

Socioeconomic Impact Research

Phase 3 Workplan 1b – October 2018

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SEIR Overview

In October 2016, the Socioeconomic Impact Research (SEIR) project was initiated to fill significant data gaps relating to the impact of solar home systems and the pay-as-you-go (PAYG) business model, critical for advocacy and investment decision-making to increase energy access. GOGLA and Altai Consulting worked with seven leading PAYG solar companies – BBOX, d.light, Fenix, M-KOPA, Mobisol, Off Grid Electric and SolarWorks – to gather 2300+ baseline and follow up customer interviews. Amongst other data points, the research has uncovered new insights on income generation. For example, that:

- In almost 60% of households, a member is undertaking more economic activity now they have an off-grid solar system,
- 36% of customers report this has led to an increase in income of \$35 per month on average, and
- Many customers have been able to start a new job or business

This data was released in the Powering Opportunity report in July 2018. The launch and media engagement were timed to coincide with the UN High Level SDG forum and in advance of an EAC Roadshow – where results were presented to policy-makers, investors, MFIs, DFIs and off-grid companies in Kenya, Uganda and Rwanda. The data has also been shared through on and off-line targeted engagement to drive greater awareness of, and interest in, off-grid solar. In addition, the data points have been integrated into GOGLA's Impact Metrics and semi-annual Sales and Impact reporting so that the findings can be used continuously in advocacy efforts and by partners, to support program planning, improve strategic decision-making and drive new investment.

Feedback on the research and report from these advocacy and communication efforts has been very positive, and many stakeholders have advised that the findings and Powering Opportunity report will help to drive supportive policy, programmes and investments. This highlights the huge importance and impact of the research, while a comprehensive review of outstanding data and advocacy needs has also revealed further opportunities to build on these research and data activities. Phase 3 of the SEIR research will therefore explore the insights revealed within the original SEIR research, fill further data gaps and lead to the creation of new reports and materials to increase knowledge and understanding of the off-grid solar sector.

Details for the following Phase 3 Workstream is shared in this document.

- Workstream 1b – Geographic Expansion

SEIR Phase 3: 1b Geographic Expansion

Two of the most important areas in terms of the impact of off-grid solar products on households, are the key markets of South Asia and West Africa. To date, most research has focused on East Africa. Following discussions within the GOGLA Impact Working Group and feedback gathered from policy-makers, sector support organisations and investors there is a clear need to address this issue.

This workstream has been created to expand the SIER work to West Africa and South Asia. This work is vital for enabling regional conversations around policy and investment in areas where impact-related data is comparatively limited. Gathering data from key countries will also uncover important learnings e.g. from India, the world's largest off-grid population with an extensive network of MFIs, Togo/Nigeria with their rapidly growing off-grid solar markets, or Bangladesh, the country with the most extensive government-supported solar home system programme (IDCOL).

1. Objectives

This research will build on the infrastructure created by the Socioeconomic Impact Research (SEIR) project and allow data to be captured in new regions. It will benefit from significant knowledge and infrastructure created by the SEIR – surveys, learnings on stronger / weaker questions and those that can be added from the outset, data sharing agreements, databases, analysis approach, learnings from outreach and engagement etc.

As with the original SEIR, the research will capitalize on the unique opportunity to work with PAYG companies benefiting from their strong customer relationships. In India, rather than integrated PAYG companies, the research aims to work with MFIs who provide loans to customers and who are, in effect, supporting this PAYG customer relationship and service. Insights gained from Indian MFIs can improve knowledge that will help to engage MFIs in other countries and regional areas, both in Asia and in those African countries where MFIs and cooperative groups are likely to play a significant role in reaching off-grid customers with solar home systems (e.g. in countries/areas with limited access to mobile networks, reducing the ability to use mobile-enabled PAYG).

Key objectives are to:

- Expand knowledge revealed in Phase 2, to explore evidence of impact in new geographies
- Create a more comprehensive data set overall, combining this data with other SEIR data sets and insights (see above) to gain a global view
- Explore any specific impacts or insights that result from working with MFIs as well as traditional PAYG off-grid solar companies

2. Anticipated Outputs and Outcomes

At the end of the project, this research will have produced the following outputs:

