Voices in the Dark:
Energy and the Politics of Living in Refugee Camps

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Abstract

This thesis examines two central issues: firstly, how energy is valued and perceived by refugees and humanitarian practitioners, and, secondly, how energy is accessed and governed in refugee camps. It draws on empirical evidence collected from households, enterprises and humanitarian operations in Kenyan and Rwandan camps to argue that energy is of critical importance for refugee life. The thesis shows how energy is valued for social and practical reasons, with refugees often finding and securing their own access to energy. Small and informal enterprises within camps are the main providers of energy access for refugee homes and businesses, especially when institutional actors fail to meet needs. Within community facilities and humanitarian operations, provision of energy is intermittent and often absent. While refugee users and enterprises are aware of the value of energy, humanitarians undervalue its importance. Using a theoretical framing centred around the politics of living, the research critically questions the role of humanitarian agencies and argues that energy in camps is always political. In other words, humanitarians make choices about the distribution of resources and access to energy in a way that restricts energy activities and this has notably political effects.

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Dedication

For Andy Ward, as always.

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While conducting this research, I have also been lucky enough to publish some of the empirical material as I went through the DPhil process. As a result, a version of chapter two has been published as part of an edited collection on Energy Access and Forced Migration (Rosenberg-Jansen, 2020). Parts of the section in chapter two on local governance and energy projects are also published in a summary of energy technologies in refugee camps (Rosenberg-Jansen, 2018a). Similarly, small sections of the empirical chapters have been published in review articles and reports alongside writing up of the thesis (Rosenberg-Jansen, 2019, 2018a, 2018b; Rosenberg-Jansen et al., 2019). All photos within the text were taken by myself during fieldwork: these were either taken with the permission of household members or were of public spaces. Thanks to funding support from the Fredrick Soddy Award of the Royal Geographic Society and the Oxford Refugee Studies Centre Swiss FDFA impact funding.

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Chapter 1. Introduction: Energy Research in Refugee Camps

Introduction

Energy runs through every aspect of our lives: it is the golden strand underpinning the use of all our appliances and technologies. Within the room where you are reading this there are lights and electricity, heating or air conditioning. Close by there is almost certainly a computer, power for your television and radio, and a socket which you can use to charge your mobile phone. In the kitchen there is a cooker, stove, kettle or microwave to help prepare food and warm drinks. Underneath it all, the national grid murmurs and grunts away to provide power for offices, universities, hospitals, schools, and businesses. Energy is not just the sparks of electricity or the burning of cooking fuels, it is the cold beer with friends, the warmth to heat homes, it is the sustenance provided by a cooked meal, it is the electronic click of pressing submit on a journal article. Without energy, our social rituals and professional outputs start to fall away: life becomes a daily physical struggle to stay warm or cool and find fuel to cook with. Energy is widely considered essential for modern life in the western world, but the same is not necessarily true for people living in refugee camps. The overarching aim of this research is to change perceptions on energy access in refugee camps by documenting the energy lives of refugees and analysing how humanitarian systems are trying to provide energy access.

Energy is not considered to be an important issue within humanitarian contexts. While quantitative and technical programmes are currently being designed by aid agencies and their partners, they often fail to incorporate the needs or experiences of refugee communities (Grafham, 2020). To address this problem, it is necessary to listen to refugee voices and understand the experiences of the wider humanitarian community, to develop inclusive humanitarian planning and to explore how policies and programmes have impacts on the ground. Some humanitarian energy policies and institutions claim to provide energy for refugees and are starting to recognise energy access as an important issue (UNHCR, 2019a; UNITAR, 2019). My work problematises the notion of humanitarian provision of energy for refugees by asking: how is energy viewed and accessed in humanitarian settings by households, enterprises, community facilities and operations?

This problem is analysed by using qualitative and ethnographic methods to understand how energy is valued by refugee communities and practitioners, and by assessing how humanitarian systems support (or fail to support) access to energy. By focusing on values and conceptions about energy, my thesis focuses in particular on people whose views and experiences are rarely heard when it comes to energy in refugee camps: the ‘voices in the dark’ of my title.

Access to energy has not traditionally been considered as a basic human right when responding to humanitarian emergencies (UNITAR, 2019). Importantly, energy is not formally part of the humanitarian cluster system, possibly because energy needs are placed at the bottom of the urgency list in the haste to respond (Bellanca, 2014). Millions of displaced people are without energy during emergencies and protracted crises, and, although initial policy research has developed some quantitative information about the amount of energy refugees consume and the sources of energy available in camps and displaced urban settings (for example, the Moving Energy Initiative 2017 analysis), qualitative research on refugee energy use is rare. It is therefore essential to explore not only energy supply, but also how energy is understood and valued.

My research focuses on views about energy: how energy is understood within refugee settings, what people value about energy access, and how energy is owned and governed in refugee camps – with particular focus on camps in Rwanda and Kenya. There are two core research questions underpinning the thesis: (1) How is energy valued and perceived by refugees and humanitarian practitioners? and (2) How is energy accessed and governed in refugee camps? Answering these questions is important because it allows us to understand the role that energy plays within the lives of both refugees and humanitarians. To date, energy has been seen as of secondary importance within humanitarianism, but experience in the field suggests this is far from the case for refugee communities. Therefore, it is also important to critically analyse how energy is being used and who supplies energy services.

To analyse these research questions, I collected data in Kenya and Rwanda as well as from global policy-makers between 2016 and 2019. The research involved over one hundred and twenty interviews. Data collection included observation at, and participation in, global and national sites of inquiry – such as the workshops where humanitarian energy policy is constructed in Geneva, New York, and London. A detailed, qualitative approach was taken to collecting data in the camps, involving everything from informal chats, to walks through camp spaces, to in-depth ethnographic-style interviews. With global policy-makers, semi-structured interviews and observational methods were used to collect a range of material from within the practitioner community. The voices and stories presented in the thesis reflect these interviews, experiences within the camps, and the views presented by policy-makers. Listening to the voices of displaced people themselves while being ethically aware of people's vulnerabilities and understanding multiple stories and voices from within these communities has enabled an assessment of how energy is accessed within camps and how energy is considered by humanitarians.

Justification for the Research Topic: Why Study Energy in Refugee Camps?

Research Problem

Humanitarian energy is a relatively new policy arena. As such, it has not yet been clearly defined, and one of the contributions of my research is to provide clear definitions and a description of the sector. Currently, humanitarian energy is a broad concept, often defined as the "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" (Rosenberg-Jansen, 2020, p17). The field is a nascent one, with the first substantive action on sustainable energy only starting five years ago (Lahn and Grafham, 2015). Previously there has been a lack of detailed considerations of energy needs within displaced settings. It is generally assumed that expensive diesel generators are provided to camp operators and refugee communities are given small amounts of firewood to cook their food. Refugees find energy by whatever means possible – buying small kerosene lanterns, collecting firewood and using old batteries – but many people still live in the dark, without cooling, heating or access to electricity.

As well as limited humanitarian work on energy, there is also limited academic research on this topic. My research fills this gap by qualitatively examining *how* humanitarian energy is happening on the ground in refugee camps. This includes studying how refugees access energy and how the humanitarian community support them in securing this access – building on the work of Abramowitz and Panter-Brick on 'ethnographies of practice' (2015, p10) to understand how these groups act in concert. As Mosse (2006) pointed out over a decade ago, there is a need for academic research that provides detailed, nuanced understandings of the role of actors and institutions within the aid and international development sectors. Accessing energy policy is a black box, the decisions, actions, and processes of which are not visible to external parties. This is a problem because, if we do not know what energy programmes are designed to do, they cannot be constructively criticised or be adapted to be more inclusive. Many humanitarian policy communities are judged as being 'successful' and influential because they enlist stakeholders and generate funding for a specific humanitarian area rather than being evaluated on more substantive ways that improve the lives of refugees (Buchanan-Smith, 2003; Heeks and Standforth, 2013). Moreover, emerging evidence suggests that humanitarian agencies have a limited role to play in delivering energy solutions on the ground (Grafham, 2020).

This research, therefore, starts from the observation that there is very limited information about how people value or view energy in refugee contexts, how energy in refugee energy camps is provided, which actors are involved, or how energy is accessed. To address this problem, my thesis will look at both the lived experience of refugees and the nature of energy delivery in the sector, with a view to understanding how energy is accessed in refugee camps and how actors and institutions act to provide energy. To do so, I focus on the practicalities of *how* energy access happens and the views of many different actors on why energy is important. This requires analysing how refugees access energy independently of humanitarian support, and what role humanitarian agencies play in the provision of energy in refugee camps.

Rationale for the Research Topic

Understanding how refugees access energy adds to our knowledge about how humanitarianism operates and who it engages with. In particular, applying an analytical lens and critical refugee studies literature to energy access helps develop a more detailed and rigorous analysis of how change happens in refugee camps. In this thesis I will provide a rich description of the views and values of a range of actors within the humanitarian energy sector: a community comprised both of 'elite' policy-makers at the global level and more local communities, such as local host government members and NGOs (Arce and Long, 2000; Lewis et al., 2003). Refugee communities include households, activists, community leaders, local social groupings, and those who have a 'sense of belonging together' (Gold, 2005, p3). Currently, the concept of energy communities is vague and includes any actor or participant who works in the field of energy (Campbell et al., 2016). One of the contributions of my research is to analyse in more detail how refugees and international actors engage on humanitarian energy access, considering how the politics of living (Feldman, 2012) is connected to energy in refugee camps.

This research also offers the opportunity to add to the refugee studies literature, which has, as yet, not included detailed empirical analysis of energy experiences. My work builds on some existing scholarship in the development sector, for example, Tanja Winther's work exploring the impact of electricity (2008), but develops a fresh analysis of how energy is used within refugee communities. Existing work in the energy sector is often focused heavily on the sources of energy, in particular renewable technologies. Within refugee camps, renewable solutions usually centre around solar energy (due to the advanced nature of this technology and the natural solar resource available in refugee hosting countries), although there is an increasing use of renewable biomass and biogas, wind generators, micro-hydro, geothermal, and waste recycling on an ad-hoc basis (UNHCR, 2019a; Van Dorp, 2009). Previous energy studies do not go beyond the technical and often fail to examine existing

sources of energy and uses within refugee communities. Understanding the roles of various technologies and how they are utilised within humanitarian systems can inform policy and potentially help improve international development programming. Analysing how energy is used within camps can also provide a new theoretical lens for other energy access scholars. Additionally, the opportunity to observe the emergence of humanitarian energy as an independent sector is, in many ways, a unique situation. As the sector is not yet fully established, this research comes at a particularly relevant time – as I was able to observe the creation of policies and initial implementation of programmes underpinning the sector as they were being developed and implemented.

An additional reason for studying this area is to inform scholarship on the lived experience of refugees and illuminate how energy access differs within refugee communities. This can then allow these experiences to be reflected within an international policy context. The more voices heard by elite communities (Akkerman et al., 2006) the more humanitarian policies can become tailored to the needs of refugees, enabling international development communities to be more inclusive. This speaks to the academic literature on 'nuanced understanding of lived experience' (Boddy and Lenette, 2013, p1), and taking 'alterity seriously' (Law, 2000, p2). This study will directly contribute to these debates by providing a case study example of the experiences of energy practice in East Africa. Rather than undertaking a simple policy change analysis, I studied the direct lived experience of refugees *and* the values of energy professionals, within the context of emergence of this sector, to gain a more detailed and nuanced understanding of current changes. Focusing on values and perceptions, and listening to actors as if they are they own ethnographers, enables their agency to be taken seriously (Mol, 2010) .

Research Questions and Theoretical Framing

The core research questions for this study are:

- How is energy valued and perceived by refugees and humanitarian practitioners?
- How is energy accessed and governed in refugee camps?

These questions allow us to understand the ways in which energy access is valued in refugee camps. As the sector is still emerging, it is important to understand the different roles played by institutions and forms of governance, as well as examining how technologies and energy perceptions are interwoven. Analysing the humanitarian energy sector, including how elites and refugees use and access energy, requires a theoretical approach that can incorporate the range of ways in which current policy changes are constructed and practised (De Certeau, and Mayol, 1998). In the design of this research, I initially explored Bruno Latour's (2005) work on actor-network theory as a potential theoretical framing, along with several other science and technology approaches, including seminal

work by John Law and John Hassard (1999). However, while initial fieldwork found this a useful structure for exploring preliminary observation within refugee camps, I found the application of a single theory was too restrictive as my research progressed.

My preliminary fieldwork highlighted the complexity of energy within refugee camps, showcasing the vast range of individuals, technologies, actors, institutions, modes of aid, and different mechanisms for accessing energy. I have drawn upon multiple sources of literature to support my analysis, and the evidence in each chapter on household energy use, energy in enterprises, and energy in humanitarian operations and provision by institutions, is presented openly to enable the voices of refugees and humanitarian actors to express the elements of energy access that they found important. Within this structure, literature on the politics of life in humanitarian contexts (Fassin, 2007) provides a theoretical framing for my research. This framing was found to be particularly relevant in answering my research questions as it enabled me to critically consider issues of quality of life, how humanitarianism shapes living environments, and the production of inequalities with regard to energy provision within refugee contexts (Fassin, 2009). Further discussion of the politics of life literature and how it is relevant to my work is presented in the literature summary below.

A large amount of definitional work was required to unpick the complexities of humanitarian energy as currently little analysis has been developed by other authors to understand the different terms used within the sector. Rather than impose theoretical readings onto these definitions, descriptions are outlined at the beginning of each chapter to clearly present current classifications and common terms. As there is little theoretical or academic work specifically on humanitarian energy, it was necessary to provide definitions as part of my thesis rather than being able to present existing theories or definitions (which have not yet been developed by the sector). Where possible I have linked these definitions to grey literature in order to provide examples of how definitional work and existing policy and practical resources are linked. Although there has been limited academic work directly on humanitarian energy, several areas of literature were useful for my research. These relevant academic debates are summarised in the section below.

