

# EFFICIENCY FOR ACCESS DESIGN CHALLENGE

## WEBINAR: DESIGNING FOR HUMANITARIAN CONTEXTS



FUNDED BY:

 **IKEA Foundation**

 **Transforming  
Energy  
Access**  
from the British people

# AGENDA

- Relevance to the Challenge
- Meet our Speakers
- Liya Bensy Thomas — Research Findings
- Philip Sandwell — Designing for Humanitarian Contexts
- Q&A



# ASSESSMENT FRAMEWORK

**Innovation**

**Sustainability**

**Social Impact**

**Scalability**

# ASSESSMENT FRAMEWORK

## Social Impact

Judges will want to see how you have researched the needs of the people whom your solution could benefit. They will want to understand why you think your design will improve peoples' lives, and how you have considered social inclusion and equality in your solution.

- **How well have you considered who will be using the design?** How well have you understood their needs?
- **What is the likely potential of the design to improve quality of people's lives?** How does your design improve the desirability of your target end-user? Consider what their livelihood was before and the improvement your design will bring to them.
- **How well has your design considered the Sustainable Development Goals' commitment to 'Leave no one behind'?** In particular, consider gender equality and disability inclusion.

## Scalability

# ASSESSMENT FRAMEWORK

## Social Impact

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## Scalability

# RELEVANCE TO THE CHALLENGE



- Designing for a Context
- Meeting the Challenge Brief
- Plenty of room for improvement against all Challenge Criteria
- Resources:
  - [Challenge Brief](#)
  - [Webinar on Humanitarian Contexts 2023](#)
  - [State of the Humanitarian Energy Sector, UNITAR, 2022](#)
  - [Energy Solutions for Displacement Settings, GIZ, 2021](#)
  - [User-Centered Design in Humanitarian Energy Projects, Energypedia, 2023](#)
  - [Renewables for Refugee Settlements, IRENA, 2019](#)

# MEET OUR SPEAKER



**Liya Bensy Thomas**  
Energy Saving Trust



**Philip Sandwell**  
UNITAR



# APPLIANCES IN THE HUMANITARIAN SETTINGS

Learnings and insights

Liya Betsy Thomas, 11<sup>th</sup>  
December



## Research background & Methodology

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- Gain insights into the electrical appliances supplied (other than lighting and cooking)
- Data collected from 21 companies in April 2023
- One-to-one interviews conducted in September 2023



# Insights gathered

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- Most popular appliances –Televisions and Radios
  - More affordable
  - Provide information and communication
  - Improve sense of community
- Limited supply of larger appliances – refrigerators, solar water pumps, mills
  - High upfront costs
  - Lack of technical knowledge and training



**“Our solar mill was sold to a micro-enterprise milling maize meal flour [in the settlement]. The unit was damaged beyond repair within 2 months. A foreign object in the grains damaged the sieves”**

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A MANUFACTURING COMPANY THAT SUPPLIED A SOLAR POWERED MICRO-MILL IN A GRAIN MILLING BUSINESS IN KALOBEYEI INTEGRATED SETTLEMENT IN KENYA

APPLIANCES IN THE HUMANITARIAN SETTING



MicroMill developed for supply in Kenya

# Structural challenges

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- Limited access to formal financial services like credit or loans
- Income sources are limited – people rely on cash-based transfers and remittances
- Poor communication & transport infrastructure
- Low customer awareness
- Lack of market intelligence

## Why work in this sector?

- Empower individuals and communities to rebuild their lives
- Sustainable solutions that enable communities to thrive despite the challenges

**“...the opportunity for our technology to create livelihood impact in humanitarian context is disproportionately high compared to rural and peri-urban customers”**

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A MANUFACTURER THAT SUPPLIED APPLIANCES IN  
KALOBYEI INTEGRATED SETTLEMENT



**EFFICIENCY  
FOR ACCESS**

# Efficiency for Access Design Challenge: Designing for Humanitarian Contexts

Dr Philip Sandwell

GPA Coordination Unit, United Nations Institute for Training and Research (UNITAR)

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# Energy in displacement settings