- A detailed picture of the socioeconomic impact of off-grid solar in West Africa and South Asia
- Better understanding of attribution and causality e.g. the % of new jobs or additional work hours that can directly be attributed to off-grid solar and understanding of the reasons off-grid solar led to these impacts
- Aggregated data at different system sizes and across other relevant indicators, both by region and globally (by combining all data sets - sample size permitting at regional / country level)
- Additional “know your customer” (KYC) data & analysis
- Data sets and content that underpin an online dashboard of shareable data visualizations
- Data points analysed and shared to support the GOGLA Impact Metrics
- High impact reports, 2x Regional West Africa and South Asia and 1x Global
- Power point presentation and data for communications materials that can be used for targeted advocacy with key stakeholders

This research will help drive the following outcomes:

- Multi-company / country socioeconomic data increases knowledge on the impact of off-grid solar
- Better understanding of PAYG solar is enabled due to increased knowledge on a variety of socio-economic indicators, with a deeper understanding of causality and attribution
- Better understanding of socio-economic impact is achieved by product size, income-level, geography, location and gender etc
- Better knowledge is gained about the way(s) that household dynamics or influential factors increase or decrease certain impacts (as applicable)
- Credible, independently verified and analysed data is used by multiple stakeholders

Powerful data for knowledge sharing

- Robust data is used in targeted communications and advocacy around the breadth of off-grid solar impacts
- Data is integrated into GOGLA’s harmonized metrics and central data base for continued use by multiple sector stakeholders and to enable sector-estimates and scenario analysis
- Company-own insights into customer values, priorities and energy uses to allow participating companies to increase internal knowledge

3. Background & Overview

The first SEIR data collection uncovered a huge range of insights on economic activity, income generation and quality of life. However, the research was unable to encourage enough participation by off-grid solar companies in West Africa and South Asia during the planning phase (Spring 2017).

However, 18 months later the picture has shifted creating a clear opportunity to expand the SEIR research to new geographies:

- GOGLA now has a Regional Representative in India, focused on advocacy in Southern Asia, who can support engagement with local MFIs as well as outreach work once evidence has been collated
- Many PAYG companies operating in West Africa have more capacity to participate than in 2017 (a number of companies in West Africa were keen to join the original SEIR, but asked GOGLA to revert to them once they were more established in the region)
- GOGLA is currently recruiting a West Africa representative who will be particularly well placed to use the outputs of research and evidence collection with West African policy-makers and stakeholders when results become available
- Many sector partners and stakeholders are eager to get regional data in West Africa given the dramatic rise in off-grid solar in this region over the last year
- Data from India, which has the world's largest off-grid population and extensive MFI network, would provide key regional cross-learning learnings for both reducing energy poverty and PAYG via MFIs – a vital sales channel on which limited knowledge exists
- Data from Bangladesh, which has the world's largest industry for solar home systems sold via an extensive government supported programme (IDCOL), would help to highlight the impact of an 'IDCOL-style' programme

These factors present an opportunity to expand the SEIR to both West Africa and South Asia, and to combine the data points gathered in the original SEIR data collection to uncover the global picture.

3.1 Data Collection

Data Collection will follow the same approach as in the SEIR, where the initial company customer engagement and systems data is used to collect baseline data and follow up research is undertaken by a third party.

However, a few key updates will be made given learnings from the original SEIR:

- The initial baseline data survey will be streamlined to exclude questions on overall income and expenditure as these were:
 - found to be intrusive in some contexts
 - as data appears too difficult to ascertain with a strong degree of certainty in a phone-based survey, particularly in settings where households may have volatile or irregular income streams
 - PPI questions asked in the original SEIR were also found to be complex to administer and outdated for some countries

- Streamlining the baseline data collection will allow companies to focus on basic demographic data and previous energy usage and spending where the biggest insights were revealed
- For the follow up data collection, timing of energy use was also found to offer comparatively limited insights for the time the questions took
- This creates an opportunity to swap those questions with questions relating to impact areas uncovered by the original SEIR e.g. questions around the use of time and the type of jobs being unlocked as a result of off-grid solar.

3.2 Development of the Question-Set

An overview of key question areas is noted in Section 5.1. This is the same as the original question-set, excluding questions on overall income and expenditure but adding question-areas on areas such as use of time and jobs, as noted above. An updated question-set will be created in the planning phase which both benefits from Phase 2 learnings but allows for comparability of results. This will be tested during the preparation and piloting phases of the research.

While the question-sets will be translated by the third-party research partner, they will be reviewed by local company staff to ensure they will be understood by customers of different regional dialects.

Where possible, research questions will be aligned with other external surveys e.g. Acumen, GSMA and World Bank surveys.

3.3 Willingness of Companies to Participate

Discussions with a several companies indicate a strong willingness to participate. The Memorandum of Understanding and Data Sharing Agreements created for the first SEIR will be used to confirm a full commitment to participate.