Literature Debates

Energy access in refugee settings is covered within several different disciplines: energy demand and anthropology, literature on institutions and energy communities, and the politics of life and forced migration studies literature. The summary presented below focuses on the core debates in these areas and explains how they are relevant to my thesis.

Energy and Social Practices

The first debate centres on the social practices of energy, contrasting energy as a practical or technical issue, with energy conceptualised as a core part of social needs and interactions (Hargreaves and Middlemiss, 2020). This debate is present within the energy demand literature, and to some extent recent work has developed this discussion in the context of energy for development. Much of the discussion seeks to understand how technical approaches to energy (which areas have power, what appliances are used, and how much energy is consumed) differ from the social uses of energy (what energy means to people, how they use it as part of their everyday lives, and how social and cultural patterns influence energy use). In UK and European contexts, this debate often centres on the social, physiological and communal aspects of energy consumption (Whitmarsh, 2011; Wilhite et al., 2000). Often this literature focuses on the decentralised energy transitions currently happening in western economies (Bridge et al., 2013; Eyre et al., 2011; Wiersma and Devine-Wright, 2014), and can include analysis of public perceptions and cost savings (Attari et al., 2010), understandings of climate change (Spence et al., 2011), or how European communities react to renewable technologies (Devine-Wright, 2005). There is also development literature on living standards, such as Rao et al.'s (2019) work.

A key part of this debate examines lived experience from the 'demand-side' of energy policy, drawing on practice theory and sociology – for example, Elizabeth Shove's research, which focuses on how "energy is woven into the fabric of society" (Shove and Walker, 2014, p41), and draws on the 'practice turn' and Latour's work to explore energy practices. Shove and Walker conceptualise "energy not as a cause or consequence of social systems but as an ingredient of the social practices and complexes of practice of which societies are composed" (2014, p46). Energy practices are considered as a core part of how the "dynamics of demand" are constituted, including a mixture of everyday activities, such as travelling, cooking, and watching TV (Shove and Walker, 2014, p52). Literature on European and western energy consumption is also relevant to these ideas, for example, Devine-Wright and Devine-Wright's (2005) discussion of social representations of electricity and UK studies on renewables policy, which analyses energy practices at the household level through the use of ICT technologies. There is considerable work on social practices and demand within western cultural practices, such as work by Shove (2003) and Stephenson et al. (2010). This literature is supported by social practice theory, which examines how energy practices and institutional action come together, and the pragmatic choices that govern cultural choices (Schatzki et al., 2001). Understanding how everyday values exist in humanitarian energy is one of the elements developed by this research: chapter four considers in detail how refugee households view energy and how these values are linked to social, national, and cultural practices.

To date, there is very limited research on the social aspects of energy within refugee communities. There are a few studies which analyse how energy access can improve refugee economic opportunities (Lahn and Grafham, 2015), how displaced people use local natural and human resources to supplement their fuel allowance (Lyytinen, 2009), and studies which examine fuel-efficient stoves and conflict (Abdelnour and Branzei, 2010). In addition, there is some geographically-focused work on Lebanon's response to Syrian refugees (Williams, 2014), technology-focused solutions such as the IKEA solar homes initiative (IKEA Foundation, 2017) and ethanol-fuelled households in refugee camps in Ethiopia (Egziabher et al., 2006), as well as wider contextual research on the policy situation surrounding energy needs in humanitarian emergency responses (Van Dorp, 2009). However, these studies fail to examine perceptions about energy. In this thesis, however, I specifically focus on how refugee communities use and value energy, alongside considering practitioner opinions about why energy is a critical resource for refugee families and businesses.

Alongside the academic literature, it is important to consider how policy research can be relevant to the debate on the social nature of energy demand. Indeed, if grey literature is not consulted, the majority of technical work on this topic would be neglected. This category includes, for example, work on the humanitarian principles of protection, which have historically focused on minimum standards for shelter, food security, water supply, sanitation, and health but now touch on energy as well (Sphere, 2018). Discussions of education and economics are also present within policy research on humanitarian energy (Grafham et al., 2016), as are justifications based on community needs and health (Gunning, 2014). Finally, a core element of technical research examines reducing violence against women and girls, and the safety of vulnerable populations (Global Alliance for Clean Cookstoves, 2013). Emerging policy has also informed this research; for example, the Global Plan of Action (GPA) for Sustainable Energy Solutions in Situations of Displacement (UNITAR, 2019) and current UNHCR (2019) programmes, which are starting to implement the first wave of substantive sustainable energy programmes in refugee camps and urban displacement settings. My research builds on such policy work to directly consider how perceptions of energy matter for the humanitarian provision of services, including, in addition, discussions on how energy is related to quality of life.

Refugee camps encompass multiple networks, uses of technologies, and points of interaction, and offer sites that can be examined to understand how networks and refugee policies are constructed. There is already a considerable literature on the social and cultural environments of refugee settings, including Malkki on Tanzania (1995), Horst on Kenya (2006), and Williams on Southern Africa (2012). Much of this literature provides examples of situated ethnographies, which link theories of encampment with the lived experience of refugees in specific locations. The literature on East Africa

(De Montclos and Kagwanja, 2000; Jaji, 2012; Practical Action, 2020; Rogers and Bloom, 2016) is also relevant as the field sites for this research are in Kenya and Rwanda. Although these authors often cover cross-cutting issues such as health, disability, age, religion, and gender, (Fiddian-Qasmiyeh et al., 2014), energy has remained largely absent. My research draws on the social and cultural background provided by this literature, and applies learning from camp-specific analysis to understand the discussion on the social aspects of energy.

Within the debate on the social nature of energy, anthropology has lent itself to analysing infrastructure and technology from a social perspective. Ethnographies of infrastructure are becoming increasingly common, including work conducted by Anand (2012) on Mumbai's water systems and Dalakoglou and Harvey (2012) on roads. Cross and Street (2009) have explored the role of anthropology in analysing poverty and lives 'at the bottom of the pyramid', and social historians and anthropologists have also turned to the electricity sector to understand the role energy plays in people's lives, for example, Hughes's (1993) Networks of Power and Tanja Winther's (2008) *The Impact Of Electricity*. Winther's book on the impact of electricity provision on rural communities in Zanzibar directly concerns the role energy plays within people's lives. Anthropological energy access studies such as this provide a useful background to this study, offering a model for ethnographic approaches to energy.

Cultural theory and ethnography have been used to further understand experiences of energy and the role it plays in people's lives (Mackley and Pink, 2013; Pink, 2010; West et al., 2010). These approaches, however, are usually applied to European and UK contexts. Work on renewable energy has to some extent been conducted in Kenya and sub-Saharan Africa (Barry et al., 2011; Karekezi and Kithyoma, 2002; Lay et al., 2013), and some recent work has started to evaluate knowledge and perceptions of renewable energy technologies within development settings (Zyadin et al., 2012). However, to date there has been limited application of these debates to assess energy within refugee settings. This is a new area of research and one to which I hope to contribute by explicitly analysing what energy means to people and how energy is understood in refugee camps.

Energy Communities: Institutional Actors and Refugee Economies

The second debate that is critical for my research is the discussion about the different types of users of energy. In refugee camps energy users comprise humanitarian actors and refugee communities, and literature relevant to this debate can be found in the energy sector (Campbell et al., 2016) as well as in refugee studies (Betts et al., 2014), and more specific work on the politics of aid and refugee

communities (Betts et al., 2011; Crawley, 2017; Loescher, 2001). This debate centres on how energy communities use and perceive energy differently. As an example, an electricity connection for a UNHCR field office has a different purpose and foundation compared to a cookstove in a refugee household. My research critically engages with this debate by detailing how different communities' value and perceive energy access, drawing on ethnographic methods to bring refugee voices into the heart of the research.

One of the main issues underpinning this debate concerns how institutions and communities value energy. Much work has already been conducted on how institutions (Douglas, 1986), spatial relations (Massey, 1984), and communities (Law and Hassard, 1999) come together to produce social dynamics. Drawing from this theoretical bedrock is recent literature on 'energy communities', which comprise both institutions and individual actors (Campbell et al., 2016). I develop this concept and describe the views of humanitarian energy communities, which encompass both elite power and refugee communities; these communities span a range of actors, including policy elites, refugees, technical advisers, international donors, refugee camp administrators and aid agencies. To do this, I unpack how energy communities interact with energy products, services and institutions, and detail the types of energy users present in refugee camps. As will become clear in the chapter plan below, household users are considered in chapter four, enterprise users in chapter five, and operational users in chapter six.

Humanitarian energy communities can be viewed as having two core constituencies: elite practitioners and refugees. Understanding policy-making communities and the nature of elite voice is the focus of David Mosse's (2006) work on the anthropology of aid workers and their programmes. This type of analysis 'studies up' to examine international development and aid mechanisms, using anthropology to study contemporary society (Macclancy, 2019; Nader, 1972). Such authors often advocate studying energy policy transitions (Love and Isenhour, 2016; Winther and Wilhite, 2015), using ethnographic methods such as observation, action research and participating in development policy as a researcher or consultant. 'Energy communities' also include refugees and host community groups. Understanding the practices of refugees and detailing their experiences of energy can be carried out through ethnographic methods, but also by employing action research methods and using alternative interviewing techniques. For example, there is some literature on participatory approaches with regard to energy in refugee camps and rural communities in developing countries (Abdallah and Abdallah, 2015; Bates et al., 2002; Rouse, 2002). Combining ideas on energy communities and institutional analysis can add to academic scholarship by producing an empirical study of energy communities in practice, and creating a detailed ethnography of energy users in refugee camps.

As part of this debate, considerable academic work has evaluated the role of institutions in delivering environmental policy and Sustainable Development Goal 7 on energy (Waage et al., 2015). In the case of UN institutions, such evaluations have not yet been completed (Rosenberg-Jansen, 2020). Although significant work on UN institutions and their policies has emerged over the past 20 years (Betts et al., 2011; Black, 2001; Loescher, 2001), limited critical evaluation in the energy space has taken place. I build upon this literature by understanding the role of institutions in humanitarian systems in providing energy for refugees. Recent publications have started to analyse the role of humanitarian institutions in providing energy (Grafham, 2020; Rosenberg-Jansen, 2020), but have not yet started to explore the idea of institutional darkness, where humanitarian organisations are responsible for limiting access to energy within camps. The added value of this DPhil is to link thinking on humanitarian institutions with understandings of how energy is delivered by humanitarian energy communities.

Another area of literature that is relevant for this thesis is the recent work on refugee economies (Betts et al., 2014) and self-reliance (Easton-Calabria and Omata, 2018). This examines how refugees access resources, exploring how dependency on humanitarian aid may be a myth and how many refugees are "imaginative, resourceful and industrious" (Kibreab, 1993, p321). The aim of this work is to critically assess emergency assistance to refugees, asking how refugees make a living and whether aid is always 'imposed' (Harrell-Bond and Chambers, 1986; Zetter, 1988). Balance and nuance are important within these debates, as some authors argue that institutional measures to push refugees to become self-reliant can be destructive (Easton-Calabria and Omata, 2018; Hunter, 2009), while others describe the independence of refugee communities (Clements et al., 2016; Pascucci, 2017). Recognising "dispersed dependencies" is critical in understanding the multiple and complex ways in which refugees engage in a variety of social, emotional, physical and other dependencies that are both related to and independent of humanitarian systems (Easton-Calabria and Herson, 2020, p44). In the case of energy, refugees use a variety of mechanisms and structures to access energy. In this thesis, I engage critically in these debates when discussing how energy is accessed and governed in refugee camps. Energy markets within camps have yet to be investigated using social or ethnographic methods, and one of the contributions of my research is to produce an analysis of refugee energy micro-economies in Rwanda and Kenya. Chapter five considers these issues further and specifically draws on the refugee economics literature.

The Politics of Life and Living: Humanitarianism and Forced Migration

The third and final debate that underpins this research lies in the field of forced migration studies. It considers the politics of life, questioning the role that humanitarian organisations play in refugee lives and examining whether humanitarian choices are based on principles of neutrality and impartiality or whether they are the result of political choices (Steiner et al., 2003). This discussion helps to illuminate who is doing what in energy contexts: in many cases, informal communities and enterprises are providing many essential social and development services, while humanitarian organisations are focused on only providing life-saving interventions (Rogers and Bloom, 2016). Didier Fassin's "humanitarian politics of life" (2007, p502), in particular, operates as a useful theoretical frame for my analysis, bringing together various strands of argument. Fassin defines the politics of life as "politics that give specific value and meaning to human life," which emerges as part of humanitarian action and shapes the "evaluation of human beings and the meaning of their existence" (2007, p500-501). Fassin's work enables a critical analysis of humanitarianism, exposing how aid agencies shape refugee energy access through political structures and the micro-level politics of practice. This framing considers both the structures and practices of humanitarian action, to understand the political nature of energy access.

Fassin's concept has been applied to humanitarian technologies by a number of recent scholars, most recently by Tom Scott-Smith when analysing "the hierarchies of humanity that relief work creates" and the way that "international aid agencies institutionalize inequality while claiming to treat people equally and impartially" (2019, p510). Scott-Smith focuses specifically on refugee shelter, looking at how political assessments are embedded in technology-centred interventions (2019, p509). Several other authors have also applied this approach to humanitarianism and basic needs (Bornstein and Redfield, 2011; Fassin, 2010; Hyndman, 2000). They suggest that "contemporary societies are characterized by the legitimacy they attach to life" (Fassin, 2009, p44), taking account of how different groups compete for shares of social products (Aaronson 1982). My work draws on these ideas to understand how energy is viewed as a basic need within the humanitarian sector, examining how decisions about energy within refugee camps are inherently political calculations (Brown and Cloke, 2017).