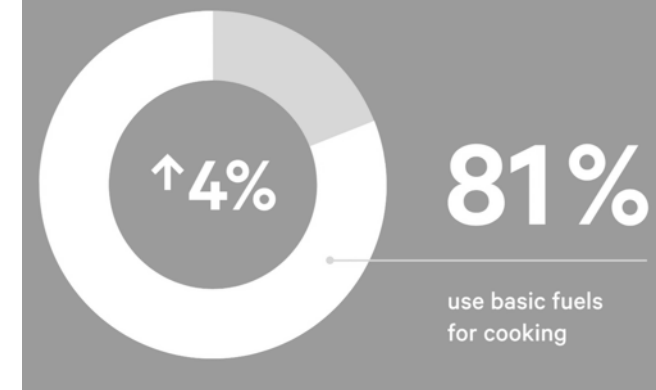
Clean cooking  
access in  
households



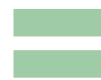
2014



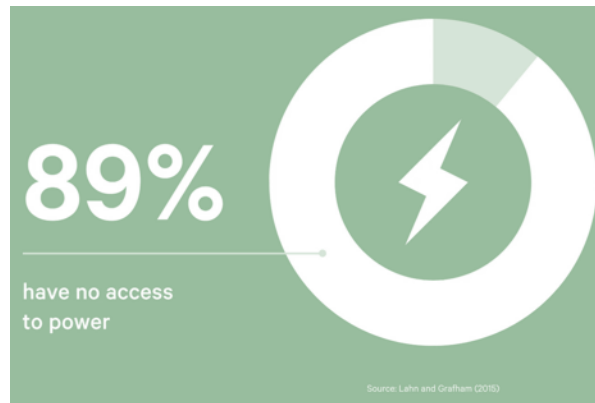
2020



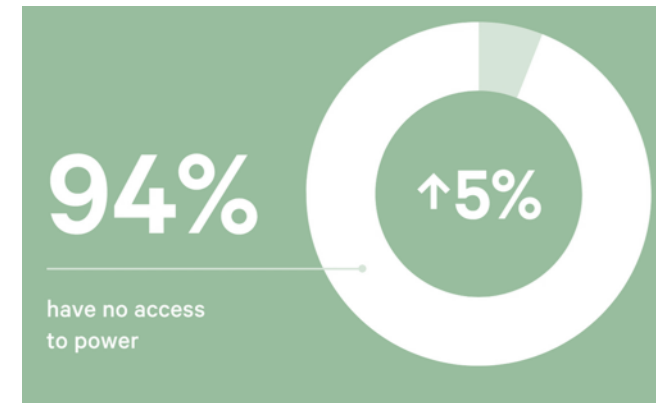
Sustainable  
electricity access in  
households



2014



2020



- Access rates are failing in real terms
- Achieving SDG 7 in displacement contexts is further away than ever

Sustainable energy access rates are not keeping pace with the rate of displacement

# Example: Cooking issues affecting health of women and girls



Displaced people live in **densely populated areas** with limited resources and affordability.



We advocate for **clean cooking solutions** in displacement settings



**Dirty smoke from cooking** in the indoor kitchen areas causes several **chronic diseases and other health issues.**

# Example: Cooking issues affecting the local environment



- Loss of bio-diversity
- Conflicts with host community
- Impact on wildlife

- Landslides & accidents
- Flooding
- Hygiene problems because of spoiled groundwater

