WEBINAR

UNDERSTANDING E-WASTE IN HUMANITARIAN CONTEXTS

Wednesday, 02 November 2022

14:00-15:30 CET
16:00-17:30 EAT

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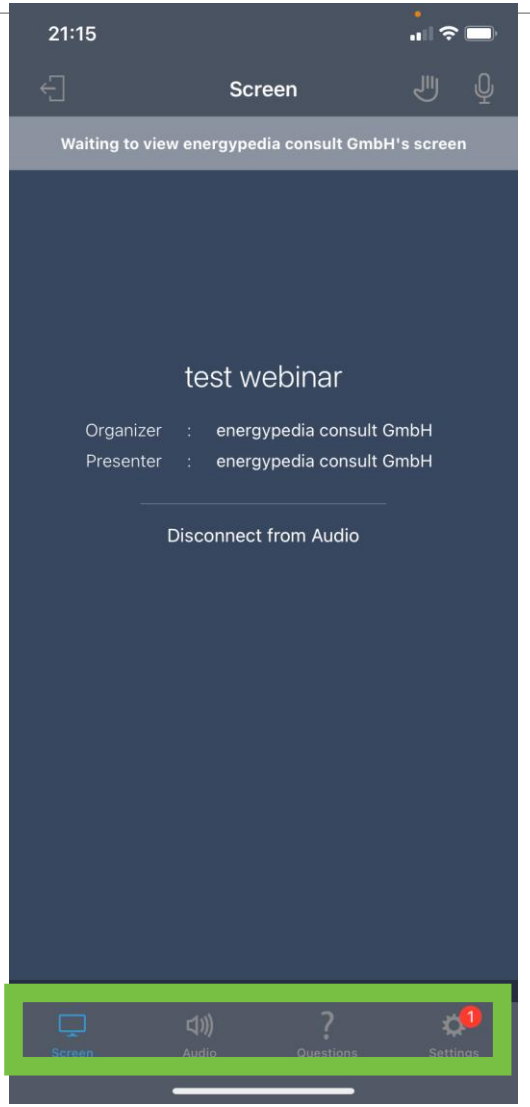

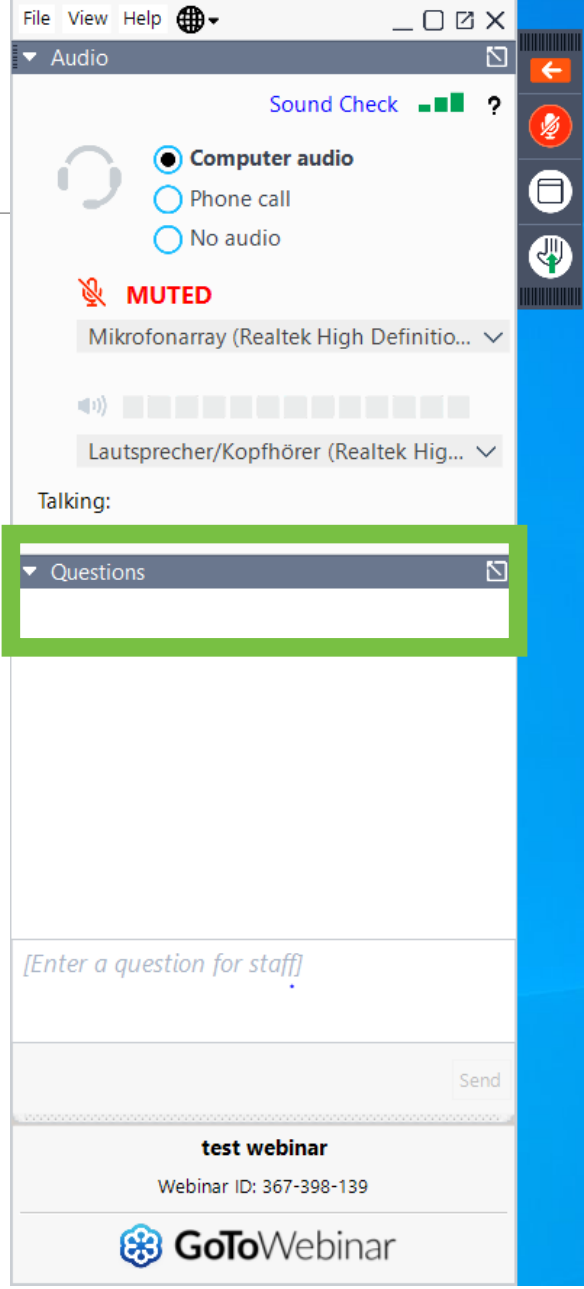

Agenda

	Speakers
Introduction to e-waste value chain	Elif Demir, GPA/UNITAR Lucas Kürten, GIZ ESDS
Technical input on repair practices	Jaime Cross, University of Edinburgh
Overview of GOGLA's ongoing work on e-waste	Rebecca Rhodes, GOGLA
Case study from IOM	Gemma Arthurson, IOM

Presenter

Elif Demir, GPA/UNITAR

Elif is the Coordination & E-waste Lead at the Global Platform for Action on Sustainable Energy in Displacement Settings (GPA) Coordination Unit hosted at United Nations Institute for Training and Research (UNITAR). She co-authored the report Electronic Waste (E-waste) Management for Off-grid Solar Solutions in Displacement Settings and is co-leading the Humanitarian E-waste Task Force with GIZ ESDS, bringing together organisations like UNHCR, IOM, WFP, and NORCAP. Elif holds a MSc degree in Complex Systems Engineering and Management at the Delft University of Technology and a BSc in Industrial Engineering at Bilkent University.

Presenter

Lucas Kürten, GIZ SUN Energy Solutions for Displacement Settings (ESDS)

Lucas is a Junior Advisor in the global team of the GIZ SUN Energy Solutions for Displacement Settings (ESDS) Project, where he principally works on the topic of e-waste management, reduction and awareness raising in displacement settings. Besides, he has experiences in sustainable energy systems, circular economy and sustainable urban development mainly in Germany, Oceania and Latin America. Lucas holds a MSc in Natural Resources Management and Development and a BSc in Electrical Engineering.

Understanding E-waste in Humanitarian Contexts

Elif Demir, GPA Coordination Unit hosted at UNITAR

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What is e-waste?

- Waste Electrical and Electronic Equipment (WEEE), or e-waste: any household or business item and their parts with circuitry or electrical components with power or battery supply that have been discarded by the owner as waste without the intention of reuse
- E-waste from solar products:
  - PV modules
  - Batteries (lithium-based or lead acid)
  - Lamps (mainly LED)
  - Control unit
  - Cables
  - Metal frames and fixtures
  - Appliances

