to use solar lamp donation we have received, Habtemariam and his elder brother and sisters are able to manage their time to read. His Amharic teacher, Mr. Melese Yihinie also substantiates the impact of solar lamp on students reading habit and reading skills improvement. He said that, Hailemariam read 47 correct words per minute before the solar lamp distribution, but after three months his reading improved to 60 correct words per minute. When we see the results of Habtemariam and his friends, we believe that the little sun brightens the dreams of students.”