# Example: Electricity access for healthcare

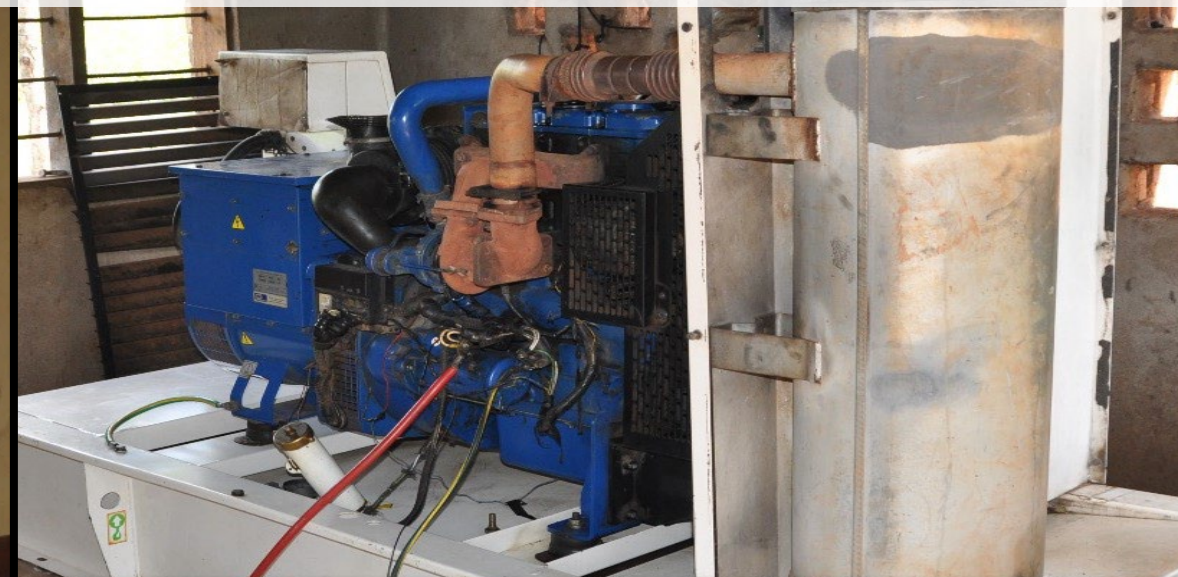
OPERATING THEATRE MONTHLY STATISTICS: JANUARY-DECEMBER 2017

MAJOR OPERATIONS

|                      | JAN | FEBR | MARCH | APRIL | MAY | JUNE | JULY | AUG | SEPT | OCTO | NOV | DEC | TOTAL |
|----------------------|-----|------|-------|-------|-----|------|------|-----|------|------|-----|-----|-------|
| 1. CAESARIAN SECTION | 93  | 84   |       |       |     |      |      |     |      |      |     |     |       |
| 2. HERNIORRHAPHY     | 05  | 05   |       |       |     |      |      |     |      |      |     |     |       |
| 3. HAEMORRHOIDECTOMY | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 4. LAPAROTOMY        | 04  | 03   |       |       |     |      |      |     |      |      |     |     |       |
| 5. AMPUTATION        | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 6. BTL               | 07  | 06   |       |       |     |      |      |     |      |      |     |     |       |
| 7. TAH               | 02  | 02   |       |       |     |      |      |     |      |      |     |     |       |
| 8. APPENDICECTOMY    | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 9. THYROIDECTOMY     | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 10. HYDROCELECTOMY   | 01  | —    |       |       |     |      |      |     |      |      |     |     |       |
| 11. SPLEENECTOMY     | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 12. OTHERS           | 01  | 04   |       |       |     |      |      |     |      |      |     |     |       |
| 13. MINI LAPAROTOMY  | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 14. TOTAL            | 113 | 104  |       |       |     |      |      |     |      |      |     |     |       |

MINOR PROCEDURES - MINOR SURGERY

|                                     | JAN | FEBR | MARCH | APRIL | MAY | JUNE | JULY | AUG | SEPT | OCTO | NOV | DEC | TOTAL |
|-------------------------------------|-----|------|-------|-------|-----|------|------|-----|------|------|-----|-----|-------|
| 1. CIRCUMCISION                     | 02  | 01   |       |       |     |      |      |     |      |      |     |     |       |
| 2. EVACUATION-D+C                   | 11  | 15   |       |       |     |      |      |     |      |      |     |     |       |
| 3. INCISION AND DRAINAGE OF ABSCESS | 32  | 11   |       |       |     |      |      |     |      |      |     |     |       |
| 4. EXCISION                         | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 5. FOREIGN BODY REMOVAL             | —   | —    |       |       |     |      |      |     |      |      |     |     |       |
| 6. WOUND SUTURING                   | 15  | 11   |       |       |     |      |      |     |      |      |     |     |       |
| 7. TOOTH EXTRACTION                 | 05  | —    |       |       |     |      |      |     |      |      |     |     |       |
| 8. P.O.P APPLICATION                | 04  | 04   |       |       |     |      |      |     |      |      |     |     |       |
| 9. WOUND DRESSING                   | 317 | 248  |       |       |     |      |      |     |      |      |     |     |       |
| 10. OTHERS                          | 09  | 51   |       |       |     |      |      |     |      |      |     |     |       |
| 11. TOTAL                           | 405 | 341  |       |       |     |      |      |     |      |      |     |     |       |
| 12. GRAND TOTAL                     | 508 | 445  |       |       |     |      |      |     |      |      |     |     |       |



# Example: Electricity access for schools



Old school room



Connected school

# Example: Public lighting



# Challenges and opportunities

# Challenges in displacement settings

## Technical

- Limited infrastructure
- Limited/intermittent energy access
- Reliability and resilience issues
- Prevalence of small-scale solar
- Low power
- Space availability
- Safety concerns
- Robustness
- Movability

## Economic

- Low purchasing power
- Variable incomes
- Differences in spending power
- High upfront costs of technology
- Long payback periods
- Donation vs. market models
- Value demonstration

## Social

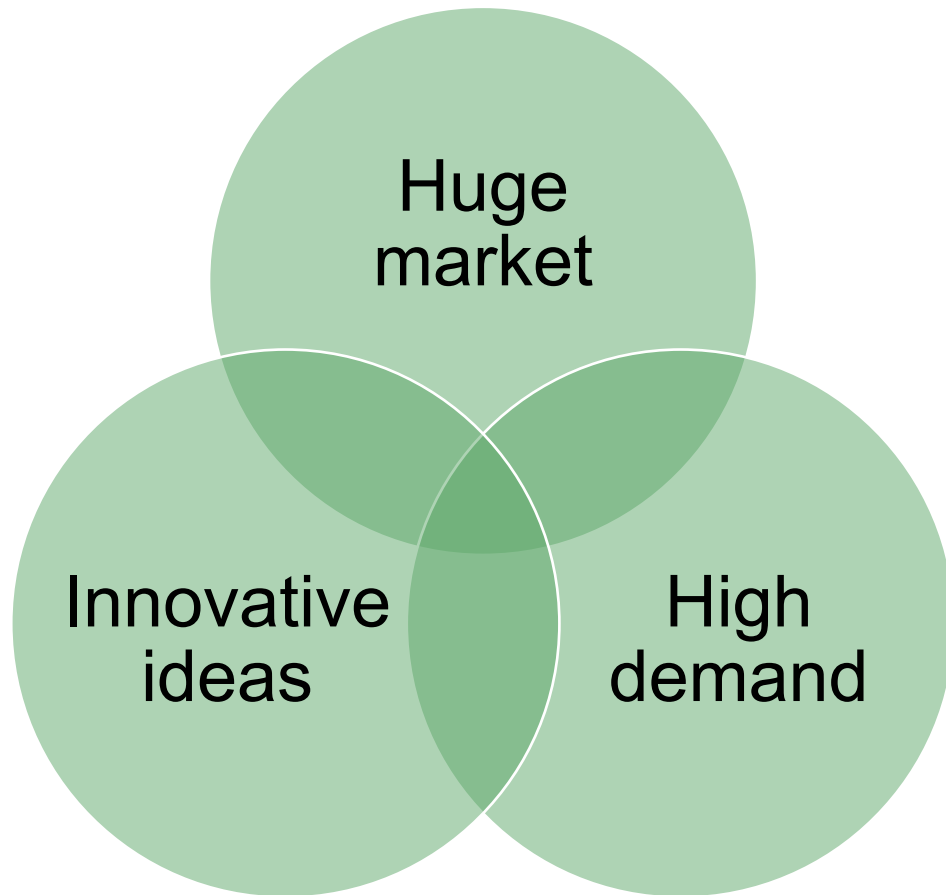
- User preferences and needs
- Differences within and between communities
- Decision making in households
- Local support and market building
- Community engagement and co-design

## Logistical

- Remote locations
- Supply chains
- Lack of materials
- Repairs and maintenance
- Access to camps
- Recycling and waste management
- Coordination between organisations



# Opportunities for impact



- High needs and large market size in displacement contexts
- High demand for improved energy provision, services, and appliances
- High potential for innovative technologies, business models and ideas

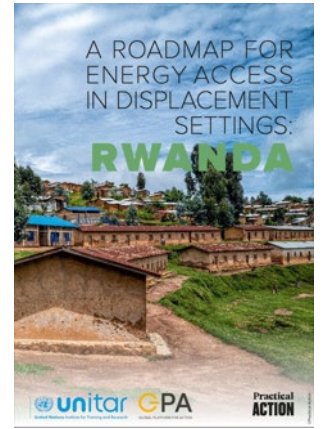
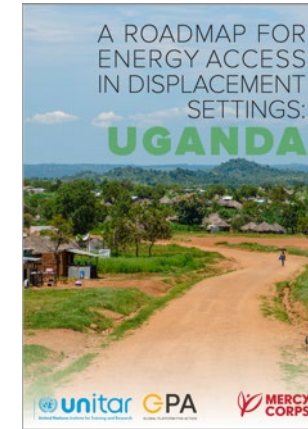
# Opportunities for impact



# Thank you

Find out more: [humanitarianenergy.org](https://humanitarianenergy.org)

Email: [philip.sandwell@unitar.org](mailto:philip.sandwell@unitar.org)



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# Q & A

# WHAT'S COMING NEXT

- **Now:** Sign your terms and conditions, create your project space, add all teammates and upload your Concept Note.
- **Soon:** Your Concept Note will be reviewed
- **Soon:** Your Mentor will be tagged to your team's Concept Note on CrowdSolve so you know who your mentor is, and they will contact you via email.
- **12 December:** Opening of Prototyping Window 1
- **19 December:** Second drop-in session: prototyping and general
- **23 December — 1 January:** Team's holiday break
- **w/c 11 March :** 'Choose your own' webinar

# FEEDBACK SURVEY



<https://bit.ly/3LhnoGS>

# SIGN YOUR T&Cs



<https://bit.ly/458F2U1>

# NEWSLETTER SIGN-UP



<https://bit.ly/45OOX2A>





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