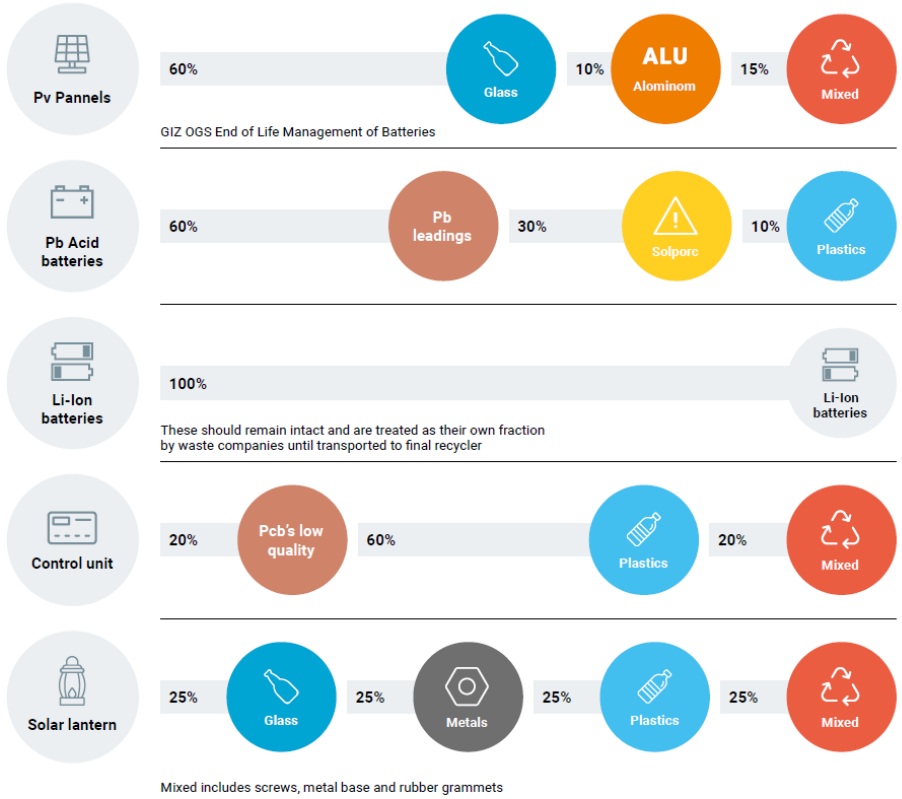


Figure 1: The waste components of off-grid solar products

Introduction to e-waste in displacement settings

Increase in energy programmes and off-grid solar products in displacement settings

Electronic products not managed properly during their use, when they break, or after their expected lifetime

End of life products taken apart, kept unused at homes, buried, burnt, or left in the open with other waste

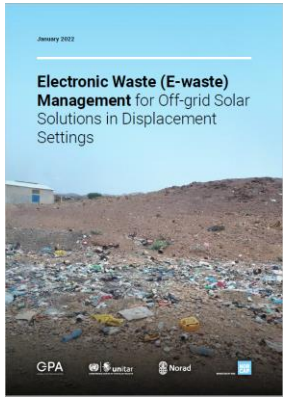
Impact on environment and health due to exposure to hazardous materials

Challenges & activities on e-waste management in displacement settings

United Nations Institute for Training and Research

GLOBAL PLATFORM FOR ACTION

TOPIC						
CHALLENGES	Lack of/limited national policy and regulation in host countries	Limited coordination and engagement with stakeholders	Lack of collection, treatment and recycling infrastructure, and service providers	High costs and low economies of scale	Lack of spare parts, tools, and services for repair	Limited data and capacity
ACTIVITIES	Advocacy at high-level events and engagement with donors	Humanitarian E-waste Task Force	Developing a list of quality recyclers with other UN organisations	Development of pilot programs and business models	Providing guidance to humanitarian organisation on procurement	Knowledge sharing through E-waste Landscaping Report & Webinar Series