The literature on the humanitarian "politics of life" includes a related concept, developed by Ilana Feldman (2012, p155), on the "politics of living" within Palestine. The politics of living is what happens when "humanitarianism moves from crisis response to a condition of life"; it shifts attention from the work of aid agencies to the strategies of refugees, who have to carve out a "politics of living in the

humanitarian space" (Feldman, 2012, p155-156). My work engages with many elements of Feldman's discussion, which relates directly to the impact of humanitarian agencies providing services. However, I have not focused on the national characteristics of displaced people or how their political claims relate to access to services, as Feldman does, mostly because the context of displacement for refugees living in Rwanda and Kenya is different to the Palestinian context, but also because my study focuses on energy provision rather than on access to legal rights. Instead, I use the term the 'politics of living' in a more general sense: one adapted from Feldman to refer broadly to the dynamics of being, surviving, living, and thriving within humanitarian contexts. My analysis focuses on understanding how the politics of living and energy intersect in refugee settings. I examine how access to energy is related to quality of life, and evaluate what role humanitarian agencies have in providing energy.

Feldman states that, "if the politics of life is aimed in part at the fixing of value, attention to the politics of living highlights the contestations over such calculations within recipient communities that are central to the humanitarian experience" (2012, p157). In the case of energy, I focus both on disputes about the provision of energy *and* the value that energy has to communities, including how energy resources are secured and accessed by refugees as well as how they are provided by humanitarian agencies. My work differs from Feldman's in that it does not focus on claim-making towards humanitarian institutions in the legal sense, but rather on the resourcefulness of refugees in accessing energy independently from the humanitarian provision of aid. My use of the "politics of living," therefore, draws on both Feldman's analysis and Fassin's work on the politics of life, but nuances these conceptions to draw attention away from the binary divide of life versus death to encompass what living beyond survival means to people. In terms of humanitarian energy, this often means access to a range of products and services that meet the full energy needs of refugee lives, not just analysis of energy needed to prevent loss of life.

The literature on the politics and anthropology of infrastructure ties into this debate, suggesting that "ethnography can open up" narratives of modernisation, of joy, and of energy technologies beyond traditional humanitarian conceptions of providing life (Larkin, 2013, p334). For example, the work of Larkin on the politics and poetics of infrastructure (2013), and by Ed Brown and Jon Cloke on the "political economy of energy choices" (2017, pvii) enables us to understand some of the "messy realities" (Interviewee 4, March 2017, London) of humanitarian energy on the ground. The voices of displaced people are at the heart of this research, and so literature that illuminates refugee stories, literature that critiques of the politics of life in refugee settings, and reflects upon the global nature of humanitarian action will also be drawn upon to support the analysis in later chapters.

Thesis Structure

In the next chapter I outline the methods used to collect and analyse data, as well as discussing the risks and ethics involved. I present engaged energy ethnography and the production of situated stories as two of the methodological tools used to develop evidence, and outline critical reflections on undertaking research within camps and global practitioner audiences.

In chapter three I discuss the governance of the humanitarian energy sector. The sheer range of donors, implementing agencies, NGOs, national and local governments, as well as the needs of refugees themselves, makes this a complex area. The chapter provides an overview of the energy situation in the camps in Rwanda and Kenya, and summarises the types of energy used within these camps. Overall, the chapter argues that governance in the field of humanitarian energy is not well understood and that the changing nature of the humanitarian energy sector needs to be taken into consideration when conducting research on this topic.

Chapters four, five and six present the core evidence and findings of the thesis. Drawing on qualitative data and presenting analytical arguments about energy perceptions, these chapters discuss how energy is used in homes and businesses, and by humanitarian operations in the camps of Rwanda and Kenya. Chapter four focuses on household energy and outlines how refugee families value energy in multiple ways: in terms of social, cultural, economic and emotional connections, as well as valuing technologies and the usefulness of energy products. The discussion engages with the literature on the social nature of energy demand, describing how refugees value energy in terms of social engagements and cultural priorities. Throughout the chapter, I describe the values that people place on energy, including practical and economic values, and consider how energy is linked to the quality of life in refugee camps. I suggest that refugees know a considerable amount about energy and often secure access to it themselves through buying products and services directly from suppliers. Most households have ownership of energy and responsibility for their own electricity access. This can be understood to challenge the self-reliance narrative put forward by UNHCR and other agencies: in terms of energy, refugees are already largely independent and self-reliant, so policies and narratives which push for further independence may be redundant. In the chapter, I show how access to energy in the camps is seen as a sign of progress and development, and as having direct benefits in improving quality of life, as well as opening up the discussion on the political nature of self-provision of energy services by refugee communities.

Chapter five highlights one of the most noticeable uses of electricity in the camps: the use by small businesses and entrepreneurs, who use energy to power their shops, restaurants, cafés and spaces. I show how refugee businesses secure and supply energy, and detail how energy is essential for businesses, enabling people to create additional income as well as supporting the social and communal development of the camps. I argue that energy enterprises support economic life within the camps and provide a critical resource for refugees. I link this description to the literature on energy communities and outline how business users of energy are often not considered by humanitarian organisations. As a result, energy for refugee enterprises is not planned for, embedded into interventions, or supported by humanitarian programmes. The core argument of the chapter is that energy enterprises are one of the key constituents within energy communities in the camps, and businesses are the main group supplying energy products and services to refugee communities. I argue that business constituents are playing a key role in the politics of living in refugee camps, and are in fact enhancing quality of life for refugee households by enabling access to energy.

Chapter six examines energy in community facilities and operational spaces within the camps, suggesting that access to energy is limited and, even where spaces such as offices are connected, power is often intermittent and only available for some hours of the day. I describe how refugees feel frustrated by this and detail their concerns about why water, sanitation and hygiene (WASH) facilities, schools, clinics and public spaces are without power, while some operational spaces such as offices, staff compounds and registration centres have higher levels of access. In this chapter I draw on the idea of the "politics of living" to present the value of energy as viewed by humanitarians, the roles and responsibilities within organisations for the provision of energy, and to outline disconnects in the humanitarian energy system. I also consider how institutions provide energy for refugees, finding a lack of comprehensive action on delivering sustainable solutions. This is presented in contrast to the considerable amounts of electricity available for humanitarian staff in their homes and businesses. Throughout the chapter I argue that humanitarian organisations are consistently failing to provide the energy that refugees need. This, I conclude, is having a negative impact on the quality of life of refugee communities.

Chapter seven offers conclusions and summarises the key findings of the research, developing ideas about how systems within humanitarian agencies are connected to energy programming and whose values are embedded within decision-making. This chapter raises questions about who energy is designed *for* in humanitarian settings. The evidence is presented in terms of the literature on the nature of power and perceptions, the politics of life, and the way that these issues can inform academic thinking on humanitarian systems. This chapter argues that some views and values on

energy matter more in refugee settings than others. I also suggest that organisational modes of governance, and the roles of institutions, often determine the level of energy access for refugee communities, and that refugees are excluded from formal systems of national energy provision. The core argument is that energy access is political in nature and that humanitarian systems structure the quality of life of refugees. There is a disconnect, in other words, between the needs, desires and values of people living in the camps, and the humanitarian systems which are there to support them. Power, control of resources and access to energy in these spaces are not equitable. The management, governance, design and implementation of energy access is not led by direct users of energy. As a result, there is a division between how refugees in the camps already procure their own energy and the programmes that provide electricity. I suggest that the governance of humanitarian energy programming is political and that power (in both senses) has a real impact in refugee settings.

Throughout the thesis I return repeatedly to the idea that some opinions on energy matter more than others, and that institutional political power has a significant impact in constraining the levels of energy access in refugee camps. The title of this thesis, 'voices in the dark,' lends itself to several meanings. The first is more literal: many refugees living within the camps struggle without lighting or power in the night and are limited by the darkness this brings. The second meaning is figurative: institutional users of power and global policy-makers often have limited knowledge and experience of energy needs within the camps; for them, darkness comes in the form of not seeing the realities of energy. Political choices about energy are unrecognised and value judgements are being made perhaps unconsciously or unintentionally by humanitarian systems. This too is a form of darkness, one created by the complexities of humanitarian action. Refugee voices, meanwhile, speak into darkness, which is demonstrated through a lack of knowledge on the part of humanitarians about how people use electricity, why it matters to them, and how they come to access it.

Essentially there are two forms of darkness woven through my research: first, the fact that people are without energy and, second, that humanitarian systems and interventions are not informed by the needs of refugees. In general, it would seem that policy-makers and practitioners have limited experience and knowledge concerning energy, and do not have systems which can support them to deliver energy products and services. Households are not involved in these systems or in the design of energy programmes, which leaves refugees in the dark (or having to find their own solutions). When refugee households and businesses do have access to energy, it is often because they have been able to secure and pay for it themselves. Darkness in a refugee energy context has a political dimension: values and judgements are embedded within humanitarian systems that create and prolong a lack of access to energy and power.

Chapter 2. Methodology and Ethical Energy Ethnography

Introduction

Research on energy can take many forms: it can involve the analysis of demand and energy uses, or involve studying supply routes and sources of energy, conducting socio-technical explorations of systems, modelling of needs, or developing ethnographic descriptions of lived experience; it can also entail geographic mappings of national and local priorities, qualitative studies of technological objects, sociological descriptions of governance structures, assessments of institutional action, and power or discourse analysis. Such studies could use quantitative, qualitative or mixed methods and choose to explore local, national, regional or global sites of study. My research draws on many such elements, but I have deliberately chosen to not use just one method exclusively in order to capture the range of experiences on energy in the camps. This chapter provides the detailed reasons for this decision, presenting a description of the methods and analytical approaches used to collect data from refugees and practitioners about energy access in camps in Kenya and Rwanda.

Methodological Framing

My initial methodology was designed around actor-network theory (ANT) (Latour, 2005, 1987), which I chose in order to enable my research to paint a rich picture of humanitarian energy and explore the variety of uses and perceptions of energy within refugee camps. Latour suggests that actor-network theory amounts to an "ethnography of scientific microsocieties" where it is possible to "map out instruments, credibility, translations, modalities, and papers" and to follow networks of exchanges among scientific communities (Latour, 1993, p2). My aim when choosing this initial approach was to view the sector through the eyes of those who have produced it and to create an initial impression of the humanitarian sector and its networks (Abramowitz and Panter-Brick, 2015, p3). In other words, my aim was to understand the role technologies, objects and energy sources play within camps, and so I adopted a follow the object or actor approach (Callon and Latour, 1981), which was achieved by observing how objects and technologies are used, where they are employed, and how people engage with them. Sarah Pink's work on visual ethnographies was helpful in understanding how to do this: she suggests that data collection should "follow domestic artefacts" by "tracing the routes of domestic material culture" (Pink, 2011, p15). Especially within refugee households I found it useful to adopt this approach, which enabled a free-flowing discussion on energy, household priorities, and the spaces of importance within homes.

While actor-network theory and visual ethnographic approaches were very useful in the initial phases of research, as I continued my data collection it became clear that they did not present a wide enough methodological range to capture the information available. Therefore, I moved away from science and technology studies to broaden my approach. Humanitarian energy is a new field of study, so I found it particularly challenging to apply just one methodological tool to the sector at this stage in its development, and yet still produce an accurate analysis of the findings within camps. As a result, I have drawn on a wider range of theoretical connections and methodical approaches from political science, refugee studies, and social studies of energy.

Literature on how to analyse communities was particularly useful. Elites are often studied from the 'bottom-up' and refugees from 'top-down' (Nader, 1972). These types of analysis are concerned with understanding why practitioners or refugees act in the way they do. Rather than studying from the 'top-down' or 'bottom-up', this research took the approach of studying 'sideways' and 'through' (Bowman, 2009). Specifically, I proceeded by focusing within and around policy and practitioner communities and studying as a participant and sector actor rather than an 'objective analyst'. To do this, I developed an engaged energy ethnography method based on the works of Mari Clarke (2015). I have described this approach below, explaining how it involves the researcher being embedded within the area of research. I chose this as a methodological framing rather than a specific methodological technique, which was useful in developing a structured approach for data collection while simultaneously being open to a broad range of opinions and interpretative angles. This enabled me to trace in-depth scientific and technical discussions from within practitioner communities and understand why certain energy technologies and ideals are viewed as important.

Engaged Energy Ethnography

Building on Latour's characterisation of actor-network theories as producing ethnographies of scientific societies, I have produced an engaged energy ethnography of the experience of energy in refugee camps. This work can be considered as an ethnography, since it is a rich and grounded description of communities: a "study of people in naturally occurring settings or 'fields' by methods of data collection which capture their social meanings and ordinary activities, involving the researcher participating directly in the setting, if not also the activities, in order to collect data in a systematic manner but without meaning being imposed on them externally" (Brewer, 2000, p6). While this means I draw on anthropological methods, in particular interviewing techniques for lived experience data collection (Clifford et al., 2010; Ingold, 2014), my research does not present a full ethnography of humanitarian energy communities (conceived as a detailed and comprehensive portrait of a particular

community or professional culture). Rather, I have focused on producing an ethnographic snap-shot of energy life in the camps in Rwanda and Kenya, alongside an evaluation of how policy-makers and global practitioners view energy in very different ways. This builds on the work of David Mosse, who suggests that "ethnography is less concerned with what international policy ideas are, than with what they do, and how. This requires careful exploration of complex institutional and social processes, often written against powerful self-representations of experts and professionals" (2007, p2).

While some authors have developed anthropologies of energy uses, (for example, Goodman, 2018; Powell, 2011; Winther, 2008), such research often focuses on western or non-refugee contexts. These types of analysis build on work conducted by Mari Clarke, who suggests that energy anthropologists:

> "interrogate the forces shaping the prevailing high technology, capital-intensive, and corporate-dominated energy production systems as well as issues of power imbalances, inadequate institutions for energy governance, and local level initiatives that fill governance gaps. They analyze the culture of energy experts, enhance knowledge about how people understand and experience energy, and document small renewable energy successes. They theorize about various dimensions of people's relationship with power and debunk long-held dichotomies such as natural versus human sciences, symbols versus artifacts, global versus local, academic versus practicing anthropology …They rally to the call for public engagement, and, for some, activism" (Clarke, 2015, p215).

My research applies this approach to the study of energy in refugee camps, specifically examining the value of energy within homes, businesses, and operations in humanitarian contexts. In addition, my work uses an engaged approach, which contextualises and frames technical issues within their policy and practitioner contexts. This also required an activist element, during which I challenged social norms and institutional structures. Doing so required taking an explicitly open-minded, ethical and bottom-up approach to analysing energy in refugee contexts: analysing energy as viewed from the point of view of the end-user, and listening to interviewees as openly as possible.

I combine energy anthropology and engaged approaches to produce what I have termed an engaged energy ethnography, defined as: a rich description of the range of energy experiences of policy-makers, practitioners and end-users, produced using a situated, engaged and ethical approach to understand how and why energy matters to a range of communities. Engaged energy ethnography can allow the voices of refugees and practitioners to speak for themselves, represented through the cultural and political framings they find important. Building on direct evidence from the field, I developed a key set of themes and patterns emerging from data collection, to understand how energy is valued in humanitarian settings.

Engaged energy ethnography builds on ethnographic and anthropological approaches: it involves spending time directly with communities, listening to their values and opinions in their own words, and understanding holistic dynamics within certain locations. It also draws upon quantitative data, contrasts the views of communities and practitioners, and does not aim to paint a singular picture of one community. I have tried to reflect a range of voices to demonstrate the complexity and shifting nature of energy uses. Limited life story or in-depth lived experience work was conducted; instead, long interviews took a semi-structured or interviewee-led format. Critically, I have also used a number of techniques to draw out ethnographic understandings of energy within refugee camps and situate this knowledge within the broader system of humanitarian energy. The aim of this was to analyse what perceptions mean in political and humanitarian terms, going beyond rich ethnographic description to produce an informed opinion on energy perceptions and access in refugee camps.

Situated Stories

Conducting engaged energy ethnography in refugee settings was challenging because the fieldwork produced many forms of evidence and multiple narratives from within the humanitarian community and camps. To resolve this, I present data in the form of situated stories: extensive narratives and explanations drawn directly from participants and told in their own words, contextually embedded within the situation in which they were told. These stories were produced using a variety of methods including in-depth and semi-structured interviews, life story work, observation, informal chats, and brief exchanges. Importantly, these stories are situated within the interviewees' own positionality in that they reflect how interviewees framed and understood energy, and note the interviewees' age, gender, cultural and national background, approach to being interviewed, and on occasion their general demeanour. The stories present lengthy descriptions as provided by the interviewees themselves rather than selecting individual quotes, which can sometimes be taken out of context.

Stories are situated not just within the context of how and where they were conducted, but they are also situated within global, national and local framings and understandings. For example, by describing the views of interviewees on refugee and energy policies or how they view the wider social context. In some cases, this included asking about their political or humanitarian beliefs such as their opinions on how humanitarian organisations or national governments should support refugees and presenting how this may have impacted the comments made during interviews. This approach builds on literature on the situated production of narratives (Greatbatch and Clark, 2010), developing stories within spaces of practitioner knowledge (Maslin-Ostrowski and Ackerman, 1997), and taking a narrative approaches to interviewing (Mccormack, 2004). The aim of producing situated stories is to clearly

present the views and voices of refugees and practitioners within the humanitarian community whilst developing analysis of themes and patterns of energy understandings as they emerge.

So too are the stories situated within the positionality of the researcher collecting them and our role in developing the stories. Stories are rooted in the collective experience, the wider literature, and existing research. This situated-ness enables stories to portray the richness of one case and also enables the reflections of dozens of others. One voice speaks for many and, rather than an individual story being viewed as an anecdotal piece, multiple situated stories can connect together to become a body of evidence. For example, I would often interview many people on the same specific topic (such as solar lanterns) and analyse patterns of similarity and difference in their comments. In some cases, I even asked people openly if they had the same or different opinions on a certain topic to other members of their family, friends or colleagues. Through such an approach I was able to build a clear picture of which types of stories were common, and which were exceptional or differed from a common understanding. Within the stories, I have noted whether they represent an individual or anecdotal case, or whether many interviewees made similar comments and therefore individual quotes can be viewed as representing a set of similar opinions.

The production of these situated stories also strongly reflects my own opinions and biases. Another analyst reading such material may come up with a different set of interpretations. To mitigate this risk, I would often ask interviewees to clarify their views during interviews and I took time to reflect on interactions directly after interviews. As different stories and themes started to emerged, I also often interviewed other people to see if they had similar opinions. This resulted in some 'story-lines' being abandoned and others being developed in detail throughout the research process. The table on the following page presents a summary of the types of methods used and stories produced during the different stages of data collection.

Data collection was not a linear process, with important topics sometimes only emerging during in-depth analysis of other topics. For example, I found that the issue of failing operational generators only emerged during follow-up interviews with the refugee committee on a different topic. This required returning to many interviewees and I had to start a new mapping on the theme of operational challenges. Such developments required that the methodology remain fluid and open to change to be able to include new issues throughout the fieldwork process. Producing data in this way also opened up a number of topics which could not be explored further – the role of cooking resources in household life and the effectiveness of newly established energy programmes being two examples of this. Further research on humanitarian energy could pick up on these topics and develop them; however, in

focusing the research it was necessary to make choices on which themes were developed as part of the research. During the second stage of data collection, as outlined in the table above, I established a number of patterns and themes from the interviews that would be developed in the final in-depth analysis stage. I chose the most common themes from the interviewee data, for example, that solar household lighting and the value of energy for entertainment were very often mentioned. These choices were also guided by refugee and practitioner interviewees themselves, building on the topics that they were keen to discuss further. A final stage of in-depth analysis and follow-up interviews was then used to produce the situated stories and individual themes that I have presented.

Stage of Data Collection	Analysis Approach and Methodological Tools Used	Types of Situated Stories Produced
Initial mapping	- Analysis of energy objects, project networks, and themes in humanitarian energy policy - Understanding discourses, theories, narratives, technologies and power in policy and programme documents - Assessing the drivers of humanitarian renewable energy interventions - In-depth examination of documents and published policy and programme literature - Analysis of institutional information and governance descriptions - Short interviews with practitioners and elites	- Summaries of energy products and technologies - Brief descriptions of energy needs - Observation within households and communities - Background information on energy technologies and types of programmes in refugee camps
Establishing patterns and themes	- 'Follow the actor' and 'follow the object' methods within camps and local settings - Interviews and observation at policy and practitioner events - Participant observation and fieldwork in Kenya and Rwanda: informal chats, brief exchanges, introductions to contacts - Semi-structured interviews with refugees and practitioners - Analysis of initial experiences of energy by a range of actors and institutions - Thematic structuring of initial themes and discussion about these topics with contacts and interviewees	- Stories of energy use and perceptions of energy provision by refugees and practitioners - Household observations and community engagements - Descriptions of energy supply and delivery mechanisms
Analysing in depth	- Anthropology and ethnographic approaches – lived experience of energy practices and extended observations in and around homes and enterprises - Institutional engagements and mapping of communities in Kenya and Rwanda - Semi-structured interviews with practitioners and agencies, detailed questioning about the role of different organisations and projects in providing energy access - Interviews and in-depth case studies and verbal histories of energy engagement within refugee households	- Explanations of why energy is valued and the role it plays in households - Discussion of energy markets and use in enterprises - Critical examination of energy use in operations and institutions

Table: Methods and approaches used in the production of situated stories.

The stories produced though this method form the core empirical evidence for my research. Situated stories are displayed with an introduction to explain the context in which they were told, brief information about the positionality and views of the interviewee, and consideration of where the interview took place. I have described the positionality of the interviewee and the range of opinions they represent in the text supporting the stories. Depending on the angle of analysis, I chose stories either because they represent a typical example of such an interaction, or because an interviewee had a specific idea or unusual opinion about something. The choice of which stories to present and how much detail to include was particularly challenging. In general, my choices were based on a combination of the stories which best encapsulated the opinions of multiple interviewees and how much background information I was able to establish about interviewees and their opinions. Similarly, the stories I decided to present are in the conversational style in which many of the field interviews were conducted, with many people taking detours in their descriptions and pulling in examples as they talked. My own judgements and positionality are often included at the start of the descriptions, particularly when I felt an interviewee was being warm, distant, or in some cases aggressive. It is important to recognise that these are only my opinions and may only represent an individual at that specific moment rather than their general demeanour. Contrary to popular belief, energy can be a deeply emotive subject and many interviewees became particularly animated or distressed when talking about it.

Methodological Process and Data Collection

Fieldwork and Data

I conducted multi-sited fieldwork in refugee camps in Kenya and Rwanda between 2016 and 2019, alongside data collection on the global humanitarian energy sector based on discussions with practitioners in London, Vienna, Geneva, Oxford, Brussels, and other European cities. This enabled me to engage with high-level policy debates and emerging projects as well as experience views on energy projects and supply within refugee camps. During this time, I conducted multiple trips to Kakuma and Kalobeyei camps in Kenya and Mahama, Kigeme, Nyabijeke and Gihembe camps in Rwanda. Alongside these trips, I also held interviews and meetings in Nairobi, Kigali, and regional towns and villages in Kenya and Rwanda. The final phase of data collection involved conducting both semi-structured interviews with selected practitioners during 2018 and 2019, largely conducted remotely by Skype or phone, and observation at international events in Geneva, New York, London, Amsterdam, and Lisbon. I collected multiple sources of data during fieldwork, including evidence from qualitative interviews and observations: how I produced and analysed this evidence is detailed further below.

Choice of Sites, Refugee Focus and Access

I considered several factors in selecting sites for fieldwork. Data collected from international engagements was largely determined by where policy events and practitioner meetings were scheduled to be held. The choice concerning which countries and camps to focus on, however, was considerably more open. Initially a comparison between East African countries (Kenya, Rwanda, Tanzania, Uganda) and South Asia (Nepal, Bangladesh, India, Pakistan) was considered, but this would have produced too many variables and too large a set of case studies. Middle Eastern displacement contexts were also considered (Jordan, Lebanon, Turkey) but the energy environments and contextual situations vary considerably in these locations, and the nature of displacement was at the time quite fragile and in flux. Therefore, I chose to focus on protracted situations rather than emergency contexts to enable repeat visits to the same, established communities.

The research also focuses on refugee populations rather than internally displaced people or asylum seekers, and camp environments rather than working with non-camp populations or self-settled people. I chose camp environments because the Kenya and Rwanda camps offered similar environments, and it was relatively easy to identify research participants as many people lived or worked in one location. Compared to urban or self-settled environments, camps also provide a physically bounded space in which it is possible to detail the ways in which people access energy. Refugee camps are a unique environment and focusing on camps enabled my research to understand the role of humanitarian agencies in providing energy. If I had chosen non-camp or self-settled communities to focus on, my research would have had to consider a huge range of other actors (such as national governments and large-scale private sector energy suppliers), which may have limited the depth of my work. Bounded camp environments also meant that I was able to undertake a deep-dive analysis into two countries, Rwanda and Kenya, and understand similarities and differences in energy access in camps across East Africa.

Rwanda and Kenya were chosen as the specific countries for this research as they host a considerable number of refugees and are comparable within an East Africa context. While I did consider other refugee camps in other countries, having visited both countries before starting the research meant that my networks and contacts there were already developed. I also have some previous practitioner experience of working with the development and humanitarian communities in East Africa and so felt my knowledge of Kenya and Rwanda was stronger than on other regions. Both countries are also relatively safe to travel to and easy to conduct research in. These countries were also selected as they provide a relatively stable environment for refugees, with refugees in Rwanda having the right to

work, and some freedom of movement possible in both countries. The camp locations were specifically identified following discussions with UNHCR and local NGOs as they allowed for in-depth fieldwork.

In the case of Kenya, Kakuma and Kalobeyei were selected over Dadaab camp due to security reasons. Kakuma Refugee Camp is located in Turkana District of the north-western region of Kenya. It was established in 1992 to serve Sudanese refugees, and has since expanded to serve refugees from Somalia, Ethiopia, Burundi, the Democratic Republic of the Congo, Eritrea, Uganda, and Rwanda. Close by, Kalobeyei has been developed as a mixed settlement to host both refugees and local Turkana people. The population of both areas combined is estimated to be over 190,000 (UNHCR, 2019b).

The second country of focus is Rwanda, which is currently host to upwards of 155,000 refugees. Kigeme hosts 20,500 people, Gihembe 13,000 and Nyabiheke 14,400 (UNHCR, 2019c). These sites were selected as all three host refugees from the Democratic Republic of the Congo (DRC) and are protracted long-term settlements comparable to that of Kakuma. While the camps in Rwanda are smaller than Kakuma or Kalobeyei, similar living conditions and energy uses exist.

Access to refugee communities was initially enabled by UNHCR and local NGOs. While UNHCR contacts provided introductions, and in some case translation services, I found this form of engagement limited the research initially. When introduced to refugees via humanitarian agency staff, many people were not keen to talk at length about energy, and interviewees only seemed to want to talk about UNHCR programmes rather than their own experience of energy. Humanitarian agencies were very selective about who to put forward for interview within the camps and only people who would provide positive examples of agency involvement were produced. The story below describes such an engagement.

“Look Here, at This Pot, Not at the Other Things”

During my first trip to Kakuma, I was introduced to the camp by UNHCR and a variety of agency staff. On the first day of fieldwork, agency staff organised a trip to visit a household that had been the recipient of a new, improved, clean cookstove. I was escorted by one of the lead operational staff members, a middle-aged Kenyan man. During the car ride into the camp I asked him if he worked on energy as part of his job. He looked at me blankly and said:

“The cookstoves? No, I am doing protection and registration and energy has nothing to do with me!”

When we arrived at the household, the staff member shouted at us in the car and instructed us to “stay here”, and we waited while he went inside to speak to the household members. After a few minutes he emerged, snapping his fingers at two refugee women who had been inside the house. They carried out three types of improved cookstoves into the small shelter outside their home and arranged some benches for us to sit on. The agency guide then came to fetch us and we sat in the shelter with the refugee family, asking questions about energy.

One of the first questions I asked was to the mother of the household, who was struggling to pay attention to us as her three young children were running around. I asked how she liked to cook and her favourite foods. She smiled and poured red beans onto the table from a nearby container. She had started to speak when the agency staff member interrupted her and started to explain the different cookstoves:

"There are three improved cookstoves here: the silver one is for boiling water and fast cooking, the black plastic one is for slow cooking, and the dirty one is for keep things warm once they are cooked".

He then went on for some time about how the stoves were so useful to the women and meant they did not need to collect any firewood anymore. It was clear from looking at the cookstoves that neither the metal nor the plastic one had ever been used. Indeed, the plastic one was full of waste paper and was being used as a bin for the home. The two women, who had not been able to speak, sat quietly and resignedly during his speech and I felt uncomfortable about the situation, so tried to ask them more questions directly. However, the staff member kept answering for them and speaking over them.

At that point I tried to re-engage the family and the middle child had come over to play with me. He pulled me away from the group and started to show me the outside of the family home. His mother was close by and smiling at his chattering explanation, of which, while I could not understand the wording, it was clear he wanted to explain all the things outside the house and what they did.

This annoyed the staff member greatly, and he almost shouted:

"Look here, at this pot, not at other things".

I explained I was interested in all the energy things around and asked whether it would be possible to talk to the family about the things they wanted to show me. I tried to calm the staff member by saying I was happy to stay with the family by myself and could catch a moto back to the compound, as I knew he was very busy, and now he had introduced me I could talk by myself to the family. While this calmed him, he replied:

"No, it's ok. This is all there is to see anyway. They will not be able to tell you more interesting things than I have told you. We can leave now, that is all the energy things here".

And so, we thanked the family for their time and for talking to us and left. As the photos below show, the silver cookstove was impeccably clean and had likely never been used, despite the explanations by the staff member. In contrast, the small charcoal stove was clearly in use and, as we were leaving, I saw a similar lit stove burning beside the house.





Photos: Improved cookstoves in a refugee household and an in-use charcoal stove, Kakuma Kenya.

Following this engagement, I asked whether it would be possible to visit other households, perhaps more informally, and the staff member replied:

"No. You have seen the cookstoves now. We are providing them. The ladies are liking them. You would only see more of the same people, using the same stoves. There is nothing more to see. Now we can have lunch".

It was 10.45am. We returned to the agency compound, and took a three-hour coffee and lunch break. This engagement, and the similar ones that followed it, meant that I chose to engage independently with refugees in their households and businesses, rather than being facilitated through agency staff.

Interviewee 40, June 2017, Kakuma Kenya.

This story highlights how initial fieldwork with refugee communities was limited by direct agency involvement. As it was necessary for my research to engage a variety of stakeholder groups (including communities within refugee and Internally Displaced People - IDP - camps, host populations, NGOs working within camps, energy providers, and private sector suppliers), the second phase of research moved away from using agency staff as points of access and connected directly through refugee communities.

In contrast to this, access to practitioner communities was somewhat easier. As I have been working for many years inside donor agencies and NGOs, I was able to make use of existing contacts and colleagues to engage with practitioners. Introductions through friends and colleagues meant I was seen as a friendly, open person who was not threatening to the institutions. Therefore, my access to practitioners was quick, and it was easy to set up semi-structured interviews and chats whenever I needed to. However, there are of course issues with this type of access, which will be discussed further in the positionality sections of this chapter. The section below describes the data collection journey and sources of information available from informal and formal contacts.

Data and Analysis

Collection

Data collection followed three steps: first, a detailed reading of the policy documents available, initial engagement at policy events, and chats with practitioners to understand the basics of how the humanitarian system acts on energy. Second, fieldwork in Rwanda and Kenya to conduct in-depth interviews with refugees and practitioners and field staff. Third, to build a more detailed picture of how energy is viewed within humanitarianism, I conduced semi-structured interviews with practitioners to follow up on the themes identified in the first two stages, alongside observation at

international events and stakeholder meetings. All of these steps produced data for the thesis, which I recorded and analysed in NVivo.

I analysed over thirty documents and collected data from hundreds of visits to homes, interviews, exchanges, chats and semi-structured interviews. Of these exchanges, many resulted in longer discussions which developed into interviews in both countries and with global policy-makers. In the camps, I collected data by making initial visits to around fifty homes, businesses and operational spaces in the three Rwandan camps of Kigeme, Gihembe and Nyabiheke (one hundred and fifty total), and two hundred sites in Kakuma and Kalobeyei, and returning to households when invited for further discussion and longer interviews. This resulted in about forty follow-up interviews in Rwanda and forty in Kenya. This is a large number of interviews and engagements and, after nearly two years of data collection, I felt I had achieved saturation of my data as many interviews were repeating the same messages and information.

In the camps, I used a mix of ethnographic methods including informal chats, walking through camp spaces, and in-depth anthropological-style interviews. A snowball approach was be used to find interviewees, by following the connections and people met throughout the project (Atkinson and Flint, 2001). These interviews focused on how energy is understood, how people experience and think about energy, what they use it for and how they engage with energy technologies. Most of these interviewees were conducted in an informal, relatively unstructured way, and the topics flowed freely as dictated largely by refugees. In some cases I was able to steer the conversation or ask specific questions, but mostly the interactions took the form of ethnographic-style chats using an ethical positional self-reflexive approach (Clifford, 2003). Listening and being able to put people at ease during these engagements was a critical skill, and often I would start interviews by sharing food or drinks and chatting about matters not related to energy. Most interviews were conducted in English; however, in some cases interviewees were not comfortable speaking to me initially in English and at these points I relied on a variety of local contacts for translation. Often this would be a family member of the interviewee, or another refugee business owner in the camp who was willing to translate for us. Where interviews have been partially or wholly conducted through translation, I have included this directly in the stories presented and commented on the positionality of the translator.

To complement this field-level data, a further forty interviews were conducted with international policy-makers and private sector individuals who have engaged in the humanitarian energy sector. With global policy-makers, semi-structured interviews and observational methods were used. These interviewees were identified through existing contacts. As the humanitarian energy sector is still quite

small, I was able to select a representative sample of people from across the private sector, agencies, NGOs, and think tanks to talk to. Much of the core data for these interviewees was collected using remote semi-structured interviewees conducted by Skype or phone, as practitioners lived in a wide range of countries in Europe and North America and it would have been challenging to conduct in-person interviews with all the people I needed to talk to. In any case, many interviewees were former contacts or practitioners within the sector and were open in speaking with me remotely. All of these types of interviews were conducted in English. I also conducted observations at global and national sites of inquiry – such as the workshops where humanitarian energy policy is constructed, for example, in Geneva, Washington and London.

In total I managed to develop one hundred and twenty detailed interviews from both field-level and global discussions. There was a snowballing element to sampling within camps: many interviewees were initially introduced to me by UNHCR or other humanitarian practitioners within the camps and then many interviewees introduced to me other people, family members, community leaders, or businesses they often went to. I found that the contacts and interviewees became more relevant to my core focus as time went on, and I was able to find more people with strong opinions on energy as the research developed. While initial interviewees were very useful in providing the context and dynamics of refugee energy use, many of the interviewees cited in these chapters are from later interviews. Due to my experience working as a humanitarian, it was easier to immediately identify the most relevant practitioner interviewees. The detailed interviews developed represent the richest detail I could find within the camps and practitioner audiences.

This project also involved some visual elements, such as photography: these exchanges were led by participants and I only took photos when invited to do so in homes. In most cases I would only take photos of general scenes in households or public spaces. I also focused on technologies rather than people, to reduce the chance of any interviewees being identified in my work. Observation techniques such as walking through the camp, participant observation at events, and watching energy uses within homes, were used within both the refugee camps and global spaces to reflect on the type(s) of energy present, who was using it and informed about it, and the general nature of spaces. I found this process particularly useful in critically reflecting on the types of individuals and institutions present within different spaces. For example, while western events such as policy conferences in Berlin and Vienna were predominately white and male-dominated, environments in institutional spaces within camps were more mixed but still mostly male. Homes were often managed by women, but so too were businesses and community facilities within camps.

There are several strengths to collecting data in this way, for example, the data produced is rich in detail, often nuanced by the words of interviewees themselves, and provides direct evidence on the views and values of people involved in the provision or use of energy. Another benefit of ethnographic research in this context is that it often reveals parts of energy demand often not considered by technical or quantitative studies. For example, in traditional techno-economic studies of energy, issues of cultural identity or familial values relating to the social properties of energy might not be considered (Hargreaves and Middlemiss, 2020). I have focused on utilising mainly qualitative data, and have not employed a techno-economic approach to analysing energy use in camps. This choice was made to focus content analysis on perceptions and values, rather than producing a large factual description of the different technologies and economic aspects of refugee energy exchanges. A final benefit of the ethnographic semi-structured method used is that it was adaptable to both policy-maker and refugee interviewees, and was flexible enough to capture a whole range of opinions and narratives on energy.

There are, however, also weaknesses of qualitatively collected data, notably bias and reliability issues. Several interviewees stated opinions as facts, and were convinced that their version of events was a reality, when in some cases their opinions were based on mis-information. While sometimes this was obvious, often it took several interviews and broader discussions to establish accuracy. My own bias as an interviewer is also important; for example, I believe that energy is an important part of people's lives and this opinion has shaped this research considerably. I was critically aware of this and I was open about how energy might be important to people. I tried to reduce my own biases when hearing alternative views to my own and keep an open mind. Another weakness to using qualitative methods is that a limited sample size is possible. While I managed to interview a considerable number of people and felt this was representative of the communities I was engaging with, using a survey or developing quantitative sampling may have engaged larger numbers of people. For example, one study in Rwanda on energy use in the camps surveyed over a thousand people using both focus groups and a household survey (Practical Action, 2020). I did not feel such methods were suitable for this project and so chose to focus on qualitative interviews as my main data collection method.

As there is very little existing work on the energy needs in refugee settings, this project has used interviews and stakeholder engagement methods to develop a small qualitative data sample on how refugee communities and households use energy and how they see the whole energy system surrounding their communities. The analysis of this data is considered below.

Analysis

I analysed data at multiple points during collection and during the write-up stages of the thesis. At the end of most fieldwork days and following policy events I would often spend time typing up my notes or organising my thoughts to keep a record of information as I went along. I then systematically organised this information into interviews conducted in Kenya, Rwanda and globally, and developed the stories presented. While NVivo was used to store and categorise the data, limited coding was undertaken. I used the coding function largely to group stories and comments together, and then undertook a manual evaluation of how to develop these into themes.

I would often check my initial thoughts and findings informally with previous colleagues and friends in the sector to understand more about the topic. Frequently during these conversations, new grey literature or reports would be suggested to me as a way of adding additional secondary evidence into my research. This was very helpful and supported the development of the themes identified in the analysis. These reports and informal chats also acted as a way of triangulating the data I had found during fieldwork, and provided factual and statistical summaries to back up my findings.

I structured the analysis in two ways. Firstly, I analysed the data by comparing the ways people spoke about energy supply compared with how they viewed energy demand. This often resulted in the views of refugees as end-users being positioned against the views of humanitarians as suppliers of energy. While this was useful in categorising the types of technologies and energy demands within camps, it quickly became clear that the majority of interviewees did not class energy in this way and that the roles of end-users and suppliers were complex and did not fit into such a binary structure. I then re-categorised my analysis and the data by *location* of energy use within camps: energy in households, enterprises, community facilities and operations. This was much more revealing and enabled me to draw out the key analysis themes presented. However, this categorisation produced many more themes and initial findings than it was possible to develop or write up. Therefore, a selective approach was developed to select core themes to be discussed. To do this I analysed the types of themes uncovered by the research and then chose to focus on the ones most commonly talked about by interviewees. This resulted in my analysis focusing on two key issues: views and perceptions on energy, and critical consideration of how energy is provided in refugee camps compared to independent methods where refugee homes and businesses access energy themselves. This choice was made as the majority of interviewees spoke to these themes.

Following data analysis, I reflected on the best way to present the information collected within the format of a thesis in order to present findings in the words of interviewees. To this end I developed a

format where stories are presented separated in grey boxes within the text, with the context of the interview, the positionality of the interviewees, and my own reflections included at the start of the description (as outlined earlier in the description on situated stories). Analysis and reflections are then included within these stories to enable the reader to reflect on the environment in which the data was produced and collected. Interviewees within these stories are anonymised, so in some cases the interviewee's nationality or specific descriptions are not included as this would enable the identification of the interviewee. For example, sometimes I use deliberately vague terms such as 'an energy coordinator' because more specific detail would immediately reveal who the person was, especially as communities within the camps are small; and it is important to maintain anonymity in reporting of the analysis conducted. As I worked to develop these stories, I realised that using such a format enabled further analysis and reflection than was possible through just working through the empirical material. The journey I took through analysis was certainly a non-linear one, and was supported through the production of situated stories as discussed in the sections presented above. Critical reflections on these issues, including risks and ethical considerations, are developed next.

Critical Considerations

Risks

While both Kenya and Rwanda are relativity safe countries in which to conduct research, some level of risk is always present, for example, from being mugged to being in a car accident. Physical safety within the camps was not really a risk during fieldwork: I did not often travel after dark and was almost always in populated areas and so had limited exposure to personal risks. In general, there was quite a low risk to myself during the research and no major incidents were reported. However, a more persistent risk was that to mental wellbeing. Spending several months in refugee camps, and not being able to improve the quality of life of those permanently living there, was demoralising and frequently led to feelings of anger and frustration. To some extent these feelings were mirrored by the interviewees in the camps and it was important for all of us to reduce the risk of these feelings boiling over. My main coping mechanisms for this set of risks were to remove myself from very challenging situations and take regular breaks from doing research work, which helped to keep things in perspective.

For research participants, there was a considerable risk of raising expectations within communities about the ability of my work to provide energy access. While I tried to be clear that my project was not designed to deliver energy technologies, it remained a risk that, by spending hours discussing

energy with families and enterprises, additional attention may have been drawn to the lack of energy resources within camps. There were also examples during fieldwork where my research uncovered illegal or informal electricity connections. Reporting these could have caused legal issues or even arrest for the refugees involved. In many cases I chose not to present such stories (many had limited relevance to the core arguments, in any case) or to disguise the location or specifics of the home or business so they could not be identified. I have followed the university's ethics guidelines to ensure that local communities are not misled by the research and every effort was made to not raise expectations within communities.

Ethics

Several ethical issues were considered before fieldwork, including how to gain informed consent (Bell and Miller, 2012), and understanding the role researchers play in the lives of those we interview (Smyth and Williamson, 2004). Acting ethically and sensitively in the case of research in refugee camps is vitally important in order not to further burden vulnerable communities. I tried to strike a balance between sensitive engagements and avoiding potential damage caused by labelling people as refugees: assuming dependency and that refugees are just beneficiaries of aid (Zetter, 1988). Using engaged and ethical energy anthropology was useful in this regard. Placing refugee and practitioner situated stories at the heart of this research enabled open and iterative engagements which were led by refugees and practitioners rather than by myself as a researcher.

In terms of data collection and methodological ethics, there can be substantial problems with undertaking in-depth interviews and asking people to tell their stories. For example, people do not always want to be interviewed, or provide inaccurate information. Similarly, participant observation and focus groups face difficulties as people may act differently when being observed. In this research I addressed these problems by only working with communities and individuals who expressed a clear desire to engage, using a variety of methods to facilitate relationships during repeated engagements. For example, by building inter-personal relationships and spending time directly with families beyond talking about energy, I was able to understand how to best engage with certain individuals and communities. Informed consent was gained before each interview and interviewees were assured that their comments would be kept anonymous.

Particularly in the case of working with women from a traditional background, it can be a challenging negotiation to establish and maintain a relationship. While my research did not focus solely on women, the majority of energy use in refugee homes is consumed by women for cooking and tasks

that require lighting. Therefore, I used specific approaches in these interactions. For example, within the in-depth interviews conducted, some short life history discussions often occurred before talking about energy, to understand the complexity of junctures at which energy is connected with refugees' lives and to enable women to feel valued and heard in their own right rather than just as consumers or receivers of technologies.

Power dynamics were often visible within the camps, particularly between men and women, and between international staff and refugees. I observed little racially-based conflict in Kenya, but a considerable amount of prejudice was present in Rwanda; this was largely from Congolese refugees, who often expressed negative opinions about the local Rwandan rural host community. While I challenged direct racism, there were many other occasions when it was difficult to challenge the systematic oppression and prejudice visible across engagements within the camps and global fora. Where possible I used avoidance as a strategy to disengage with this type of behaviour, and instead tried to talk directly with refugee communities and practitioners outside of traditional humanitarian spaces where such behaviour was visible.

Within refugee communities there were also existing power dynamics, for example, between the refugee committees and some poorer households. These were challenging to deal with. Often refugee committees in the Rwandan camps, who took up the role of local governance for the refugee community, felt the need to control or manage community engagements. However, refugee families were often more comfortable talking without committee members present. In many cases, I got around this problem by conducting an initial chat with families with the committee member present but then returned later at the invitation of the family or business owner for longer interviews. In Kenya this was less of a problem as household access was relatively free and open, without a lot of visible power dynamics stemming from within the communities.

Due to the varied nature of working with refugee communities, I placed ethical considerations at the forefront of the research and adopted a 'do-no-harm' humanitarian practitioner's approach. For example, in some cases when interviewees became aggressive or uncomfortable, I politely brought the interview to an end and sometimes suggested we continue at a later date. Within the following chapters there are also examples of interviewees becoming confused or finding it challenging to talk about energy. In these cases I worked more as a practitioner-researcher to put people at ease and explain technologies or systems, where appropriate and wanted by the interviewee. The benefits of engaging as a practitioner-researcher meant that I was able to access multiple spaces within the camps

easily, and could often adapt the balance of being viewed as an energy professional versus as an academic to make interviewees feel more comfortable.

Ethical concerns also existed for engaging with the practitioner community. Researching as an 'insider' and a practitioner presented many ethical questions (Voloder and Kirpitchenko, 2013), including how to maintain a critical perspective and rigour in research work when collaborating closely with practitioners. While I was often viewed as a practitioner talking to another practitioner, and so relatively equal relationships existed, there were times when I felt my role was conflicting. For example, as a previous practitioner, I was provided with considerable access to documents and meetings which other researchers may have found challenging to access. I did make interviewees aware of my status as a researcher; however, the informality of such contexts meant that this was often not viewed as important by others. My positionality on this issue is considered further in the sections below.

Asking about energy practices often creates the illusion that the researcher will be providing energy to the community. While this is obviously not the purpose of a DPhil, there were situations where interviewees asked about my role in providing energy access: asking if I could procure a certain technology or help agencies to provide more firewood, for example. This happened relatively rarely in my engagements, but, when it did happen, I used a number of strategies to discuss things openly with interviewees and explain my position. The story below highlights two such examples of this.

Intervening or Researching: The Role of an Energy Advocate

While the majority of interviewees in refugee camps did not ask for my support, either financial or practical, in securing or improving their energy access, there were cases where I felt conflicted and wanted to support communities directly in accessing energy. As a practitioner with access to resources and influence, this was theoretically within my ability. However, I tried to walk the line between being supportive and actively intervening. This was not always easy, as the case below shows.

During my engagement with the refugee committee in Nyabijeke in Rwanda, I became increasingly angry that the generators for the camp were not working and that agencies were not taking responsibility for a reliable supply of electricity. I have provided a full description of the following engagement in the things that do not work story in chapter six, but at many moments during the discussion the interviewee highlighted my role in accessing energy. When I reminded the committee member that I could not fix the power, he responded:

"I know this, but you are knowing and he is not knowing [local UNHCR representative about electricity] and maybe he will think you are important and try to ask people about the power. We know [that you cannot provide energy]. We will find it ourselves. But if you know how to get the panels here, you can tell me and it will help us" (Interviewee 79, November 2017, Nyabiheke Rwanda).

In this case I actually did take action within the camp and called the repair support numbers on the generator, sent follow-up emails and raised the issue when I returned to Kigali. But I felt frustrated that I could not do more to support the community.

I faced a similar situation with a student in Kakuma, who was saving and saving and working incredibly hard to buy a computer. The full story is presented in chapter five on solar showcasing (Interviewee 53, September 2017 in Kakuma Kenya). The student needed just $30 dollars to reach his goal after three years, and, while he never asked for money or support in finding a computer, it was difficult not to support such a small amount. In this case I did help the student, not with the money needed, but by providing him with contacts to help him find a job within the camp. He has since found a good job, been promoted, and has now bought the third-hand computer he saved for almost five years to buy.

The balance in these two cases lies between intervening and researching. I am an advocate for energy access and do not approach this topic overall with impartiality. However, within the camp settings it was vital to maintain a level of neutrality and behave ethically. I found advocating for increased levels of access at the global policy level effective, and where possible drew on anonymised examples and stories such as those above, to explain the importance of energy in everyday lives.

Reflections on engagements in refugee camps in Rwanda and Kenya.

The balance between ethical engagement and advocacy is not always easy. Mari Clarke suggests the importance of leveraging knowledge to change policies and institutional action on energy, including using activism when appropriate when researching as "insider anthropologists" (2015, p215). Advocacy in these cases can be both an ethical constraint and an ethical imperative: to advocate for energy access with practitioner communities may bias their views, but it is needed to move beyond the status quo. I found this issue challenging throughout the research, as explained in the positionality section below, but overall I feel I succeeded in taking a balanced approach to maintain the integrity of interviewee data while pushing for practitioners to consider energy further. It is hoped that, by taking such an approach, over time the community will see some improvements and further access to energy technologies. This issue had to be handled particularly sensitively in order to not mislead informants and interviewees while conducting interviews, but I hope my work in the humanitarian energy sector may work to support reducing the barriers for refugees to access energy.

Ethical behaviour while researching also required moments of standing up to and challenging authority, including commenting on inaccurate myths on energy and deliberate lies told by agency workers in order to secure or maintain funding. Particularly on the topic of public street lighting and clean cooking technologies for women, there were a number of instances when misinformation was repeated for dubious purposes. For example, agency staff stated that street lighting was the community's number one request. However, the agency had not conducted an analysis on this and, in fact, other assessments suggest that cooking fuel and electrical power are ranked higher for household needs in both Kenya and Rwanda (Corbyn and Vianello, 2018; Practical Action, 2020). A similar case often emerged with people in global discussions suggesting that providing refugees with clean cookstoves would prevent rapes and violence happening in the camps: given that the majority of violence against women and girls is inter-partner and familial violence, collecting firewood is only

one risk factor in the multiple causes of violence (Abdelnour and Saeed, 2014; Bellanca, 2014; Mercy Corps, 2019; Parke and Fraser, 2015; Sommer et al., 2015). This required a balance of sensitivity, as often the individuals involved held considerable power within institutions. However, I felt it was a moral obligation to present factual clarifications to such statements. My own positionality within these discussions is reflected upon below.

Reflexivity and Positionality

Often during fieldwork I reflected upon my own role as a researcher. Many of these reflections focused on my own privilege and ease of conducting such research. I have been involved in the practitioner community in this sector, and have had the opportunity to watch its evolution from conception into fully-fledged development programming. As a result, it was relatively easy to gain access to sites and to undertake research. Similarly, my own positionality as a white, western, well-educated woman frequently enabled access to discussions and homes where others may have struggled. I was often offered free drinks (both alcoholic and soft drinks) and allowed to enter spaces others were not. My whiteness was often commented upon by refugees (frequent calls of Mzungu - meaning white person or foreigner - followed me around the camps), but more often than not I felt that this was a positive remark: that a white person should be considering energy in such a way and spending long periods with families instead of fleeting visits to see refugee spaces.

Much of this privilege came from a positive place. For example, being a woman and engaging with other women in the camps enabled me to move discreetly through spaces men may not have been allowed in. Being a researcher also enabled me to appear non-threatening and have a more relaxed remit than if I had been working for UNHCR or a humanitarian agency. Similarly, much of the anger highlighted in some of the household stories was not aimed at me but rather the male practitioner colleagues who were seen as being engineers and there to fix problems.

There were moments during fieldwork where I felt the issue of performativity strongly. While "all research is performative, in the sense that it helps enact the real" (Markussen, 2005, p329), researchers also have a duty to acknowledge that performativity (Leathwood and Read, 2013). I often found myself in situations where it was easier to play up my practitioner experience to gain access, or to downplay my experience to fit the role of a student in order to gain an interview. Performing these roles highlights the power inequality visible in refugee settings: I had the opportunity to move and be recognised as a valued person in these spaces, whereas refugees often did not. As highlighted in the “look here” story earlier in this chapter, many refugee women and families were regularly talked over

or not given the opportunity to speak on energy issues. My positionality would often shift within the course of data collection: sometimes I would be viewed as having a position of privilege and access, and other times as not important or significant. As such, my role was not static and, in some cases, would even change within the course of a single interview or interaction. Where this occurred noticeably, I have included this within the situated stories highlighted in the chapters.

Limitations and Reflections

There are several inherent limitations and boundaries of this study. For example, my research focuses on camps rather than displaced populations as a whole. These choices were made to deliberately enable a bounded environment for study, which enabled my research to focus on certain issues and develop a detailed understanding of specific problems. The choices justified below explain why certain boundaries were created to focus the topic of enquiry and enable in-depth analysis and produce a rich ethnographic description of energy issues.

I have analysed energy as a whole rather than focusing on renewable sources of energy. This is a choice made during fieldwork, as many interviewees spoke about energy as an umbrella term and did not just focus on certain technologies. I have also considered electricity in far more detail than cooking. This is in part due to interviewees highlighting electrical products and services more often than cooking-related ones, and the knowledge that it would take an entire thesis to do humanitarian cooking justice. Often, I choose to focus follow-up interviews and questions on electricity and electrical appliances because many interviews had a lot to say about this topic. I also find electricity and the role it plays in people's lives fascinating and so this choice also reflects my own interests. In refugee camps there has traditionally been less research done on electricity compared to household cooking, so I was keen to develop a study which focused on electricity. That said, within interviews many people did speak about energy in general, covering both cooking and electricity, and as a result this study discusses both topics. As there is currently almost no research on energy and transport in humanitarian settings (Grafham and Lahn, 2018), I did not expand my scope of work to focus on this issue. Rather I focused on energy uses in households, enterprises, and operations in order to enable the research to investigate these topics in-depth.

While energy sources and uses also span across household, enterprises, and operations, the format of this thesis has been to separate these spaces into different chapters. These borders are somewhat artificial as in reality energy flows between users, sources, sectors, and locations; however, some boundaries had to be created to enable an organised write-up of the research. Where a border is

enforced within the chapters, such as limiting discussion of energy businesses within mixed household spaces, this is noted and explained.

There are also a number of limitations of this study. Firstly, the choice of two comparative countries in Kenya and Rwanda may limit the relevance of this work to those countries or the East Africa region. I have tried to overcome this by analysing global and regional issues alongside national and camp-specific ones to ensure the research has relevance beyond the sites chosen.

Secondly, there were some areas where data was not available or could not be found. For example, I was often not able to discover detailed knowledge on the costs of operational energy and humanitarian delivery mechanisms. The topic of the costs of energy matters as economic value is part of the construction of value and what this means to people. However, I have focused on the ways in which economic value is constructed and described, as this demonstrated more about the lived reality of people's lives, rather than the financial amounts people spend on energy. A study focused on the costs of energy and energy prices would be able to uncover more detail on this topic, but, within the time and fieldwork possible, this research was not able to collect specific data on how much people and institutions pay for energy.

Thirdly, although information on existing energy projects is currently being developed, the focus of my research was not to evaluate the successes or failures of humanitarian energy intervention programmes. Therefore, my research does not suggest factors for successful energy implementation. It does, however, critically examine the role of humanitarian agencies in providing energy access and so touch on issues of ineffective assistance and the limited scope of aid operations to supply energy to refugees. As a result of this choice, my research did not evaluate specific energy projects led by humanitarian organisations in Kenya and Rwanda. A number of such projects have started since I began fieldwork, including the UNHCR-Practical Action Renewable Energy for Refugees project in Rwanda, and the Moving Energy Initiative Low-Carbon Projects in Kenya (Moving Energy Initiative, 2017a; UNHCR, 2019d). There were two keys reasons for not developing an assessment of these projects as part of this research. On one hand, during initial data collection I wanted to follow the voices and opinions of refugees, and specific humanitarian intervention programmes were rarely raised by interviewees. On the other hand, many of these projects were only just starting as I was finishing data collection, and therefore it was not possible to evaluate the impacts of new investments on communities as many projects had yet to deliver any results. However, as I do develop conceptions on the politics of life *within* humanitarian programming, I mention some energy projects where relevant in the analysis.

Fourthly, a number of critical topics were uncovered during this research which were not able to be analysed in detail. For example, productive uses of energy within refugee camps, which emerged during research on energy uses in small enterprises in camps. Due to time and scope restrictions I was not able to follow up on many such lines of enquiry and as a result there are many avenues of energy values which remain unexplored within these chapters.

Finally, the stories and evidence presented are of course samples, representative of a certain time and place, and possibly do not have further relevance. The examples and qualitative findings of this study are indeed relevant to other sub-Saharan African countries, and are likely to be applicable in parts of the Middle East and South Asia. However, further research would be needed to establish whether this is the case.

There are also a number of assumptions and other critical factors underpinning this study. One core assumption is that energy matters and is an essential part of life in refugee camps. For international scholars and researchers from an energy access background, this is obvious. I held initial discussions to establish the validity of this assumption and test the prioritisation of energy issues within international community debates. It quickly became clear that, while refugees in the camps already knew the value of energy in their lives, this was not necessarily true for humanitarian communities. Therefore, the core audience for this research is humanitarian practitioners and academics who are perhaps not so familiar with energy ecosystems in refugee settings.

While I collected some evidence on the impact of a lack of electricity, and what it means to people, my topic of enquiry was much broader and also considered how and why having access matters to people. Access to energy can be understood to be on a spectrum: some people have more access and some less. It is very rare to find someone with absolutely no access to energy, as most people will at least use some firewood and candles. When people are referred to as 'having no access to energy' in international development and humanitarian documents, this mostly refers to no access to modern energy services: higher levels of electricity, electrical appliances or more advanced cooking solutions. My research reflects this pattern and focuses on people's values around having at least some access to energy rather than analysing what absolutely no access meant (as such situations do not really exist). Within this range of energy access, there was a slight selection and presentation bias towards people who have higher levels of access to electricity in my research. This is largely due to the fact that people with more access seemed to have lots of opinions on energy. They also had a larger number of technologies to talk about and more experience with securing energy.

There is a contradiction at the heart of my energy research. On one hand, I talk about projects which promote energy access and consider humanitarian interventions, while simultaneously arguing that refugees already access energy independently of humanitarian support. This may seem inconsistent, but this reflects an actual contradiction in the humanitarian energy sector: refugees do access their own energy resources and humanitarian programmes are still designed to support them. The differences presented within the chapters are essentially the difference between institutional and individual action, both of which can and do exist in refugee settings.

Finally, a reflection on my own positionality in producing such a study: writing as a European white woman has enabled me to analyse the stories told here on energy access and possibly to bring these to an international audience, implying that my voice and privilege lend importance to these stories. However, issues of household energy and community power are inherently significant and important. I hope that, by presenting situated stories and direct quotes, this has reduced the impact of my own positionality and views on the narrative produced. However, the evidence presented is still selective and choices have been made concerning which stories to focus on, how analysis has been conducted, and which quotes are valuable to convey the narrative I have chosen to produce.

Conclusion: Finding a Balance

This chapter has tried to highlight the complexities of developing a clear qualitative methodology for understanding refugee energy needs alongside those of practitioner views. Humanitarian energy research is difficult to place within one discipline, as energy flows across geography and the physical sciences, economics and the study of institutions, and is also situated within the study of refugees and forced migration. Similar challenges were faced in the light of too much data: there were simply too many stories to present within a hundred thousand words. This methodology chapter has highlighted the need to be selective and the value in keeping methodological and theoretical approaches broad.

A key theme within this chapter, and the ones to come, is one of balance: how to find a balance between telling individual stories and a collective narrative, how to balance being an academic and an advocate, how to listen to multiple views and critically engage with them, and how to hear hard truths and unpalatable myths about energy and still create space for inclusive participation. The hardest balance of all was how to find a way to think critically about energy: it is hard to criticise what you love and have spent years advocating for. However, within this study it has been important to keep an open mind about the benefits that energy brings and the role institutions play in providing these benefits.

Chapter 3. Humanitarian Energy Governance: Definitions, Institutions and Camp Environments

Introduction

Before I began my research on energy in refugee camps, I thought that governance of energy would be relatively simple: humanitarian organisations would organise and supply energy products and services to refugee communities. Perhaps this was a little naïve, but the complexity of the truth was shocking. Often there seemed to be neither rhyme nor reason to the project structures or governance modes supporting humanitarian intervention and, in many cases, shared definitions and understandings of different terms did not exist. This is now rapidly changing at the global level; however, energy provision within camps is still extremely diverse, with every project and programme seeming to have a different set of delivery mechanisms, partners, and procedures. This chapter focuses on the structures of governance and the types of institutions involved in energy for displacement. Rather than describing and analysing all the possible modes and forms of governance, I provide a brief overview of the types of institutions operating within refugee camps and then outline the specific environments in the camps in Kenya and Rwanda.

Humanitarian energy can be seen as a sub-field of two sectors: decentralised energy for development and humanitarian response. The decentralised energy sector centres on sustainable energy and off-grid solutions, often working at the national and local levels, over the long term in developing countries. The humanitarian response sector, however, is globally organised by UN bodies, large NGOs, and emergency responders to focus on short-term crises such as conflicts and natural disasters. Neither of these sectors has fully embraced or claimed ownership of energy for displaced people, and as a result there are often frictions between emergency response institutions and longer-term development agencies. Several policy initiatives are now attempting to bring the learning and systems of these two worlds together to effectively provide energy within humanitarian contexts (Lahn and Grafham, 2015), for example, the work of the Global Plan of Action (GPA) for Sustainable Energy Solutions in Situations of Displacement (UNITAR, 2019). However, the different governance regimes and varying institutional policies between the two sectors make this challenging, and developing an analysis of energy and the politics of life in refugee camps (Fassin, 2007) requires an understanding of both the broader sector and the specific actors who act as governors and gatekeepers in this space. The sheer range of donors, implementing agencies, NGOs, national and local governments, as well as the needs of displaced populations themselves, makes this a complex area of analysis.

Emergence and Growth: Humanitarian Energies

Definitions and Scope of the Humanitarian Energy Sector

Compared to other humanitarian and development sectors, there is a surprising lack of academic research on humanitarian energy: to date the scope of the sector has been largely determined by global policy discussions and practitioner projects. It is particularly notable that very little analysis has defined the terms and titles used within the sector, and the continuing swirl of policy discussions continues to reframe the issues with far-reaching implications. As this humanitarian energy expands and various terms become more popular, terminology is likely to become increasingly important.

Many overarching terms exist on this topic, of which 'energy for displacement', 'safe access to fuel and energy in humanitarian settings', and 'humanitarian energy' are commonly used – often interchangeably. There is an interesting spectrum of more specific terminology as well, ranging across fuels, technologies, populations and geographic regions. An important reason for this is the emerging nature of the sector: many actors are still engaged in justifying the need for and purpose of energy for displacement, and as a result the terms used to describe the problem are often adjusted to fit the audience. For example, the energy and migration terminology has largely emerged from discussions hosted by the EU Energy Initiative Partnership Dialogue Facility (EUEI PDF, 2017), which, by its very nature, focuses on issues impacting European states and current challenges such as the 'migrant crisis' (Morales, 2017). The main term I will use is humanitarian energy, defined as "institutions, policies, programmes, global initiatives, actions, and activities which use of 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" (Rosenberg-Jansen, 2020, p17). The table below provides an overview of the commonly used terms in the humanitarian sector to describe energy activities. While this table is not meant to be comprehensive, it does provide sense of the core areas of focus to date.

Terms	Scope	Suggested Definition	Examples of Use
Humanitarian energy, energy access in humanitarian settings	Sector-wide terms, holistic and covering a range of displacement contexts. Energy for displacement is often the umbrella and informal term used across settings.	Energy supply for and use by displaced people: forced migrants, including refugees and internally displaced people, in camps and urban settings. Host communities and self-settled refugees can also be included in this definition as their energy needs are impacted by displacement, although these terms often focus on energy for people in refugee camps, the forcibly displaced, or people in urban areas. Humanitarian energy and energy access in humanitarian settings are terms often used interchangeably within the sector.	Global Alliance for Clean Cookstoves (2013), Rosenberg-Jansen (2020), Rosenberg-Jansen and Okello (2017).

Energy for displacement, energy for displaced people, energy and forced displacement	Sector-wide terms, holistic and covering a range of humanitarian contexts. Increasingly, practitioners are using the term humanitarian energy instead of energy for displacement to align explicitly with the humanitarian sector.	The use of a range of energy resources across all contexts of displacement, which includes the energy needs of people in camps and urban settings, self-settled refugees, host communities and internally displaced people. While energy for displacement is often used as a technology neutral term, humanitarian energy is often being used to align with progressive ideals on renewable energy and emerging lessons from the energy access sector on energy access rights, sustainability, and leaving no-one behind in the transition to modern energy access. Energy for forced displacement often includes the use of fossil fuels, solid biomass for cooking, and diesel generators.	Grafham (2020), Magori and Okello (2017), UNITAR (2019).
Energy in emergencies	Focused on crisis situations, including natural disasters and conflict settings.	The use and supply of energy for crisis situations, including natural disasters and conflict settings. Often focused on short-term power and fuel supplies and the immediate needs of newly encamped populations. Energy in emergencies can also cover a wide range of people, included those who are not displaced from their region, but are in an emergency in or near their home (for example, people affected by earthquakes or natural disasters).	Mercy Corps (2019), Practical Action (2019).
Energy and migration	Focused on people on the move and migrants.	The supply of energy to, and its use by, migrant communities, including economic migrants and asylum seekers. Often focused on migrants to the global north rather than migrants within the global south or internally displaced people, and the term is linked with climate change and development narratives.	Mach (2020), Morales (2017), Scott et al. (2018).
Renewable energy for refugees	Renewable energy focus and usually supporting refugees and increasingly host communities.	The use of renewable, sustainable and replenishable biomass energy sources in contexts of displacement. This term is often used in association with refugee camps, as camps are often densely populated and renewable solutions can be implemented within communities.	Harper (2019), Leach (2015), UNHCR (2019a).
Cooking and cooking systems in humanitarian settings	Cooking, firewood, and fuel focused.	The use of firewood and fuels as energy for refugees and displaced people, as well as the supply for cookstoves, clean cooking technologies and alternative cooking fuels.	Global Alliance for Clean Cookstoves, (2014), Vianello (2016).
Fuel and energy, safe access to fuel and energy in humanitarian settings	Focus on fuel and energy for cooking and risk reduction from accidents related to energy.	Sustainable and safe use of firewood and fuels as energy for refugees and displaced people, and effective use of energy resources by humanitarian agencies. Terms often focused on cooking energy needs. Historically only examining firewood for households and diesel generation for humanitarian response organisations.	IASC (2009), SAFE (2015), UNHCR (2014).
Household energy for refugees	Focus on lighting, mobile charging, heating, cooking, and cooling for homes and households.	Ensuring refugees in camps and urban settings have safe and sustainable energy for their household use, including affordable lighting and mobile charging, safe cooking technologies, low-carbon power for household appliances.	Lahn and Grafham, (2015), Lehne et al. (2016), Lyytinen (2009).
Community energy for refugees	Often focused on mini-grid and decentralised energy solutions.	Providing sustainable and affordable energy to community facilities, including schools, hospitals, community spaces, and street lighting in refugee contexts. Often focuses on electricity solutions, but can encompass community cooking initiatives and kitchens.	Barbieri et al. (2018), Coventry University, (2017), Hartley, (2016).

Productive use energy, energy for refugee businesses, energy for enterprises	Usually focused on camps, mini-grid, and electricity-based solutions.	The supply of energy for small and medium sized enterprises in refugee settings: enabling entrepreneurship to develop within refugee camps. Often involving commercial, agricultural, and industrial activities using electricity services for the production of goods or provision of services. While this has been a neglected topic, energy for enterprises represents an emerging set of terms that may increase in visibility and scope over time.	Bellanca (2014), Energypedia (2017), Rosenberg-Jansen (2019b).
Operational energy for humanitarian agencies, institutional energy	Focused on camps, grid-level connection services or and mini-grid solutions.	The supply of energy for humanitarian agencies, NGOs and implementing partners working in refugee contexts and crisis response situations. Focused on electricity products and services: currently most operations use diesel fuel to power their operations. Increasing focus on 'solarisation' of operational energy, involving switching to solar mini-grids and renewable solutions.	Grafham and Lahn (2018), Lahn and Grafham (2015), OCHA (2010).

Table: Suggested definitions and scope of humanitarian energy areas. Source: Author's own, references to specific examples of use cited in table.

The scope of these definitions varies in three core ways: by population, by type of energy, and by their approach to sustainable investment and affordability. Some areas focus more on encamped populations, while others explicitly include migrants and host communities. Definitional inclusion or exclusion of renewables and sustainable energy is particularly interesting as it reveals that part of the sector views certain technologies and products as 'good' energy: either in terms of safety (e.g. reducing burns and health risks), or reducing emissions and impact on climate change, or for the environmental and deforestation reasons. The final way these terms differ is by their approach to affordability and sustainable investments. This is an understated difference, but the productive uses, safe fuels, and institutional energy areas are underpinned by rationales on cost and reducing the strain on limited humanitarian resources, as well as supplying low-cost energy solutions.

There are multiple reasons for these definitional differences. Many of these variations are guided by the scope and ethos of the institutions who have been key in developing the policies and outputs for the area. For example, the focus on effective use of resources and reduction in emissions in the institutional energy area can be seen to be guided by Chatham House's approach to climate change and the environment. In contrast to this focus, the focus on safe, healthy, affordable fuels for the cooking area is guided by the Clean Cooking Alliance's remit to "save lives, improve livelihoods, empower women, and protect the environment by creating a thriving global market for clean and efficient household cooking solutions" (Global Alliance for Clean Cookstoves, 2014). The differences in terms are political, and to some extent reflect choices being made by humanitarian organisations on which issues matter and should be paid attention to. The politics of life (Fassin, 2007) is clearly

visible in some of these definitions, as some institutions are only willing to engage on certain issues that have been prescribed by their political and institutional remits. For example, the Clean Cooking Alliance's political and issue-based focus on cooking rather than electrical uses of energy.

Even from this brief table it is apparent that there are multiple forms and understandings of energy access within the sector, and there are many humanitarian energies that can be investigated. A definition of humanitarian energies as an overarching term could simply be: the variety of energy projects, uses, and supply systems that are practised by humanitarian agencies, international development practitioners, and displaced communities. As there has been almost no academic research conducted on this broad area, this categorisation can suggest many types of analysis, including techno-economic analysis, impact assessments of projects, lived experience analysis of refugees in camps and self-settled communities, understanding the links between energy and gender in contexts of displacement, or a more detailed history or institutional analysis of the emergence of the sector.

A sense of scale and scope can be inferred from this table: there are a relatively small number of organisations engaged with humanitarian energy at present, roughly twenty core institutions. And, while the sector is expanding rapidly, it is still a small number of core individuals and organisations who are driving this agenda forward by producing written documents and developing pilot projects. The next section provides an overview of these institutions and sites where policies and projects are being enacted.

Policy Emergence

Initial policy research by Chatham House was undertaken in 2013 on the energy needs of populations in camps (Gunning, 2014) and the policies and practices of sustainable energy provision (Bellanca, 2014). Prior to this, published work on humanitarian energy was dominated by evaluations of clean cooking interventions in specific sites, for example, work done on cooking and fuels in Uganda (Birikadde et al., 2009; Bizzarri and Barbelet, 2011), Kenya (Bates et al., 2002; Bizzarri et al., 2010), and Ethiopia (Egziabher et al., 2006; Rogers et al., 2013). Since 2013 the numbers of projects, policies and international events and discussions have increased rapidly. The figure on the following page highlights some of the key policies emerging in the sector.

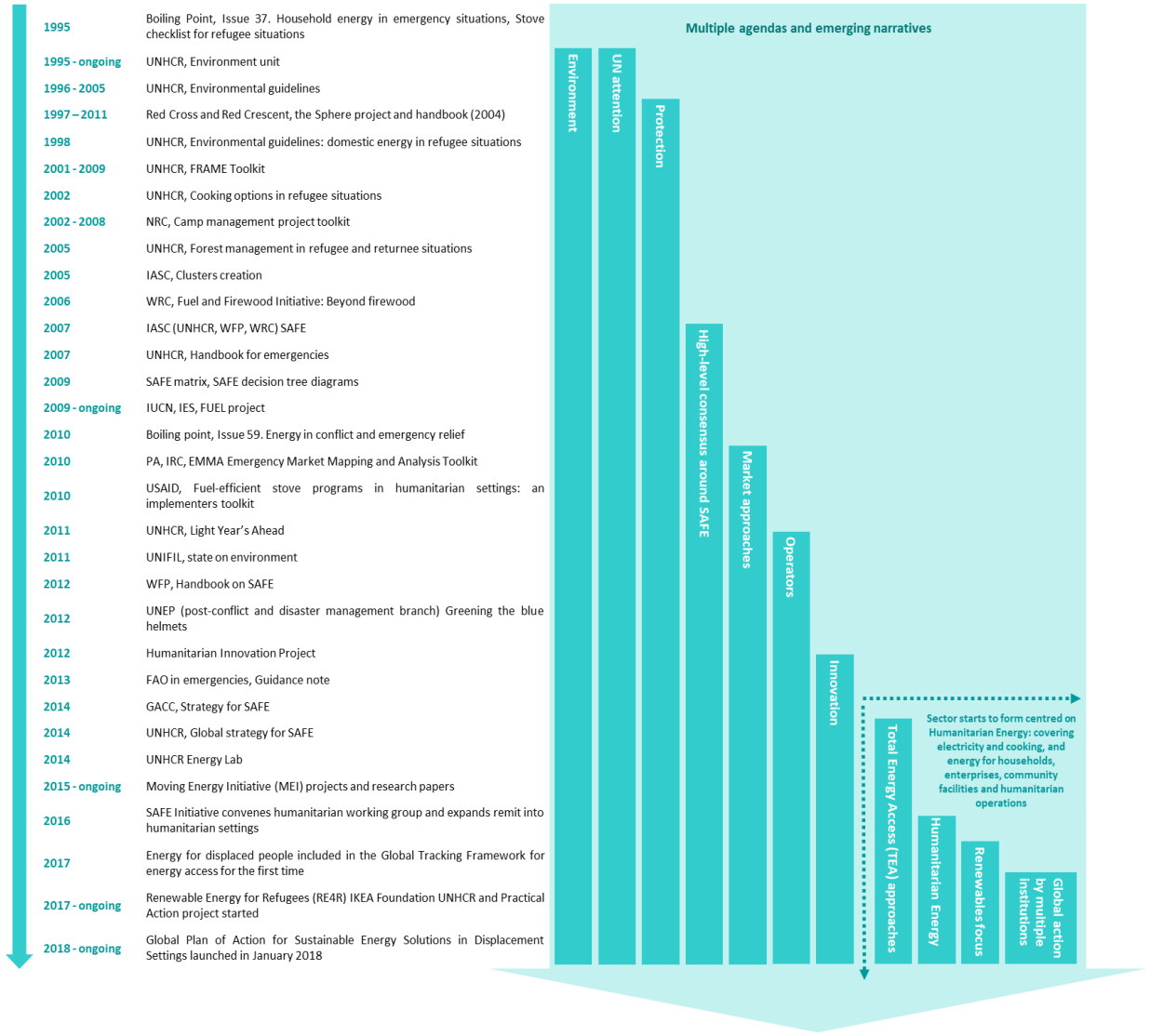


Figure: Chronological summary of policies and narratives relevant to energy in emergency situations, 1995 to 2018. Source: Adapted from Bellanca, 2014, p6.

One of the reasons for the growth of the sector could be the increased attention to energy within the international development agenda in the past decade. For example, both the inclusion of energy as a Sustainable Development Goal (Nakicenovic et al., 2013; Sustainable Development Goals, 2017) and the evolution of the energy access agenda (SE4ALL, 2017) increased attention on energy both as a resource and as a human right. Initial research and investment projects have been funded both by the UK Department for International Development (Moving Energy Initiative, 2015) and the IKEA Foundation (2017) to produce pilot projects that demonstrate sustainable energy investments in humanitarian settings.

Within the UN and humanitarian systems, however, the energy agenda has been slow to take off. Several policy initiatives, for example, the Moving Energy Initiative (2017) and the SAFE initiative

(2015), have managed to create some traction with the large humanitarian agencies, and UNHCR launched strategies for energy in 2014 and 2019 (UNHCR, 2019a, 2014). However, energy is still not formally included in the humanitarian response system. It does not yet have an institutional presence within the cluster system of the Inter-Agency Standing Committee - IASC (OCHA, 2020), and energy actors have had to work through other, informal, coordination mechanisms. As a result of the increasing amount of practitioner learning on this issue, the SAFE initiative has launched an Energy Community of Practice which provides summaries and information on many of the projects emerging at the field and country levels (SAFE, 2017). Over the past two years a Global Plan of Action (GPA) for Sustainable Energy Solutions in Situations of Displacement has been developed by a range of institutions to move this agenda forward (UNITAR, 2019). UNHCR has also recently launched a new energy strategy and started a Global Energy Challenge (UNHCR, 2019a). These initiatives and institutions all act in different ways within humanitarian energy: a summary of these roles is provided in the following section.

Institutions and Forms of Governance

Organisations and Humanitarian Actors on Energy

Florini and Sovacool define global energy governance as the "international collective action efforts undertaken to manage and distribute energy resources and provide energy services" (2009, p5239). Energy has not developed in a similar way to other technology or cluster sections such as shelter, wash, or logistics. These sectors are formally organised, usually by the IASC and leading humanitarian partners, while energy has remained unregulated and ungoverned for many years. Energy is different to other sectors for a lot of reasons, mostly because it has been overlooked as a need in humanitarian settings (Rosenberg-Jansen, 2020). As a result of energy being treated differently, action on energy is lot more diverse than in other sectors. Both collective and disparate action on energy is taken by a range of actors and institutions, including humanitarian response agencies, UN bodies, local and global NGOs, and think tanks. Currently, no one actor or set of actors can be said to govern the field of humanitarian energy in the traditional sense of control and regulation. However, several key institutions have been involved in shaping the energy agenda in humanitarian settings. The summary below is not designed to be comprehensive, but rather to provide an overview of the key organisations who have already been involved with the humanitarian energy sector.

First, there are local and international NGOs, such as Mercy Corps, MSF, Norwegian Refugee Council (NRC), Plan International, Oxfam, World Vision, Lokardo, and Swiss Contact. These organisations tend to be viewed as implementing partners, who work with humanitarian agencies to support relief,

response and often long-term development objectives. Many of these organisations already have energy programmes embedded within their existing programming, such as solar water-pumping projects, but these are usually more focused on other sectors such as shelter, health, food relief, or water and sanitation.

Second, there are think tanks, funded partnerships, and policy bodies, such as the Global Plan of Action (GPA) for Sustainable Energy Solutions in Situations of Displacement, Chatham House, Safe Access to Fuel and Energy initiative (SAFE), the Global Alliance for Clean Cooking (GACC), Energy for Development partnership (ENDEV), Alliance for Rural Electrification (ARE), Global Off-Grid Lighting Association (GOGLA), Sustainable Energy for All initiative (SE4ALL), and the Moving Energy Initiative (MEI). Many of these organisations currently have dedicated programmes or individuals working on energy for displacement in global and international forums, and have been considerably influential in the development of the humanitarian sector. For example, the first substantive research was undertaken by MEI and Chatham House, and the SAFE working group on humanitarian energy access was the first group to convene a large number of implementation and policy actors to progress the global humanitarian energy agenda. Interestingly, many of these organisations are usually focused on long-term development or energy sector issues, rather than emergency response.

Third, there are the inter-governmental and UN bodies, such as the Food and Agriculture Organisation (FAO), International Organisation on Migration (IOM), United Nations High Commissioner for Refugees (UNHCR), United Nations Institute for Training and Research (UNITAR), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development Organisation (UNIDO), and World Food Programme (WFP). While a few of these organisations, UNHCR and IOM notably, have energy programmes, these are extremely small compared to the core remit of these organisations. Increasingly, UN bodies have been engaging with humanitarian energy at the global level, but on-the-ground programming is still nascent.

Fourth, there are funders such as the large national donor agencies Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Stichting Nederlandse Vrijwilligers (SNV), the Swedish International Development Cooperation Agency (SIDA), and the UK Department for International Development (DFID). International finance institutions like the Asian Development Bank (ADB), African Development Bank (AfDB), Islamic Development Bank, KfW Bank Group, and the World Bank. And multi-donor organisations such as the European Union, Economic Community of West African States (Ecowas), the Gates Foundation, IKEA Foundation, Kofi Annan Foundation, and the Olympic

Committee. The majority of these donors have already funded projects in the humanitarian energy sector, with the others considering investment programmes.

Finally, there are investors and businesses from the private sector, such as Eurelectric, Energias de Portugal (EDP), Schneider Electric, