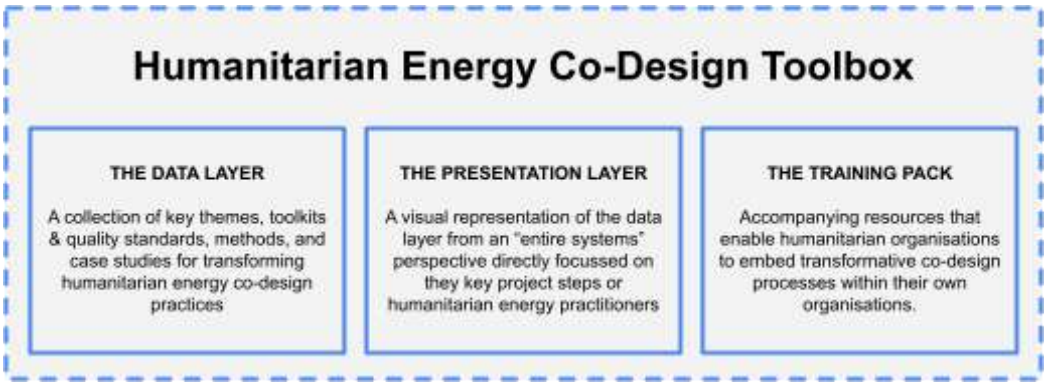
Co-Design Toolbox
An Introduction to HE Co-Design

Outsight International Energy Team
EnAccess Foundation



This document contains a short introduction to the concept of and practical application of Humanitarian Energy and Co-Design processes. We additionally provide significant detail around the Spectrum of Co-Design, a critical element of humanitarian energy co-design - and the core concept for this toolbox. Finally, we provide information about how this toolbox was created and the key definitions on which it was built.

Humanitarian Energy: A Short Introduction

In recent years there has been a significant rise in the number of modern, reliable, and sustainable energy projects (IEA, 2023). Yet, the vast majority of the 110 million forcibly displaced do not have access to these energy systems and services - where it is possible to quantify this number, in formal refugee camps, 94% of displaced people [...] do not have access to electricity and 81% rely on firewood and charcoal for cooking (Rosenberg-Jansen and Al-Kaddo, 2022). Since this quantifiable target was first recorded, by Lahn and Grafham (2015), this percentage has increased from 90% - whilst the number of energy projects and programmes for the forcibly displaced has significantly increased, it cannot keep pace with the exponential increase of people forcibly displaced from their homes. For those interested in a detailed overview of the governance and coordination, policy and access to clean energy, funding and financing, delivery and technical capacity, evidence and data, climate action and decarbonisation, and practical tools and inclusive access for the humanitarian energy selector, Rosenberg-Jansen and Al-Kaddo (Rosenberg-Jansen and Al-Kaddo, 2022) provide the most comprehensive and up-to-date overview of the sector.

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Humanitarian Energy Definition

"Institutions, policies, programmes, global initiatives, actions and activities which use a range of sustainable and fossil fuel energy sources in contexts of displacement, to meet the energy needs of people in camps and urban settings, self-settled refugees, host communities, and internally displaced people. Including the use of a range of energy sources across all contexts of displacement, and the energy needs of people in camps and urban settings, self-settled refugees, host communities and internally displaced people. Humanitarian energy displacement covers needs during emergencies and protracted situations, and all populations impacted by war, famine, violence and persecution, climate change, and natural disasters"
Rosenberg-Jansen and Al-Kaddo (2022)

Humanitarian Energy projects, such as ESDS @ giz, RE4R @ Practical Action, AMPERES @ Mercy Corps, and Building a Marketplace for Sustainable Energy @ IOM, are leading the way in best practices for this fast-emerging sector (more projects can be found on energypedia's Humanitarian Energy Hub) - however effective, inclusive, and needs-led humanitarian energy programming is not yet mainstreamed to the rest of the humanitarian sector and the wider international development community. We all understand the importance of these modern, reliable, and sustainable energy systems and services to build resilient energy communities. Within this context, Outsight International and the EnAccess Foundation want to provide an open-access toolkit that shows how to co-design humanitarian energy systems and services. This toolkit will enable practitioners (and policymakers) to embed key voices into decision-making processes, ultimately to mainstream inclusive, sustainable, and ethical energy design processes. In addition, we want to utilize a systems approach to multidimensional problem-solving to ground our work within the humanitarian energy ecosystem. Whilst systems approaches require additional information to be collected to understand the complete system, it will enable this work to be easily applicable to various stakeholders across the ecosystem. In this project, we directly address knowledge gaps around the lack of end-user engagement to provide a toolkit for humanitarians to co-design inclusive, participatory, and transformative energy systems and services that recognize and respond to the needs and aspirations of FDPs. Ultimately, enabling FDPs to shape their own energy futures.

Definitions of Co-Design for Humanitarian Energy

In looking to define co-design we recognise the difference between theoretical definitions and how these concepts are implemented by practitioners. Whilst this work looks to close this theory-practice gap, often terms are misused as buzzwords to grab attention rather than facilitate meaningful project activities, outputs, outcomes, and impacts. Co-Design is one of these slippery terms that shifts, slides, and reshapes itself depending on the intentions of its users as well as the environment in which it is implemented.

According to Burkett, co-design is about engaging consumers and users of products and services in the design process, with the idea that this will ultimately lead to improvements and innovation (Burkett, 2018). The co-design approach builds upon two traditions: Participatory Design (PD) and User-Centred Design (UCD) (Antonini, 2021). The participatory design was shaped as a model aimed at investigating, understanding, reflecting, establishing, developing and supporting mutual learning between multiple participants in collective reflection-in-action (Schön, 1994). On the other hand, the User-Centred Design originated a decade later as a method aimed at increasing the effectiveness of design, with the aim to provide insights on users' needs and desires (Pea, 1987). As a collaborative design process, co-design is inclusive of multiple stakeholders who work together

to develop solutions that meet their needs within the humanitarian system this means - refugee communities, humanitarian agencies, development organizations and the private sector (Rosenberg-Jansen et al., 2019).

For the humanitarian energy sector, Robinson et al. (2022b) created the spectrum of co-design to start the processes of connecting the multitude of buzzwords (and sub-definitions) often associated with co-design; participatory, inclusive, locally-led, and capacity building just name a few - in this case the process of co-design is defined as: *"the integration of displaced people's needs and aspirations into all elements of the project cycle to determine how cooking, heating, lighting, cooling, and mobility needs are met with modern, sustainable and efficient energy services in an ethical, sustainable and just transition"* (Robinson et al., 2022b)

MIT D-LAB (2023) - "Co-design brings diverse stakeholders together, including beneficiaries, to collaboratively create solutions to locally defined, poverty-related challenges".

Robinson (2023) - "In its simplest form, co-design looks to better align the expectations of affected populations with the assumptions of humanitarian innovators".

Iniesto et al. (2022) - "Co-design is bringing all important stakeholders including end-users, experts, policymakers, and energy practitioners together with equal respect, combining their knowledge and experience with the shared aim of improving modern and sustainable energy services in humanitarian settings where end-users are no longer seen as passive recipients"

Within this toolbox, we look to evolve the basic principles stated by Robinson et al. (2022b) whilst incorporating other definitions to provide the universal co-design definition for the humanitarian energy sector:

Humanitarian Energy Co-Design

A collective group of approaches that look to effectively communicate the complexity of socio-cultural, financial, and environmental implementation ecosystems. Resulting in the meaningful inclusion of, and equitable collaboration with, FDPs to unlock complex energy needs, wants, and aspirations.

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In Detail: The Co-Design Spectrum

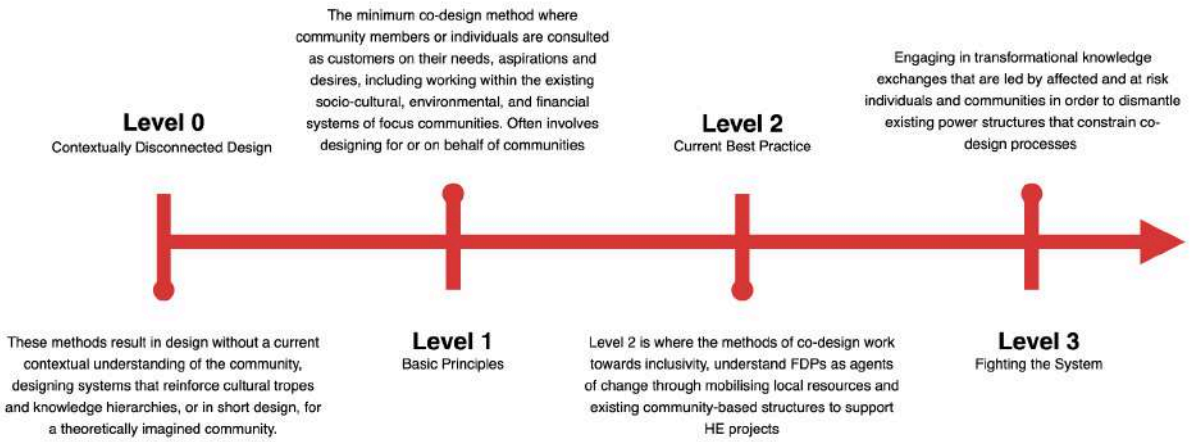

Figure 1: The Co-Design Spectrum (Adapted from Robinson et. al (2022))

Co-Design is a slippery term which shifts, slides, and reshapes itself depending on the intentions of its users as well as the environment in which it is implemented. For the humanitarian energy sector, Robinson et al. (2022b) created the spectrum of co-design to start the processes of connecting the multitude of buzzwords (and sub-definitions) often associated with co-design; participatory, inclusive, locally-led, and capacity building just name a few. Building on this approach to co-design, this project collected reports, publications, case studies, and toolkits.

Level 0 - Contextually Disconnected Design (Don't do this)

What is the Purpose of this Level?
The purpose of this level is to show practitioners what project processes look like when the group of approaches (we call co-design) are sidelined by other priorities. Often, these contextually disconnected design processes occur when practitioners find themselves constricted by externalities, i.e. there is no funding for co-design processes or there is not enough time to better understand content (and thus standardised response plans are used).

Who is this Level for/where can it be applied?
As Level 0 represents less than the minimum engagement for co-design processes we do not recommend practitioners engage with this level. This level represents bad co-design practice.

When engaging with Level 0, practitioners, and other key humanitarian stakeholders, often reinforce problematic power structures that marginalize the needs, wants, and aspirations of forcibly displaced communities by actively treating dominant (often euro-centric) hierarchies of knowledge and knowing as universal (Kanakulya and Sondarjee, 2023; Mustafa, 2023). This often results in projects that have limited use for forcibly displaced groups and have limited sustainability within the wider humanitarian energy system. Whilst this is all echoed by Robinson et al. (2022b), there are opportunities for innovation in this level of co-design that can alleviate the pressures on humanitarians so that they can focus on developing projects and programmes that engage more actively with the other co-design levels. Roane (2023) outlines how AI language models, such as ChatGPT, have the potential to be used in basic stakeholder mapping exercises, such as “create a list of women-led local organizations in Syria” - however, currently these AI models are only as good as their inputs and often mislead users, it is not a replacement for contextual knowledge of a humanitarian setting.

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Level 1 - Participatory Design (Basic Principles)

Key Characteristics of Level 1.

- Listening to the needs, wants, and aspirations of forcibly displaced groups. This can be through surveys, focus groups, or individual interviews at the beginning of the project with no follow up engagement.
- Designing "for" or "on behalf of" forcibly displaced groups.
- No inbuilt feedback mechanisms that can affect the outcomes of the immediate project (not the next one with a different group or community).
- Often implemented by large national or international NGO's/UN Agencies

Who is this Level for/where can it be applied?
This type of co-design methodology is currently being mainstreamed across the humanitarian sector. When an onset crisis developments, humanitarians conduct rapid needs assessments, design programs that react to these needs assessment, deploy or implement the programs, evaluate (often using an external consultant), and continue onto the next challenge to solve.

The "humanitarian system is incompatible with the fundamental theoretic principles of co-design as it is designed to deploy rather than listen" (see the Humanitarian Innovation Support Library article on Co-Design written by Dr. Benjamin Robinson for more). It's a strong statement and one that many practitioners are aware of and recognise as the single biggest challenge of implementing meaningful co-design methods. Level 1 (on the co-design spectrum) is the first step in creating a transformational humanitarian system that listens and responds to the needs, wants, and aspirations of forcibly displaced groups. Whilst this level does not represent best practice, it can provide humanitarian organizations with an entry point into a translation to more meaningful and transformative co-design processes.

Some Key Questions to ask yourself:

- Community engagement - at what stage in the project cycle are you being participatory? If you only have one engagement is this the best time to engage?
- Are we confusing reflective practice with participatory data collection?
- Are you looking to generate large-scale insights (across 100's or 1000's of households) or specific contextual insights from a smaller number (10-20) of households?

Level 2 - Inclusive Design which results in Agency (What's currently possible)

Key Characteristics of Level 2.

- Designing "with" forcibly displaced groups based on learned understanding of contextual needs, wants, and aspirations. Usually with a more qualitative data collection approach.
- Understanding and recognising "the people with the most knowledge about the energy needs of the displaced in protracted humanitarian responses as the displaced people themselves" (Robinson et al. 2022)
- Including forcibly displaced groups as agents of change, recognising diversity of experience.
- Providing opportunities for modifying implementation goals based on changing socio-temporal needs of forcibly displaced groups

Who is this Level for/where can it be applied?
This level of co-design required a fundamental shift in how practitioners recognise the knowledge and value of the lived experiences of forcibly displaced groups. By recognising the critical importance of these factors, humanitarian actors will start to rebalance decision making structures so that they become equitable between all stakeholders (FDPs and other). This is the current realisting and aspirational goal of many humanitarian actors.

Level 2 is where co-design methods step past tick-box exercises and start to become meaningful to forcibly displaced groups and the humanitarian practitioners that stand between strategic and programmatic priorities. This is also where humanitarian practitioners start to meaningfully engage with the ecosystem that supports the enabling environment for sustainable and long-term energy programming (including taking into account previously underserved groups) - additionally, market-based approaches to unlocking modern, sustainable, and reliable energy systems and services become increasingly viable through this entire ecosystem's engagement. Often this type of approach results in the need for greater resources to be invested in capacity building, sharing, and development of both local, national, and international humanitarian actors as well as the forcibly displaced themselves - especially as

many forcibly displaced persons have negative (and sometimes exploitative) experiences with humanitarian stakeholders.

Some Key Questions to ask yourself:

- Do you understand who are the key stakeholders within the system that you are working with?
- Are donors prepared to relax pre-determined results-based metrics to be more led by the priorities of the forcibly displaced?
- Think who is benefitting from this decision (Robinson et al., 2022a)

Level 3/3+ - Localisation V2 (Fighting the Systemic Challenges)

To be transformative, to fight for systemic change, and to fundamentally modify the building blocks of the humanitarian system, we must envisage systems that solve the multidimensional and complex wicked problems that stand in the way of a different future. Level 3 (and beyond through level 3+) represents a challenge to the systemic challenges that constrain meaningful and transformative co-design process integration and mainstreaming resulting in the ultimate accountability to the forcibly displaced.

Key Characteristics of Level 3/3+.

All characteristics of Level 2, plus:

- A willingness to transfer both funding and decision making power (inverting traditional knowledge hierarchies) to local actors and forcibly displaced groups themselves.
- Active engagement with postcolonial methods of working (rethinking and reclaiming the agency of marginalised groups) that contribute to the decolonisation of the humanitarian sector.
- In the context of energy, ensure access to modern, sustainable, and reliable energy systems and services are a pathway to distributional energy justice.

Who is this Level for/where can it be applied?
The unfortunately reality is that whilst Level 3 (and whatever comes next - Level 3+) are the conceptual ideal of co-design, structural barriers currently remain to practically implementing these methods. To be applied humanitarian practitioners must challenge their own organisations ways of working to create a systemic change in how the humanitarian sector operates.

The localisation agenda, set by the Grand Bargain in 2016, was potentially one pathway to a transformational agenda but has since failed to provide the change needed (Metcalfe-Hough et al., 2021). Level 3 looks to provide a viable pathway to localisation (called Localisation V2) through the creation of transformative knowledge exchanges that target the structural and system barriers to a sector led by the voices of the forcibly displaced. These transformative knowledge exchanges include meaningful discussions on the productive use of energy (not only as an income generator) as a possible pathway to distributed energy justice (Jenkins et al., 2021). It engaged with true accountability to forcibly displaced populations. It supports local leaders in localisation processes, and ultimately engages with systemic issues that have resulted in the stalling of the localisation agenda (Barbelet et al., 2021; HAG et al., 2023) - the structural neocolonial nature of the humanitarian agenda.

Some Key Questions to ask yourself:

- *How does my understanding of knowledge differ from understandings from different perspectives?*
- *Do I understand the core principles of decolonisation?*
- *Am I actively listening to forcibly disabled groups, and always acting in their interest?*

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Our Approach to Developing this Toolkit.

Guided by the Energy Team's experience within the Humanitarian energy sector, and leveraging relevant search tools[1] with key search terms[2], a long list of articles, papers, tools, reports, blogs and other sources were collected. This included deep dives on specific organizational websites (GPA, UNHCR, SNV, Practical Action, energypedia, endevGIZ etc.) to ensure no documents were missed. This desk-based review was supported by key stakeholder interviews with, but not limited to, country office representatives at the GPA, GIZ (EnDev), UNCDF, SNV, CARE International, Save the Children, African Clean Energy, Mercy Corps, NORCAP, UNHCR, World Resource Institute, GPA, Practical Action, and IOM. However, we recognise due to the fast-changing nature of the humanitarian energy sector some resources will not be included if published after our literature search. This process resulted in five key Categories - Basic Resources, Advanced Resources, Tools, Toolkits, and Case Studies. The **Advanced Resources** are further divided into 10 sub-categories - Artificial Intelligence & Machine Learning, Capacity Building etc., Decolonisation, Disability, Gender, & Inclusion, Humanitarian Principles?, Localisation, Partnerships, Policy, Scale & Replicability, Systems Approach to Energy Access. The **Tools** focus on specific methods and are divided into 6 sub-categories - Qualitative Basics, HCD & Design Thinking, Behaviour Change Approaches, Participatory Approaches, Multidisciplinary Approaches, and Technical Approaches. Finally, both the Toolkits are divided into core toolkits and supporting toolkits. The definitions of these terms are found in the following pages.

Definitions

Data/Presentation Layer Categories

Basic Resources	is defined as documents that contain the key information for practitioners to quickly understand the core principles of co-design processes. This folder has been created by distilling all the information within the data layer folders.
Advanced Resources	This group includes published articles, papers, and resources as well as other documents, policy notes, webinars, and databases that are outside of the traditional publishing venues. These resources (organized into themes in the Zotero library) provide all knowledge relevant to the theme of co-design for Humanitarian Energy. The basic resources folder contains the 18 key resources from this group that provide critical information for practitioners wanting to implement a number of co-design best practices.
Basic Tools	The basic tools section includes the core documents for introducing users to the theoretical basics of qualitative research methods (including field guides and basic theoretical explanations).
Advanced Tools	Advanced Tools includes a range of advanced publications that directly relate to relevant qualitative research methods providing practitioners with detailed (and contextual) applications of specific qualitative elements.
Toolkits	Toolkits are grouped into: • Quantitative Toolkits - these are technical "calculators" which provide specific outputs or recommendations based on user inputs, for example, the RERT tool suggests a number of energy technologies in the refugee camp setting based upon several criteria that the user has to input. • Qualitative Toolkits: this includes practical qualitative (or methods-based) quality standards, handbooks, workshops, exercises, and training that equip users/practitioners with skills that they can then apply to their own projects and/or programmes.

[1] Such as Scopus, Science Direct, GhatGPT, Connected Papers, basic google searches.
[2] Search terms such as: "humanitarian energy", "energy access and refugees", "tools for humanitarian energy access", "co-design + energy access", "humanitarian energy practitioners", "case studies in humanitarian energy", "end-users + energy access in humanitarian energy" - to give the short list.

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Key Themes Definitions

Key Theme	Co-Design Level	Short Summary
Artificial Intelligence & Machine Learning	0	AI can be leveraged to create content to amplify local voices, navigate complex funding mazes, and minimise legal and administration costs that slow action - but it cannot replace human interaction or trusting partnerships.
Capacity Building, Development & Sharing	2,3	Capacity building evolves in the co-design spectrum to transform skills and knowledge to foster effective responses for sustainable solutions. It allows humanitarian practitioners to meaningfully engage with communities and provide opportunities to aid transformative solutions.
Decolonisation	3	Decolonisation reflects a just transition to rebalance power among the various stakeholders in the humanitarian sector. The theme looks at the stages of transformation in power imbalances, and decolonising aid and highlights the need for systematic changes in how the humanitarian sector operates.
Disability, Gender, & Inclusion	2,3	Inclusion calls for equal participation and representation of vulnerable and marginalised groups despite differences in ethnicity, gender, disability and identity among others. This theme reflects the importance of inclusive design approaches and active engagement in creating inclusive policies.
Humanitarian Principles?	0,1,2,3	Grounded through the core Humanitarian Principles, this theme looks to understand and explore the humanitarian principles, within the context of “do no harm” and “ethics” based approaches to working with vulnerable groups to ultimately connect to the wider topic of energy justice (and just transitions).
Localisation	3	Formally recognised by the Grand Bargain, localisation engages local and national actors in all phases of humanitarian action. This theme supports localisation processes which include the voices of the forcibly displaced in leading in the sector.
Partnerships	1,2,3	Partnerships, and collaborations between humanitarian organisations, provide the fundamental core of every humanitarian response. This theme tracks the evolution of partnerships from extractive to transformative, shifting decision-making power to forcibly displaced groups themselves.
Policy	0,1,2,3	The theme of policy addresses the challenges and opportunities of frameworks that address humanitarian issues. This theme cuts across all the co-design levels as it includes participatory approaches, inclusive designs and localisation processes to enable sustainable interventions.
Scale & Replicability	1,2,3	Whilst the idea of replicability (the ability to copy and paste using the same resources) is embedded in many humanitarian organisations, true scalability is often reserved for the private sector - how can the two learn from each other to create more effective and efficient humanitarian programs?
Systems Approach to Energy Access	1,2,3	Engaging with entire systems approaches requires humanitarian practitioners to challenge and rethink how to interact with the humanitarian systems that surround them. This outlines what needs to change and how.

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Tools Category Definition

Tool Category	Short Summary
HCD & Design Thinking	Human-Centered Design & Design Thinking combine to produce a problem-solving methodology which captures the wishes of a centralised user group and encourages significant ideation.
Multidisciplinary Approaches	Multidisciplinary approaches blend different disciplines to approach problems from multiple perspectives (B. Robinson, 2023).
Participatory Approaches	Participatory Approaches cover a wide range of qualitative research methods which look to include participants throughout project processes. These include phenomenological, photovoice, participatory workshops, mapping, and hanging out methods to name a few.
Behaviour Change Approaches	BCA's look to understand and unlock the how, why, and when of energy system and service adoption from an end-user or individual perspective.
Technical Approaches	Technical Approaches engage with energy systems and services through a technical lens. We have chosen to only include technical approaches which also integrate the wider socio-cultural, environmental, and financial context.

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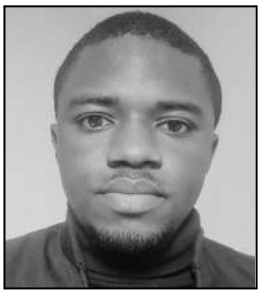
Dr. Benjamin Robinson
Energy Team Lead

Nyayow Deng Chuol
Energy Associate

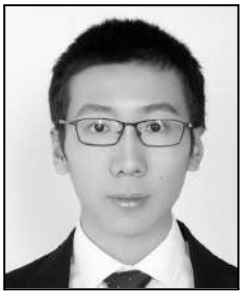
Dr. Yohannes Aermo
Jr. Energy Associate



Paddy Bakengana
Jr. Energy Associate

And supported by:

Louis Potter
Co-Founder



Bo Jia
Intern

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