E-waste management tools for humanitarian organisations

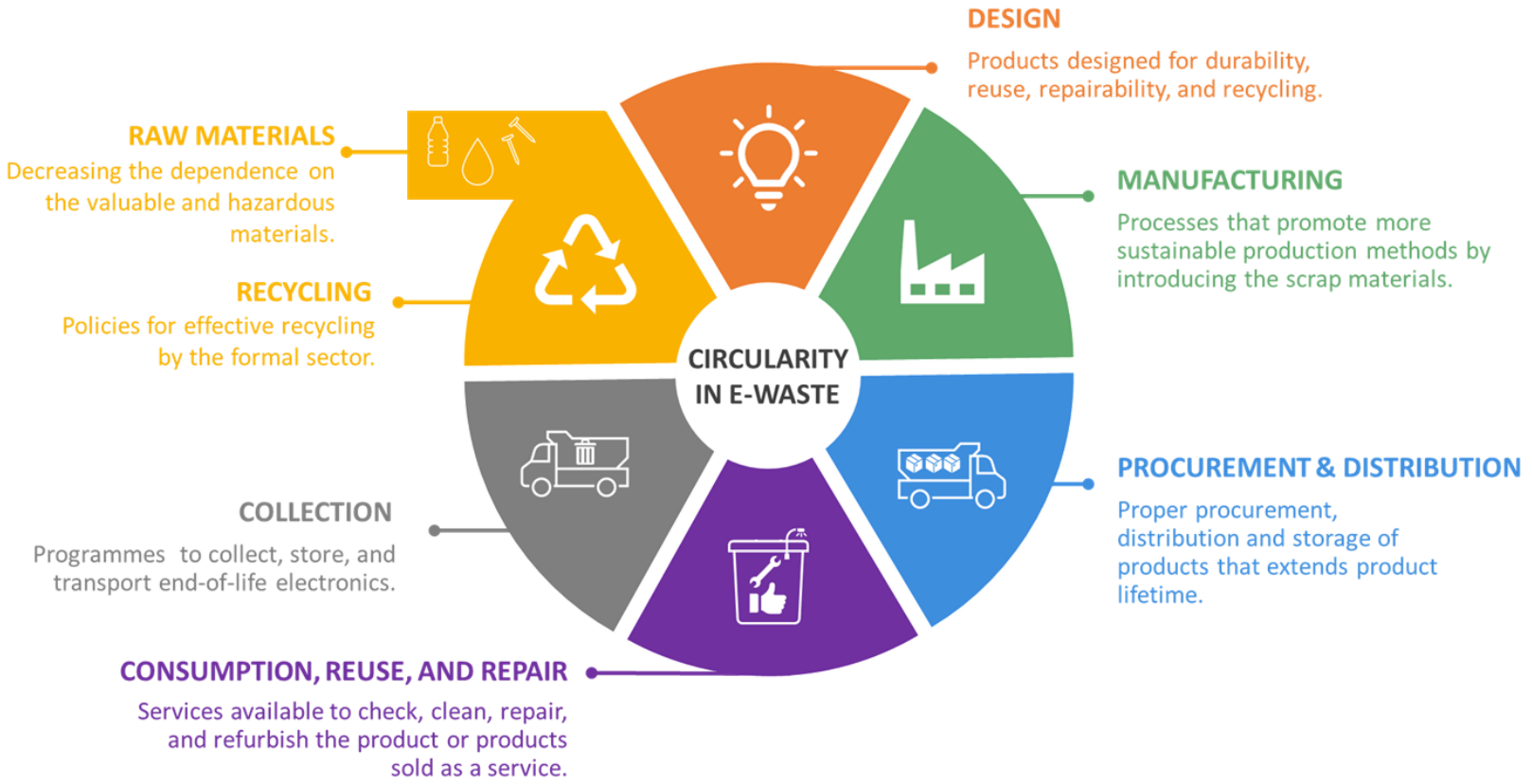


Figure 2: Circularity in e-waste for humanitarian organisations

Ongoing e-waste programmes in displacement settings

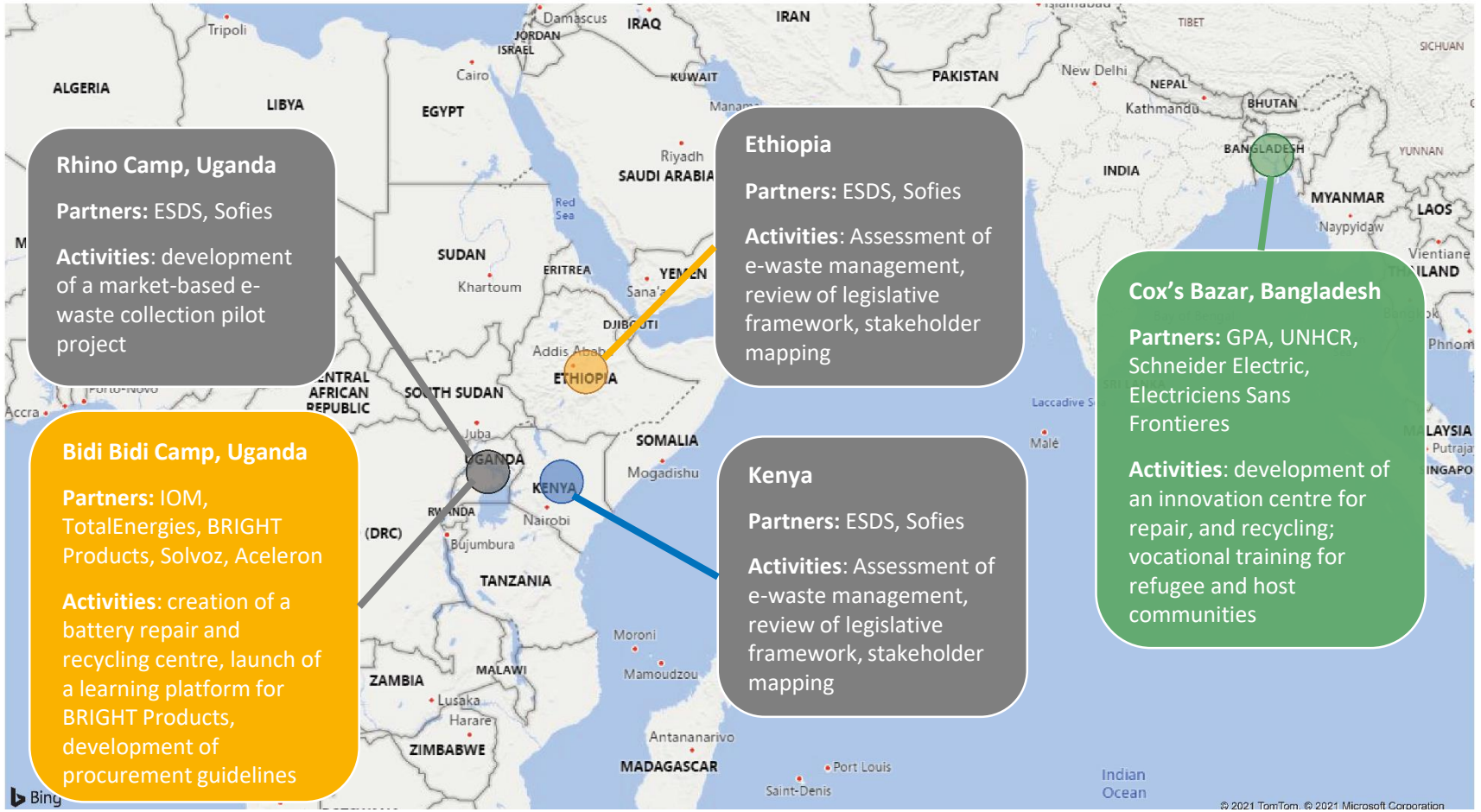


Figure 3: An overview of ongoing e-waste management programmes in displacement settings

Understanding E-waste in Humanitarian Contexts

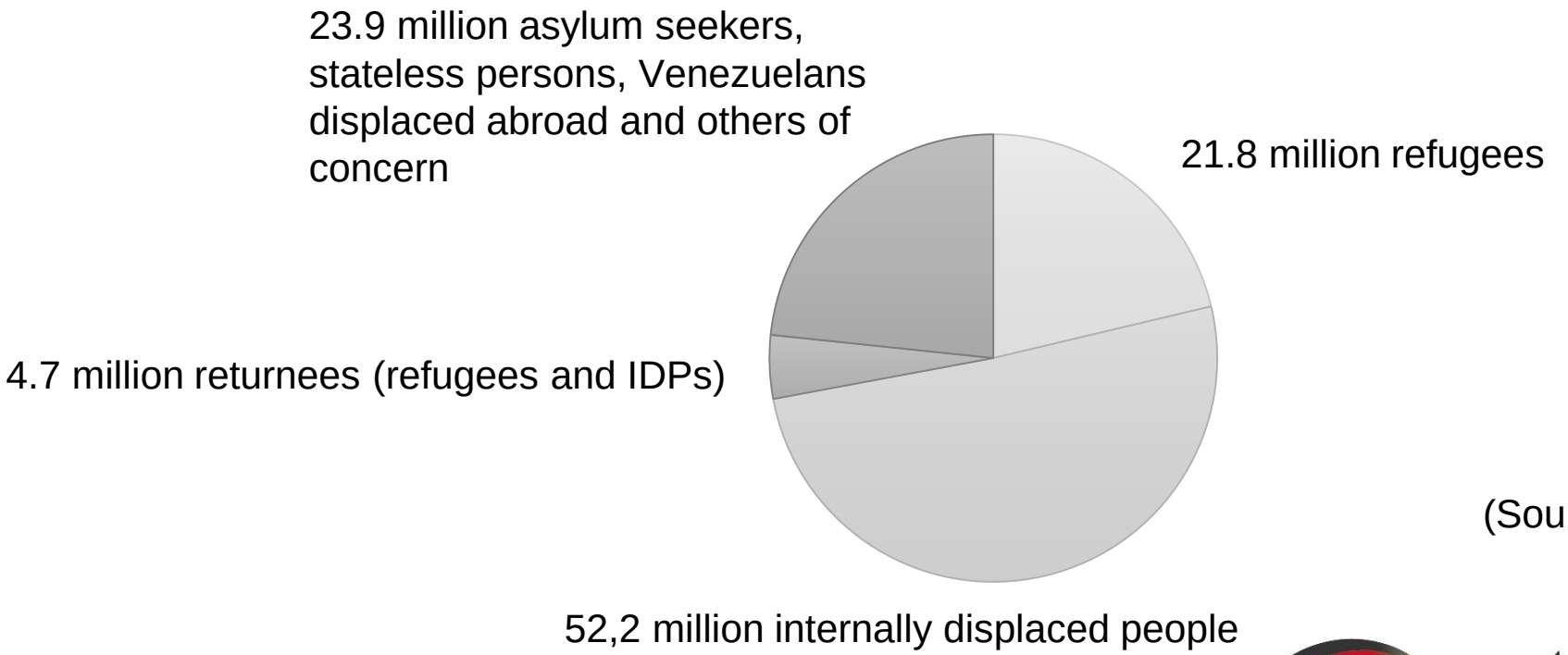
Webinar Series on Understanding E-Waste Value Chain in Humanitarian Settings

By Lucas Kürten, Junior Advisor, GIZ SUN-ESDS

Increasing number of displaced people around the world

As a result of persecution, conflict, violence, human rights violations or events seriously disturbing public order (projection 2022):

→ 102.6 million people have been forcibly displaced worldwide



(Source: UNHCR Global Appeal 2022)

E-waste around the world

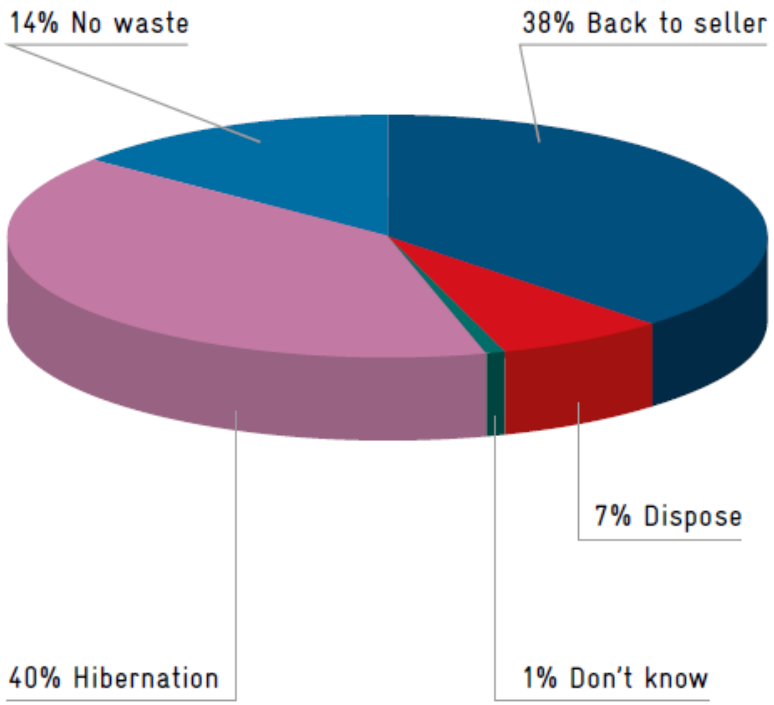
In 2019:

- 53.6 Mt e-waste generated
- 17.4% (9.3 Mt) officially documented as properly collected and recycled
- 78 countries adopted a national e-waste policy, legislation or regulation → 71% of the world‘s population

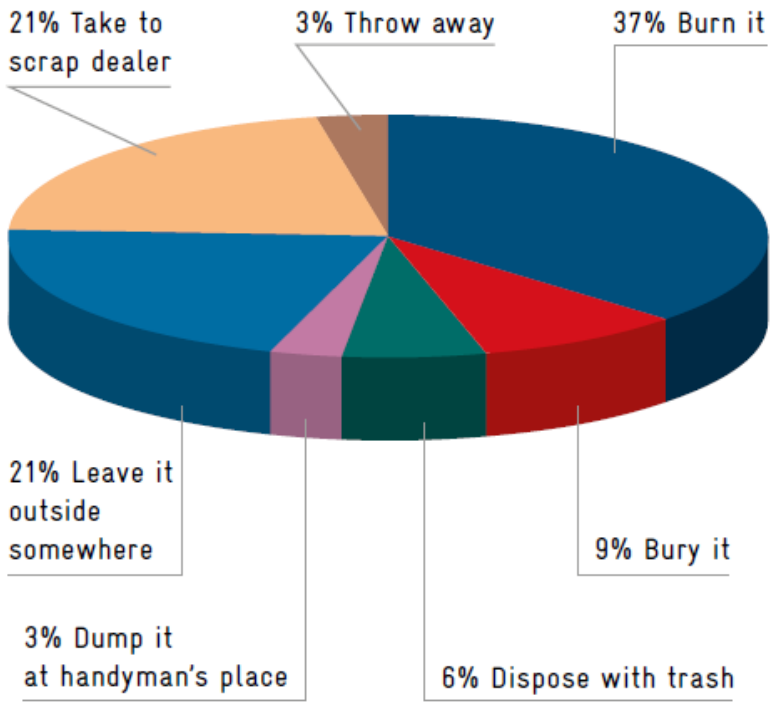
(Source: Global E-Waste Monitor 2020)

E-waste management in displacement settings

Consumer action with e-products at the end-of-life



E-waste disposal practices



(Source: CDC Group/M-Kopa Project on E-waste (2020))

E-waste management in displacement settings

- Generally, no waste management systems in displacement settings
- Informal e-waste management is being practiced on a very small scale
- Difficulty of finding spare parts and lack of tools to repair

➢ E-waste management should target EEE whole life-cycle (from product design, procurement and distribution/sale to end-of-life management)

➢ Chance: A number of organisations and private companies are in the setting to potentially work on e-waste management

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Poll

Presenter

Jaime Cross, University of Edinburgh

Jamie Cross is a Professor of Social Anthropology at the University of Edinburgh and Director of the Edinburgh Earth Initiative. He has over 15 years of experience studying technology and cultures of energy in contexts of global energy poverty. He is collaborated extensively with off grid solar manufacturers and distributors, and is the co-designer of Solar What?! – an open source solar powered lighting technology built to challenge unsustainable design practices in the solar industry.

Presenter

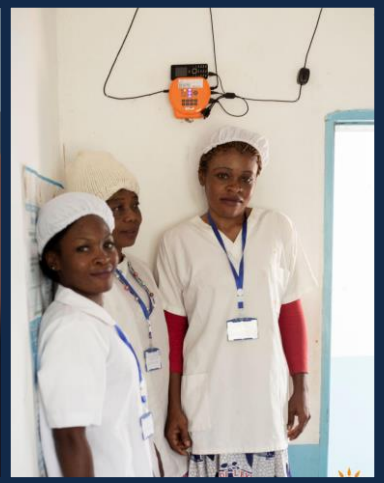
Rebecca Rhodes , Senior Project Manager – Consumer protection, circularity and technology, GOGLA

Rebecca leads GOGLA's work on Consumer Protection, Circularity and Technology. In this role, she manages programmes that aim to define, improve and enhance standards of operational performance in the off-grid solar sector to safeguard social and environmental impacts and benefit consumers, companies and investors alike. She also works to promote market-based solutions to increase energy access in humanitarian settings. Now working at the intersection between energy access and financial inclusion, Rebecca brings first-hand experience of PAYGo Solar Home System distribution in East Africa, with specific focus on strategic development and improving credit management, after-sales services and operational standards.









Improving e-waste management and enhancing circularity

Off-grid solar

2nd November 2022

Circularity, E-Waste and the Off-Grid Solar Sector

Challenges for OGS e-waste management

Low volumes (high unit cost)	• Customers hold onto waste (perceived value, low risk awareness). • Few collection points or take-back schemes. • Relatively small volumes of waste generated by a young industry. • Legislation is in its infancy.
High costs	• Recyclers / e-waste mgmt. companies are present in only a few markets. • Lithium-ion battery recycling facilities not yet present in Africa (it is typically recycled in the EU). • Low intrinsic material value of waste. • Product design often makes it difficult to repair and separate fractions.
Weak (and difficult) supply chain	• Costs uncertain. • “Business Models” not developed. • Products distributed over large areas; location often unknown.

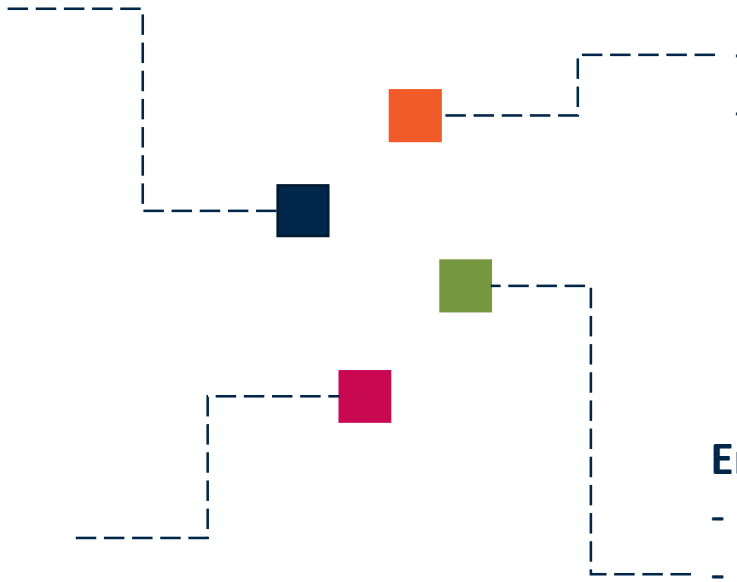
Opportunities and enablers

Repair and refurbishment

- Design for repair, e.g., interchangeable components.
- Access to good quality spare parts.
- Training and documentation tailored to skills of technicians.

Integration of informal sector

- The informal waste management sector can be a significant asset and should be supported and leveraged.
- Assess key touch points in value chain.
- Optimise capacity through initiatives such as training/certification schemes.



Collaboration and coordination

- E-waste management is a non-competitive area of business.
- Organisations can achieve economies of scale though coordinated action.

Enabling environment

- Investment in recycling infrastructure.
- Effective, well implemented policy.
- Knowledge and capacity building.

GOGLA Circularity Programme – Focus areas

Knowledge & Insights

Identify best practice from OGS and other sectors, gather data, share lessons of what does/doesn't work.

Circularity WG

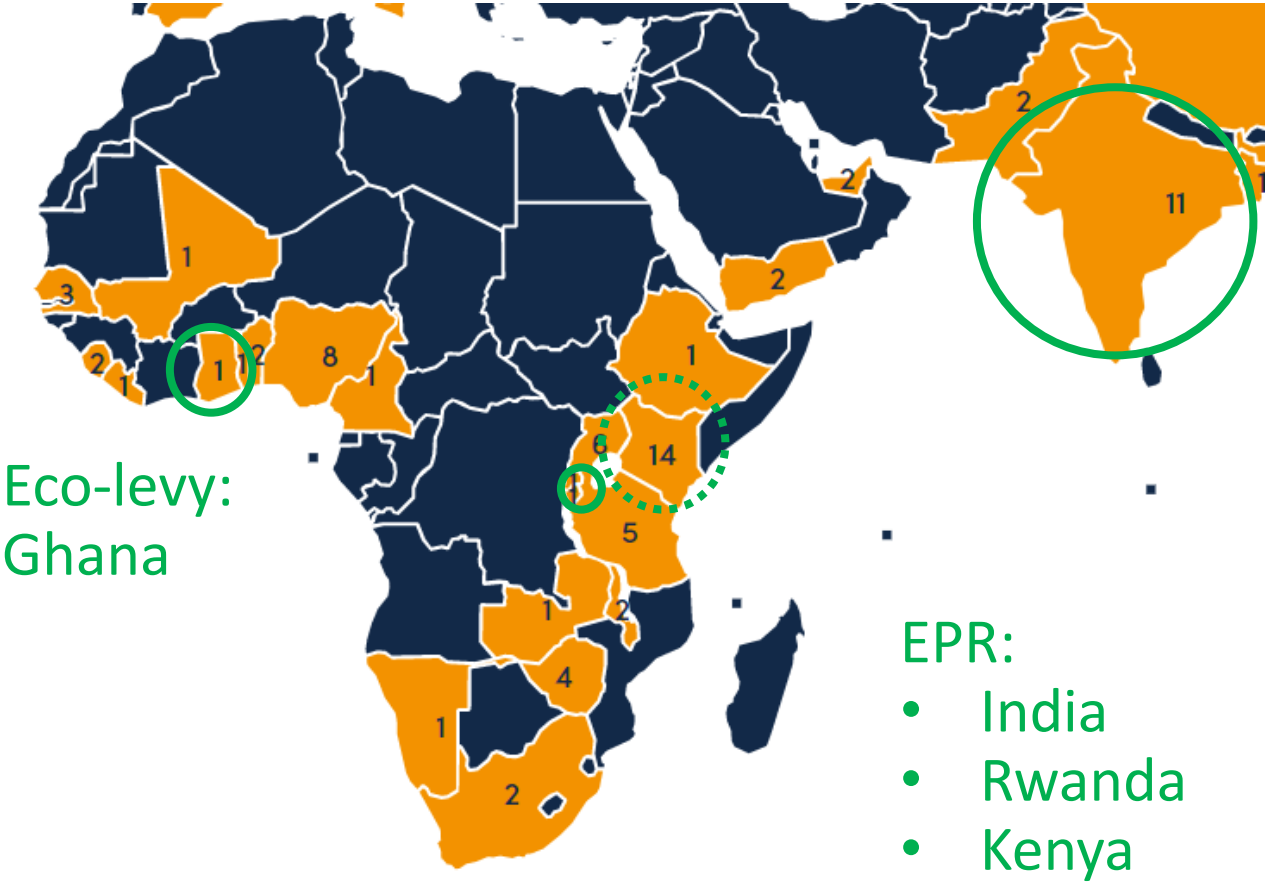
Networking and convening for identification and sharing of good practice. Identify and support innovations.

Tools & Guidance

Develop practical tools to help companies implement effective e-waste management and increase circularity.

Regulation

- GOGLA advocates for effective e-waste legislation that manages waste risk & ensures that quality products remain affordable to financially vulnerable consumers.
- Industry self-regulation will remain important in many countries.



*Numbers on the map represent GOGLA members registered in country.

GOGLA activities on e-waste and circularity

What is GOGLA doing?

- Industry opinion advocates for voluntary Extended Producer Responsibility from companies.
- Work with funders to incorporate practical / realistic requirements into eligibility criteria.
- Building a library of tools, resources and guidance to build capacity within the sector.
- Convene a community of practice to share and learn.

GOGLA E-waste Toolkit

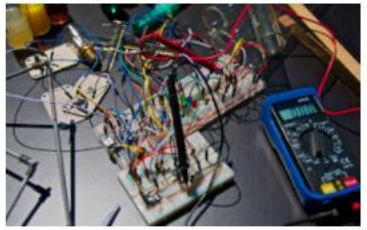
E-waste Toolkit

Off-grid solar is delivering huge social impact to customers, mitigating greenhouse gas emissions from traditional polluting lighting sources, and supporting economic development in low-income countries. As the sector grows, companies and investors are increasingly focusing on resource efficiency and lifecycle of products – from design and manufacturing to end of life. In this hub, you will find resources aimed at helping address the main challenges in setting up sustainable recycling chains. This toolkit is a work in progress and content will be added regularly as modules are developed.

Looking for additional learning materials about e-waste management in the off-grid solar sector? Download materials from the e-waste festival.

Introduction to Recycling

Module 1 is a high-level technical understanding of how each component is recycled and where to begin with identifying recycling partners. Learn more



Design for Reduction of E-Waste

Module 2 will focus on waste reduction strategies within the off-grid solar sector, looking at circular design principles and how they can be applied. Learn more

Financials of Solar E-Waste

Module 3 will look at the financials of solar e-waste by breaking down its supply chain, identifying where the costs lie and who is responsible for them. Learn more.

Policy and Regulation

Module 4 of the E-waste toolkit aims to provide a high level introduction to e-waste legislation, existing typologies and their financing mechanisms. Learn more.

E-waste and the Consumer

Module 5 focuses on the consumer experience, awareness and disposal behaviors upon product end-of-life. Learn more

Take-back and Collection

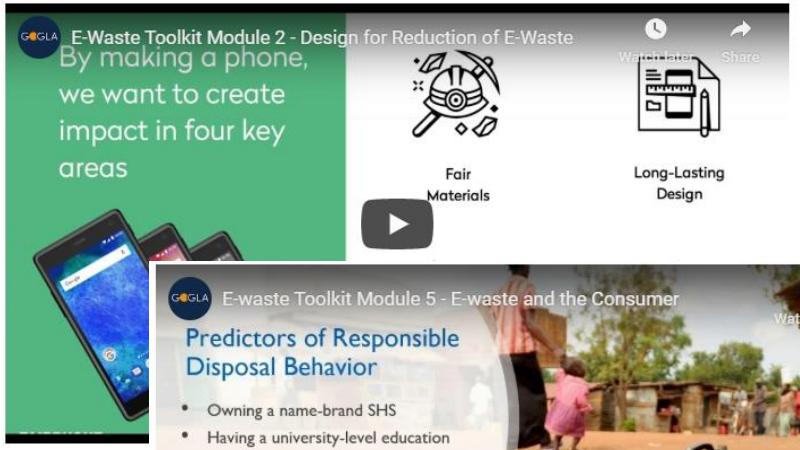
Module 6 of the toolkit focuses on take-back and collection channels, challenges and incentive. Learn more.

Objective

Identify and share best practice and develop and share resources to support companies to establish circular models and effective end-of-life management.

+ Catalogue of solar e-waste service providers.
+ Establish GOGLA Circularity Working Group (now with c.50 members).

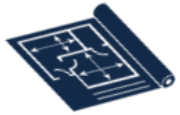
Seminar & briefing note for each module



Knowledge into practice: E-waste Business Blueprints

Circularity Toolkit: E-waste Blueprints

These E-waste Blueprints have been created to help off-grid solar companies implement and improve e-waste management across their operations. Companies are encouraged to follow the user journey and adapt the Blueprints to their business, operational, geographical and resource context.



Start here: E-Waste Blueprints User Guide

1. Assess

Use our assessment tool and conversation guide to better understand how e-waste management activities can be tailored to meet your company's goals.

2. Plan

Once your are ready to being your e-waste journey, start by building your OGS e-waste management policy, design e-waste processes and establish roadmap.

3. Execute

Find tools and resources to help you implement your e-waste management plan, including recommended KPIs, waste-processor selection and contracting, and training content.

Objective

Expand the E-waste Toolkit to provide practicable resources for e-waste management in the OGS industry.

Drive greater action by companies by providing a flexible framework for implementation of EoL management.

The project will define a suite of business blueprints to help companies activate and improve e-waste management practices. It will target vertically integrated companies, manufacturers and distributors in both more mature and emerging markets.

Kenya Solar Waste Collective: Roadmap

Feb 2020
Seven companies meet in Nairobi in Feb. 2020

May 2020
The Kenya Solar Waste Collective (KSWC) is formed

Mid-2021
Collective activities underway. Keny drafts EPR regulations.

Nov 2021
KSWC engages KAM, KEPSA and NEMA to form a single PRO initiative

May 2022
E-waste PRO for Kenya (E-PROK) is initiated.

E-PROK: Role & Aims

Operations

Achieve collection targets

Establish collection mechanisms

Implement take-back schemes

Recycling

Procure and negotiate with suitable recycling facilities

Arrange transport / logistics with recycling partners

Traceability

Audit recyclers to ensure compliance with standards

Ensure traceability of e-waste by providing recycling/disposal certificates for companies

Ensure e-waste is managed in an environmentally sound way.

Consumers

Conduct awareness and education campaigns targeting OGS consumers

Compliance

Ensure that compliance with national regulations is achieved

Support companies in filing returns/providing necessary documentation etc.

Adhere to EPR laws.

Circularity and E-waste on the Industry Agenda

Keep in touch!

Thank you for joining

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Presenter

Gemma Arthurson, IOM

Gemma has a technical background in environmental engineering, starting her career in the private sector as an engineering consultant for waste management, and soil and groundwater contamination, assessment and remediation. Since 2016 she has transferred her stills to the humanitarian and development sectors, aiming to create sustainable good change for people and the environment. She has worked extensively in the Pacific on water projects, as a facilitator of engineering in complex environments for various universities, worked as a consultant for Engineers Without Borders in VietNam and Nepal, as well as worked with MSF as Logistics Manager in Uganda in 2019. Gemma has worked for IOM in the Global Water, Sanitation and Hygiene team since 2020, where, among other things, the Global WASH Team provide technical and strategic advice to IOM's global WASH missions. The Global WASH Support Team also lead global projects and pilots, including the IOM E-waste Project funded by Innovation Norway which is what she will be presenting on today.

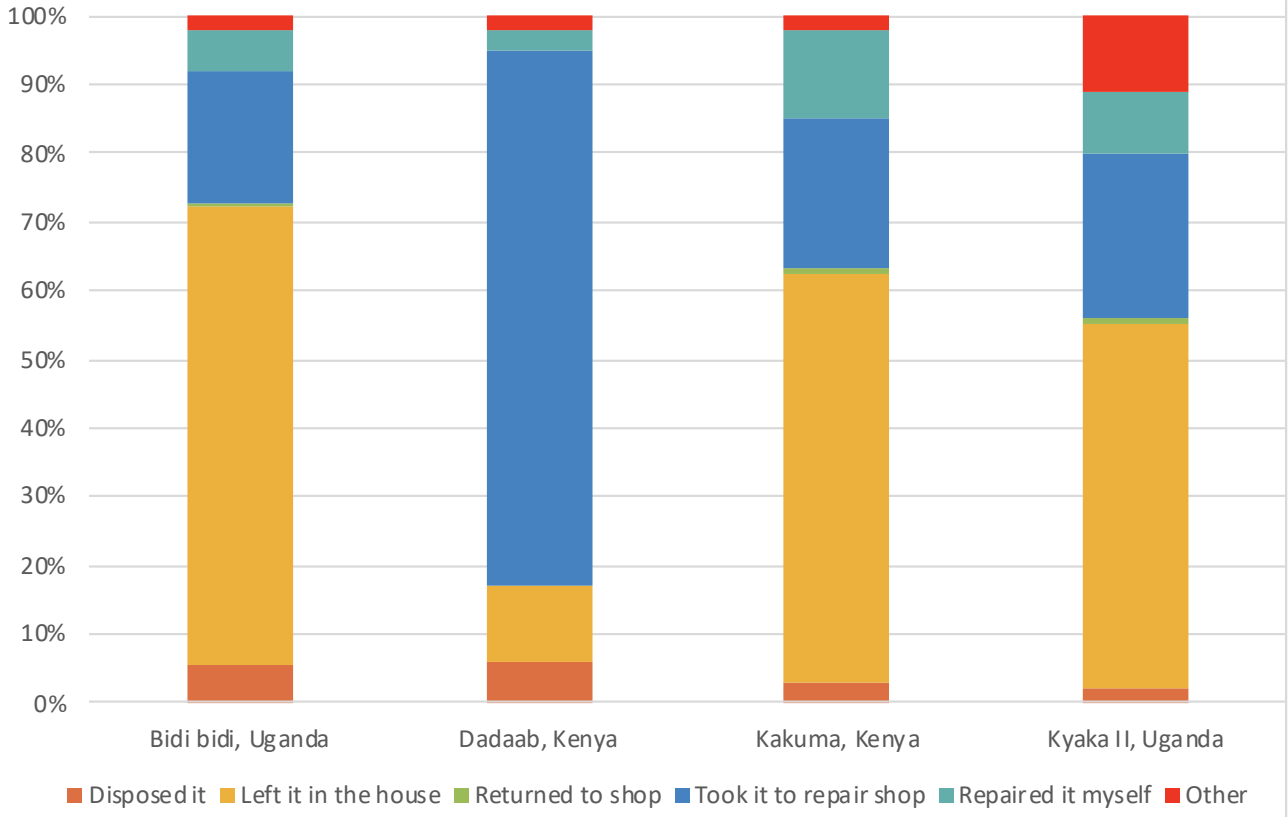
Initiative Overview - IOM E-waste Project

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.

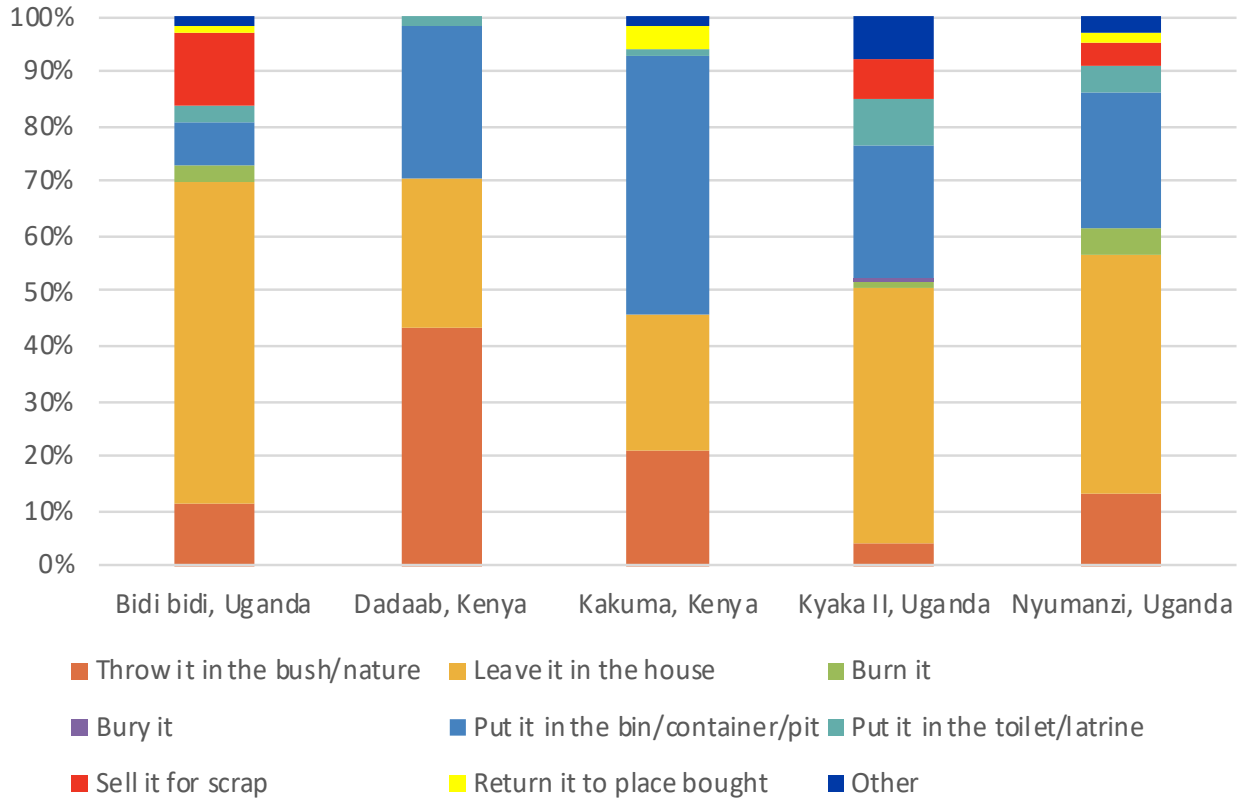
Objectives:

- 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.

What do you do when solar products are broken?



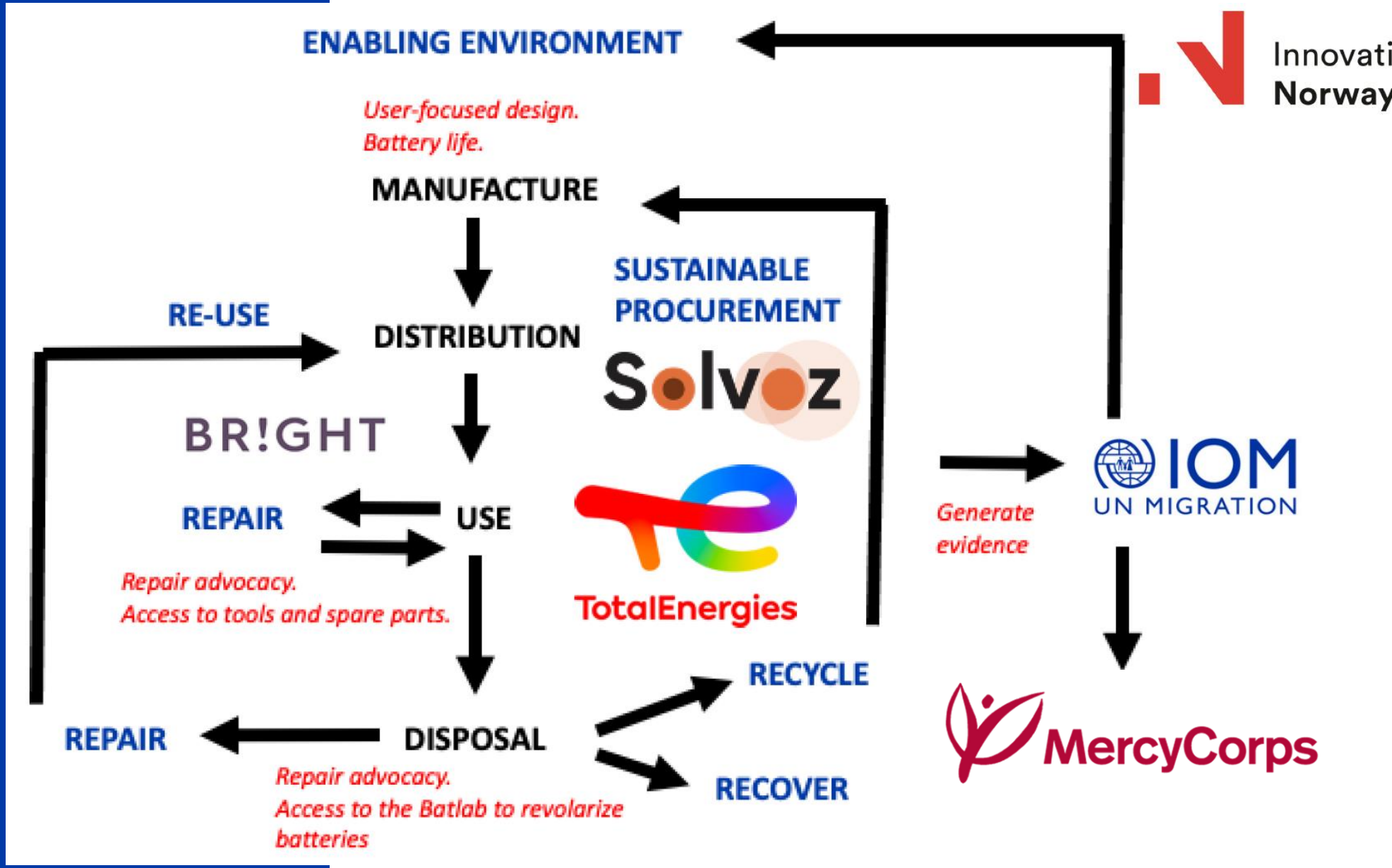
How do you normally dispose of waste?



TAKE AWAY	OPPORTUNITY
USER FOCUSSED DESIGN Solar products don't meet user needs	**Product needs assessments** prior to manufacture of products. Design of products for repairability.
BATTERIES Seen as weakest part of solar products.	Working with users to **educate** on full charging. Working with repair technicians / recycling facilities to **assess** battery life. Distributing battery boosters. Sale **exchange** of spare solar batteries the way they already do for mobile phones. Ensure batteries are **fully charged** during journey from factory to households.
REPAIR 10-20% of "failed" modules *actually* failed (OPES, market dialogue, 2020). Repair technicians have limited access to spare parts and tools (due to capital and/or availability).	Increasing **user awareness** of available repair services. Providing repair technician training and spare parts and tools. Providing spare parts with products. **Enhancing procurement policies** to encourage contracts with solar manufacturers who offer repair services and extended warrantees. Exploring **cash-based interventions** for solar repairs to encourage repair over disposal.
RECYCLING Currently not encouraged given its low value for money when not at scale.	Facilitating **assessment of defective stock** for use as spare parts. **Re-purposing** of batteries through boosting, testing and producing "new" battery packs.


IOM
UN MIGRATION
"There is a way to do it better - find it."
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.
Kakuma refugee camp, Kenya
IDEAS
LOCAL FACILITIES FOR DISASSEMBLY AND RECYCLING
CAPACITY BUILDING IN REVERSE LOGISTICS
TRAININGS
- needs and strategy; reuse at school university
CREATING WORKPLACES
RAISING AWARENESS
Changing mindsets
· Dismantling
· Creating workplaces
· Fixing what's' broken
· Spare parts in
· Unrepairable waste - out
LOCAL FACILITIES
WASTE MANAGEMENT; REPURPOSING
LOCALISATION
Choosing local companies as partners
GOGLA STANDARDS FOR COMPONENTS
Come up with GOGLA recognised standards for components to be used in products of similar size by different manufactures to make repair easier through the same size of battery or other parts of similar products
REPAIR - REUSE - RECYCLE
Convince manufacturers and standard sector people to implement changes
MANUFACTUTING
DESIGN
REPAIR
Green Procurement
1 year loan
LEASING THE SERVICE RATHER THAN BUYING THE PRODUCT
MANDATORY CONTRACTING AND PROCUREMENT
Service and maintenace contracts in place, when buying new products
LEASING THE SERVICE
rather than buying the product - paying for the use of the product
PRODUCTS that fit Circular Economy
and meet the need of people
VALUE CHAIN ANALYSIS
RESULTING IN GOOD PARTNERSHIPS
Habits, cultural issues, external concerns
Identifying better challenges. Mapping the environment / process
finding opportunities within the value chain to prescribe the solutions for Upstream (production) - Downstream (Use)
SMART

Partnering for a circular economy solution

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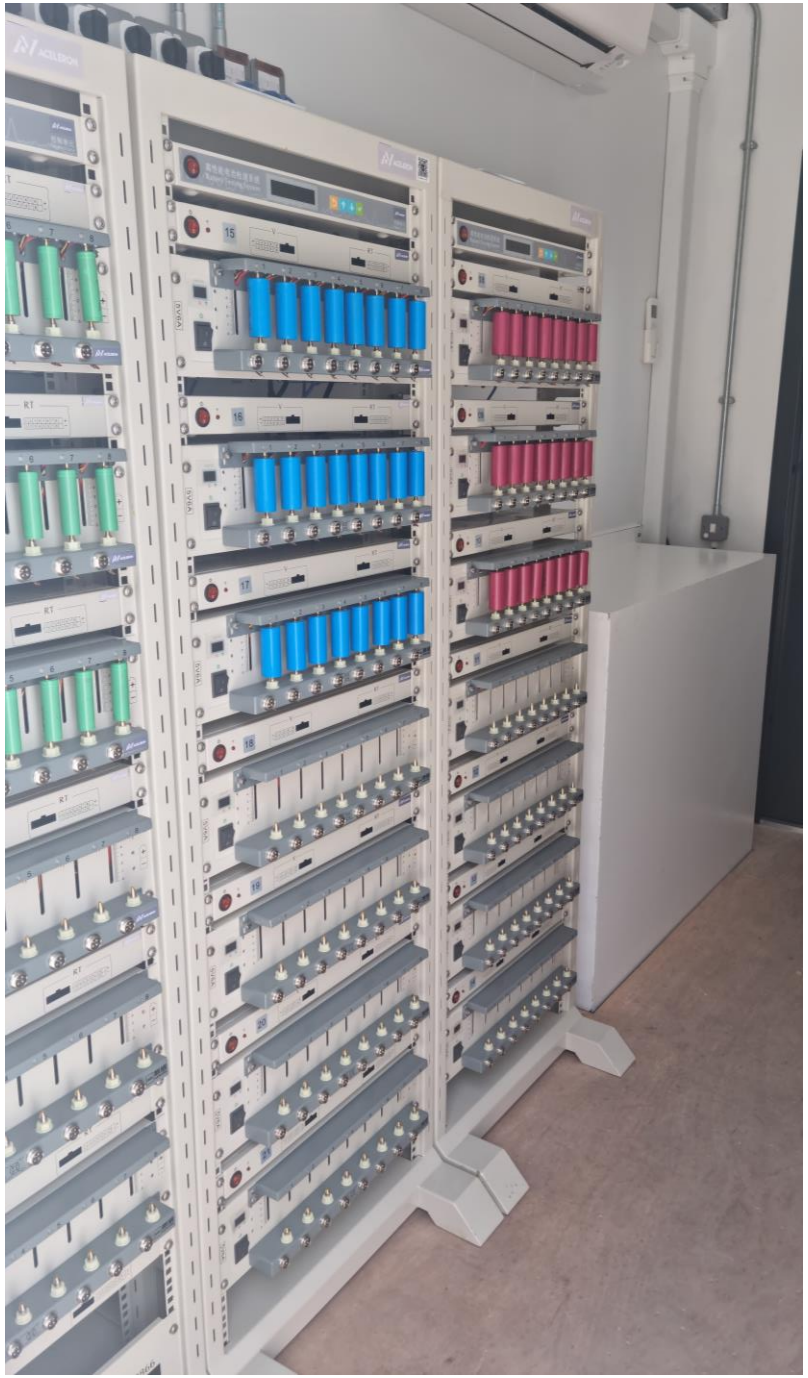

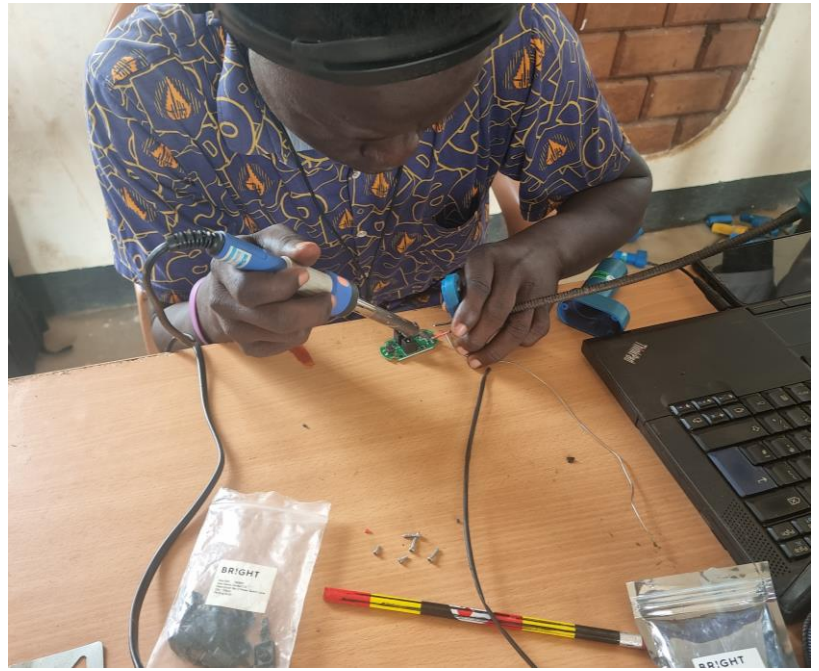
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Sustainability

- Policy - Regulatory and legislative environments are continuously changing – adaptive programming required.
- Market and feedstock access to ensure financial sustainability.
- Willingness to pay.
- Innovative finance for scale?
- Behaviour change and incentivization.
- Embedding technical knowledge.
- Ensuring a business operation that allows for deployment, ownership, support of existing users, and continued evolution.

Challenges and opportunities

- Creation of a culture of innovation between private sector companies.
- Attracting the right partners.
- Influencing manufacturers - user needs being met with manufacture design, and ability to repair.
- Logistics.
- Ensuring full stakeholder engagement – Government, district officials, local private sector, UNHCR, other camp actors.
- Advocacy at the global level.
- Influencing sustainable procurement.

Scalability potential

- What would ensure uptake at a local level in each setting (e.g local leadership and ownership, external support, understanding of issue, willingness to pay, security, infrastructure, access, supply chains, cultural preferences?)
- What customization might need to be considered for each context?
- What policy/legal barriers exist in each setting and how would this impact scale?
- Could this innovation be combined with other innovations/projects, creating synergies that multiply its impact in each setting?
- What are the barriers and opportunities for a) behavior change, b) influencing government policy and c) availability of relevant markets to create a circular economy?
- What type of systems changes are required?

Poll


Q&A

Thank you

- Feedback: **info@energypedia.info**
- Webinar documentation: https://energypedia.info/wiki/Webinar_Series_on_Understanding_Ewaste_Value_Chain_in_Humanitarian_Settings
- Register for the second webinar on navigating the policy landscape for e-waste management: https://register.gotowebinar.com/register/1303420882632900878