Innovation Norway

IOM UN MIGRATION

# Greening humanitarian responses through recovery, repair, and recycling of solar products in displacement settings

## Economic Inclusion Exchange

1 July 2021

# The e-waste challenge

- 150 million pico-solar products and 30 million solar home systems have been sold worldwide since 2010 = 180 million off-grid solar units.
- There are negative environmental impacts from disposing of solar waste
- There are negative impacts on human health
- There are untapped economic opportunities

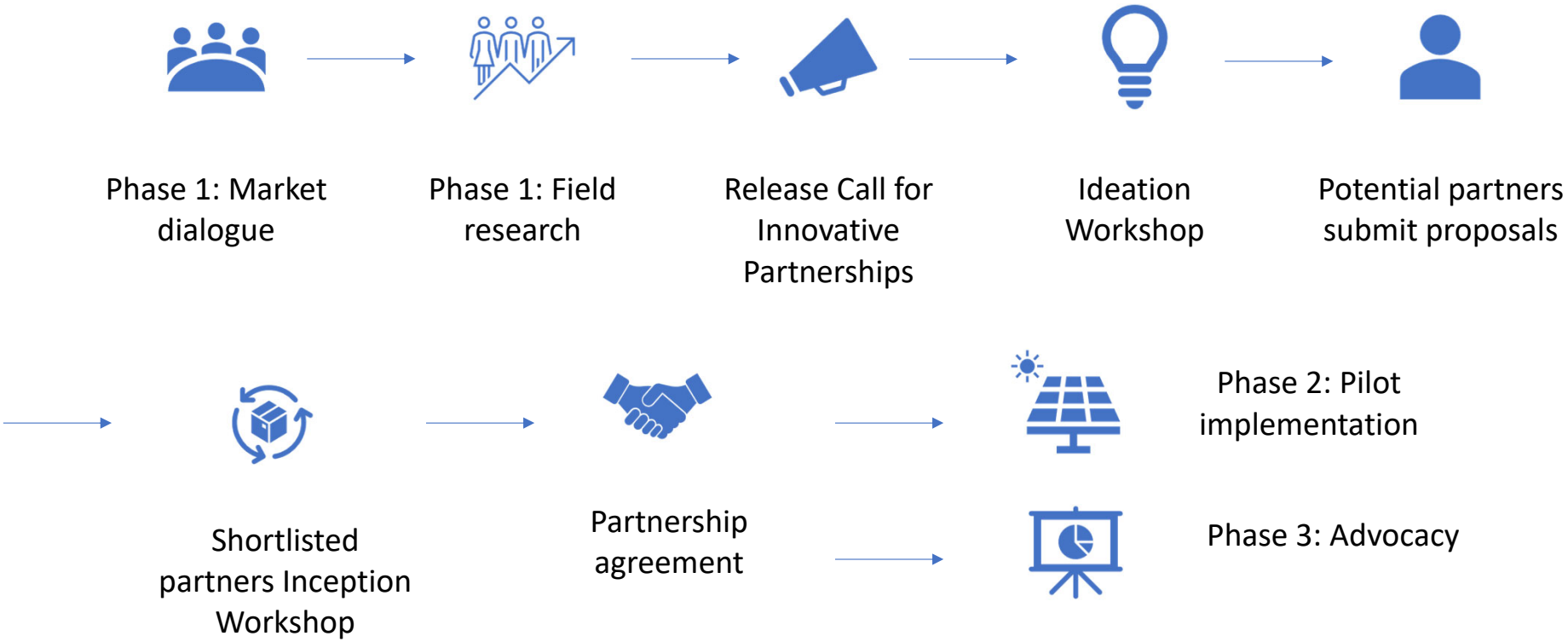
# The E-waste Project

**Aim:** to respond to the problem of ill-managed disposal of solar products in displacement settings by finding a cost-effective solution(s) for the repair, reuse and recycle of these products or components through a circular economy.

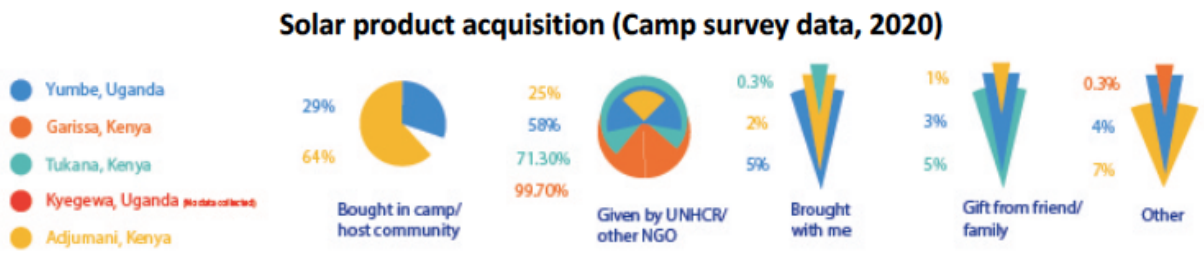
**Objectives:**

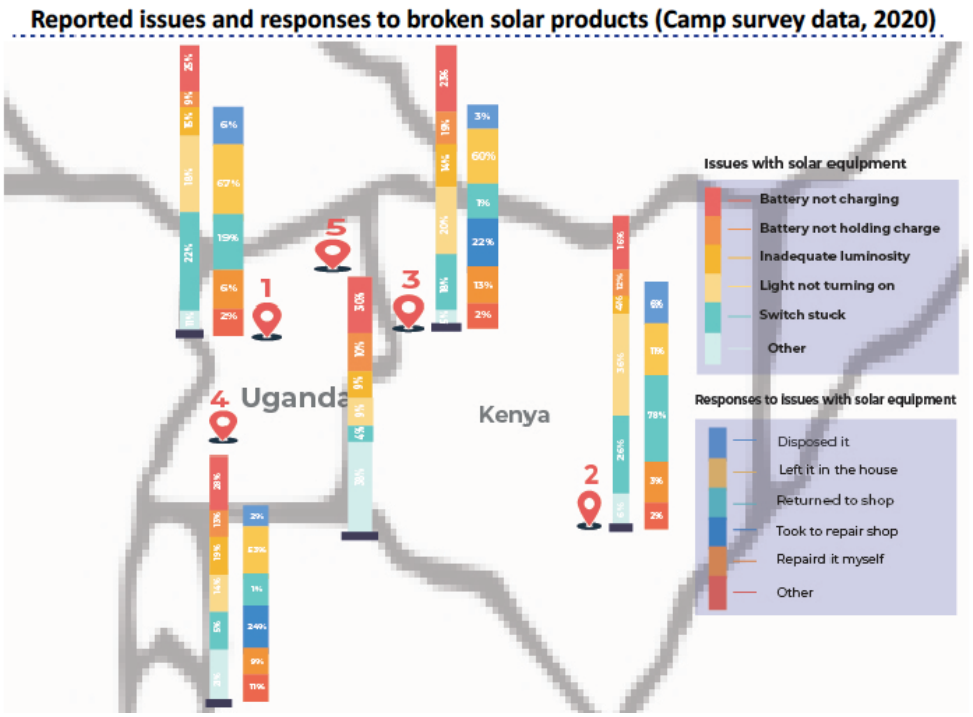
- Gather evidence to influence manufacturers of solar products to make their products more repairable and/or recyclable.
- Extend the lifecycle of existing technologies and improve the waste management in displacement camp settings.
- Create jobs, support livelihoods, and provide business opportunities to refuges and host communities.
- Provide evidence to replicate in other settings to scale up beyond solar products and their accessories to other types of electronic waste.
- Inform humanitarian sustainable procurement policies.

# E-waste Project Process



# Waste mapping



## STAKEHOLDER MAPPING AND ANALYSIS

The market dialogue was a key tool to bring together stakeholders, understand current practices and explore new avenues for collaboration. Key partners consulted as potential partners for the implementation phase include:

- Innovation Norway
- Bright Products
- Enviroserve Kenya
- Total Access to Energy Solutions
- SunnyMoney
- OPES Solutions
- WEE Centre
- Schneider Electric

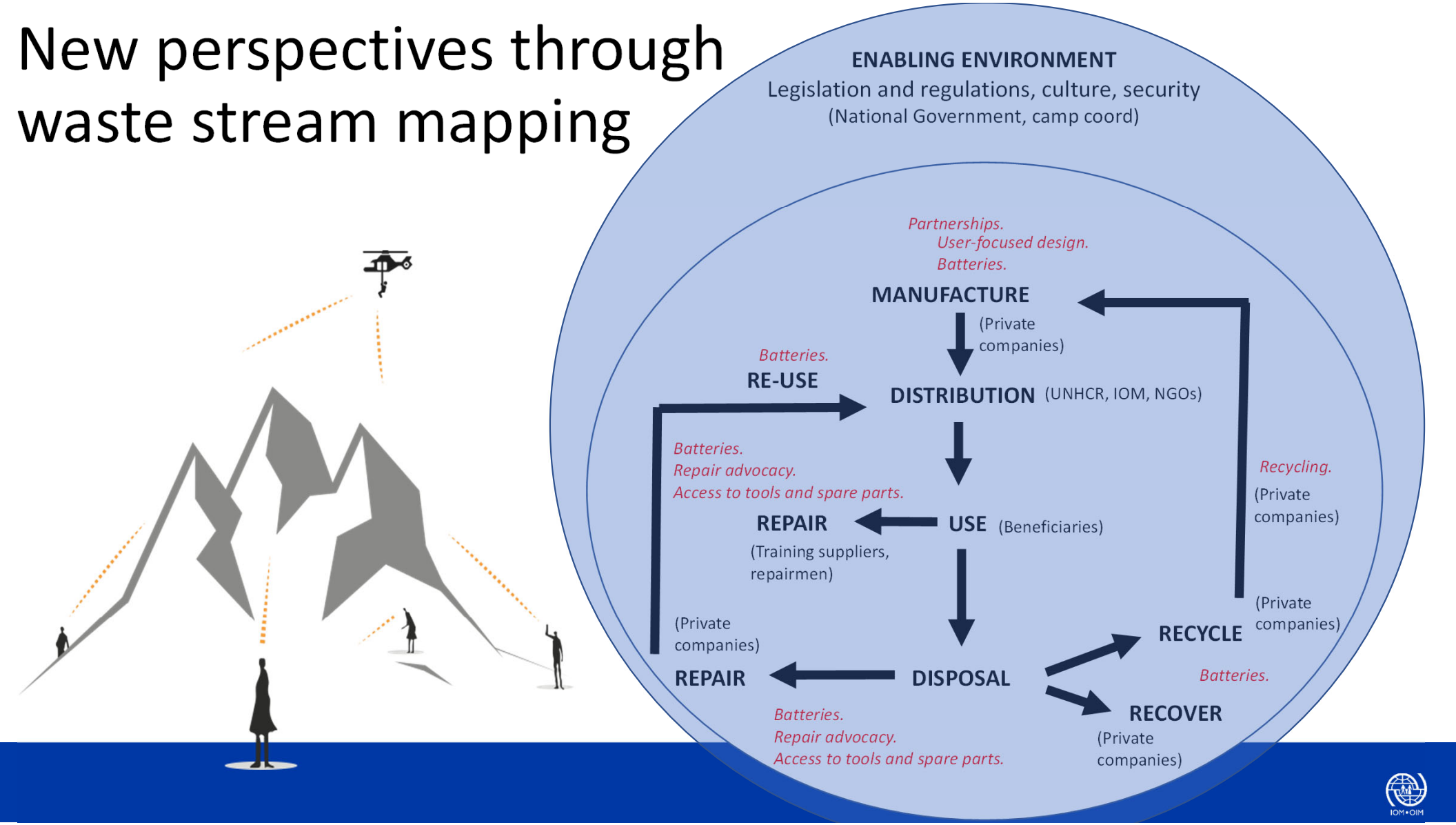
# Market dialogue

| | Identified company best practices focusing on solar and e-waste | Identified barriers to companies improving solar and e-waste practices in displacement settings |
|---|---|---|
| **Company profile** | Experience working in **displacement settings**<br>**Large distribution** and geographic presence<br>High financial investment and intent to improve e-waste sustainability<br>**Commitment** to local capacity building<br>Desire to partner<br>Involved **in various steps of waste stream** | Lack of experience in displacement settings<br>Lack of access to camps |
| **Product design and manufacture** | Manufacturer **local presence** in markets to engage with user needs<br>Able and willing to **design and adapt** products for easy spare part replacement e.g. colour coded spare parts, snap fittings<br>Able and willing to design for longer lasting products e.g. smart batteries showing % charge/days credit.<br>Able and willing to design using eco-friendly materials e.g. lead free soldering, removing plastics | Lack of funding to develop new products |
| **Repair** | Sales agents and technicians on the ground to **educate users** on best repair practices<br>Repair manuals, YouTube videos, phone apps and tools to train users and technicians<br>**Battery testing plant** to keep batteries in use and assemble new ones | Lack of affordable and quality spare parts<br>Product disassembly<br>Using parts from other products<br>Lack of financial incentive for after-sales services by private sector<br>Siloed company efforts |
| **Recycling** | Discounts to distributors who have an **agreement with licensed recycling facility**<br>Use of own trucks/collection points to increase volumes and reduce cost<br>Pre-processing equipment (e.g. cable stripper) to expand storage<br>Connection to large recycling facilities | No lithium battery processing facility<br>Basel Convention prohibits some international waste transport<br>Low profit margins in recycling therefore need volume to get value for money<br>Expensive to transport waste<br>Siloed company efforts |

# Key take aways and opportunities for innovative change

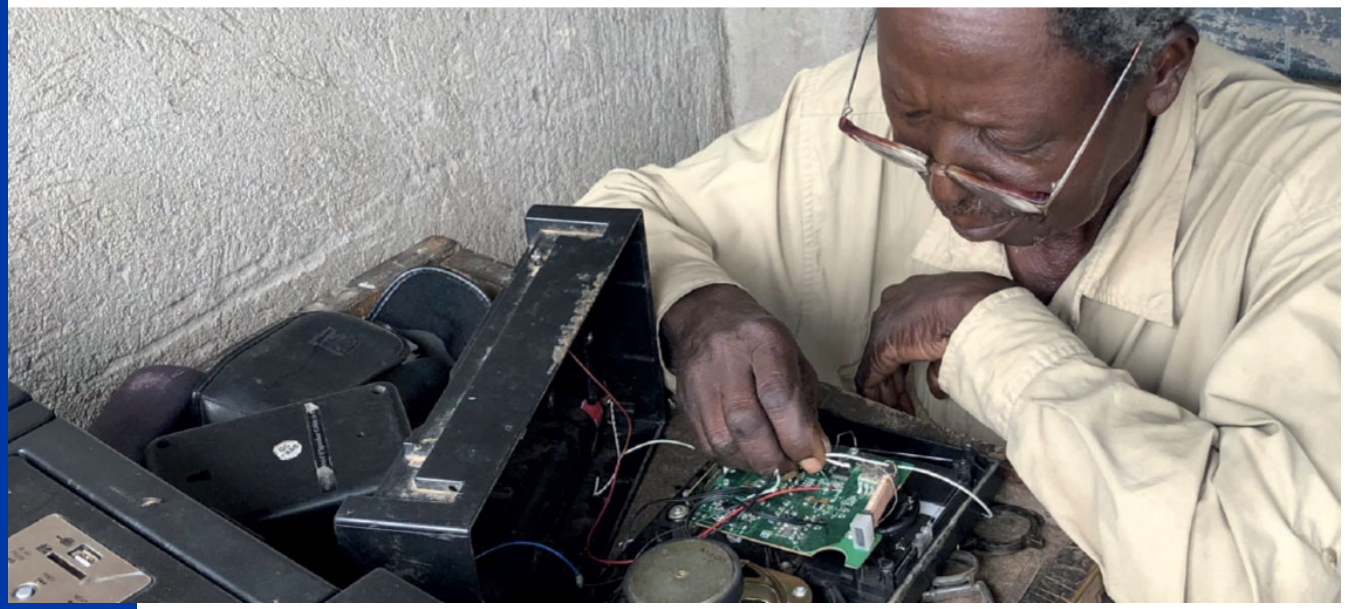
1. User focused design
2. Batteries
3. Repair advocacy
4. Repair training
5. Recycling
6. Partnerships

# New perspectives through waste stream mapping



# Three partners, three solutions

- The Batlab
- Repair technician training and provision of spare parts and tools
- Online open-access procurement platform



# Questions?