3.4 Sample size

The sample size for the baseline research is targeted at 2000 customers in each region, 4000 overall. With four companies participating per region, eight overall. Using the attrition rate from the original SEIR to provide a benchmark, the sample size is likely to be around 2600 in total. This allows for a strong overall dataset of approximately 1300 in each region.

While this may limit data sharing by system size at a regional level, three, or potentially four, system size splits will be possible for the total data set.

The overall final dataset from all three regions, including the original SEIR, is targeted at close to 5000 customers.

4. Methodology

4.1 Survey Implementation

A baseline set of questions will be asked to new customers at registration / point of sale or initial credit assessment by participating companies – this will be augmented with relevant systems data. A 20 minute follow up survey will be undertaken by a third-party research partner three months after the baseline.

The baseline will be implemented between January-March 2019, or March-April 2019. The follow up would take place in either May-June 2019 or July-August. A preference is for the earlier timeline if possible, but the latter is included to allow more time for planning and preparation as needed.

A review will also take place to assess the best time to implement the survey once the final countries of implementation are confirmed (e.g. to avoid political events or harvest times etc).

4.2 Customer Compensation

In the original SEIR a day of free light was offered to customers as compensation for their time by some companies. Companies could choose whether or not to provide this compensation, which was capped at one day to avoid bias.

No differences were noted between the results from customers of companies that did/did not provide the compensation, providing reassurance that this day of free light did not have a bearing on the findings. A similar opportunity will therefore be afforded to participating companies in the geographic expansion.

5. Research Questions

5.1 Question areas:

Baseline Survey

- Part 1: Administrative (filled by company)
 - Product information
 - Purchase information
 - Customer location (urban, peri-urban, rural)
- Part 2: Basic Demographics
 - Purchaser socio-demographics
 - Household size and composition
- Part 4: Previous behaviours
 - Sources of light

- Use of light sources
- Energy expenditure
- Mobile phone
- Mobile money
- Part 7: Conclusion
 - Consent for follow-up

Follow-up survey

- Part 1: Administrative (filled by interviewer)
 - Identifying the correct respondent
- Part 2: Perceived value
 - Reasons for purchase
 - Value for money
 - Likelihood to recommend
 - Quality of life
- Part 3: Current behaviour
 - Sources of light
 - Phone charging
 - Appliances
 - Energy expenditure
- Part 4: Income generation
 - Business or income-generating activity
 - Income generated
- Part 5: Changes in economic situation
 - Perceived increase in available budget and use
 - More time at work
 - New job
 - Income generated
- Part 6: Perspectives on future of the SHS
 - Appliances

5.2 Piloting the Question-Sets

As well as a review of the question-sets by all participating companies to check that the terminology used will be understood by customers, the follow up survey will be piloted and reviewed by the Research Partner in one or two countries the out-set of the research.

5.3 Translating the Question-Set

The baseline and follow up survey questions will be translated by the research partner into all major language groups spoken by customers. Data from the previous SEIR research will highlight where sub-groups of customers will require a survey in local dialect. As in the initial SEIR research, companies will assist with translation into very specific regional language.

5.4 Pre-set Answers to Questions

Getting robust, and consistent data at the research baseline is critical for ensuring the quality of the entire Research Project and will enable the research to explore change over time. As this research will rely on a number of different researchers and companies undertaking interviews the questions set will be created with drop-down, pre-set answer selections (using specific surveying tools within the follow up) wherever possible. This will help research staff to illicit accurate and specific answers from customers and will allow any anomalies in data collection to be immediately highlighted and any issues addressed.

6. Scope

6.1 Geographic

The geographic scope of the research will be West Africa and Southern Asia.

6.2 Demographic

Data will be captured on the gender, age and location of customers (e.g. rural, peri-urban, urban).

6.3 System Sizes

Data will be collected for different sizes of off-grid system and will be categorized using the GOGLA/IFC categories. An effort will be made to include data on solar lanterns if this is possible. Although there is less use of PAYG with solar lanterns, some lanterns do contain this technology and lanterns are often sold by MFIs. While the original SEIR aimed to fill the data gaps surrounding multi-light kits and solar home systems, the focus on these system sizes has created new data gaps regarding the comparison of SEIR data on SHS with data solar lanterns, which will be filled if these can be included.

7. Key Stakeholders

This research will be conducted as a collaborative effort by the following key groups. Please note, other stakeholders, including other research organizations and donor bodies working within the sector will be kept engaged with the Project.

- Lead Research Partner
- GOGLA
- PAYG Companies / MFIs

8. Secure Data Sharing and Company / Customer Privacy

8.1 Customer Privacy

The security and privacy of company data is of utmost importance to sustainable research efforts. This research design is built around secure data practices which have been successfully implemented in the first SEIR and in which the third-party only sees the customer telephone number and uses it for the purposes of this research only. As in the original SEIR all customers will be asked by companies during the baseline whether they were happy to take part.

8.2 Company Privacy

NDA's and Data Sharing Agreements have already been drafted in the original SEIR and data was only shared when it met the 'three data point rule' implemented for all results e.g. three companies or more must provide data on any one point for it to be shared publicly. No issues with this approach were raised and it follows GOGLA's standard, strict approach to data protection and privacy. The same approach and agreements will be used in the geographic expansion.

More details can be provided upon request.

9. Analyzing and Visualizing Results

9.1 Data Analysis

Before data collection begins, the Research Partner will draft out analysis and visualization dashboards that translate anticipated responses into the questions and answers posed by this research. This planning and development will serve as a final check that surveys contain all necessary questions without superfluous content, and will help to streamline initial testing of results as actual responses come in.

Following data collection through baseline and follow-up interactions, the Research Partner will analyze responses and aggregate across participating companies, system sizes, geographies, demographics and in respect of the different research question areas. The aggregated results of this analysis will be shared through a web-based data platform and reports (with data security measures in place as described in Section 8). Analysis will also be undertaken to provide companies with findings relating to their own impact and KYC data.

As well as geographic analysis for South Asia and West Africa respectively, analysis will be undertaken of the full SEIR data sets and results. This will include data from East Africa and Mozambique. Regional impact comparisons should be included.

9.2 Specific Gender Analysis

Where possible, the research will assess the impact of off-grid solar on women to contribute to gender focused learning. While analysis by gender did not reveal extensive insights in the initial SEIR, a few more targeted questions will be added to the question-set which aim to uncover:

- Changes in time available as a result of off-grid solar– disaggregated by gender
- Ability to undertake a new job – disaggregated by gender

9.3 Web-based Interactive Report

To enable findings to be widely shared, SEIR data has been added to a [data platform](#) on the GOGLA website, where evidence can be explored through a series of cross analyses e.g. businesses by location (urban, peri-urban, rural) or income generation by system size (4 – 10 Wp, 11 – 20 Wp and 50+ Wp).

Data from this geographic expansion will also be added to this data platform for easy access by users.

9.4 Production of a Regional Insight Reports & Lead Report

The results of the geographically aggregated analysis (South Asia and West Africa) that meet the ‘3 data point rule’ will be compiled into visually compelling Regional Insights Reports. These reports will be made available in PDF form via the GOGLA website.

The findings of all SEIR research will also be compiled into a final Lead Report with insights from all data (South Asia, West Africa and East Africa), analysis and case studies – including projections and scenarios.

Specific gender-related insights will also be compiled and shared within these reports. These will aim to a) profile gender-related impact and b) highlight learnings that can be applied by organizations or programs to maximize benefits to women and/or minimize any negative impacts.

9.5 Production of Company-Owned Reports

Analysis will also be provided in report form at company-level for all participating companies. These reports will be the proprietary information of the participating company and will not be shared with the wider public.

9.6 Peer Review

To establish credibility and gain additional input from expert researchers, GOGLA and the Lead Research Partner will explore options for integrating peer-review into the SEIR project and assess feasibility alongside publishing dates and key advocacy activities.

10. Research Sustainability & Outputs

Beyond the immediate gains for knowledge and advocacy, the research will contribute to more sustainable research efforts in the future, and create outputs which include:

- Harmonized data collection question-sets, tools and processes to be used by multiple PAYG solar companies, which will enable future research efforts (survey questions will be added to the SEIR data resources for access on the GOGLA website)
- Recommendations for new, or additional, research that builds on the created research infrastructure
- Data will be incorporated into GOGLA Impact Metrics to enhance and extend bi-annual sector data collection
- Learnings shared with sector partners e.g. SEforALL for inclusion in Energy Access Dividend Research and the multi-tier framework
- Foundations will be expanded for further knowledge gathering, and sector engagement

11. Timeline

Activity / Month	2019												2020				
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Planning & Preparation	X	X															
Baseline Data Collection			X	X	X	X											
Follow Up Data Collection							X	X	X	X							
Strategic Planning for Launch									X	X	X						
Analysis & Iteration									X	X	X	X					
Content & Design											X	X	X	X			
Report Launch and Media													X	X	X	X	
Outreach to Key Stakeholders														X	X	X	X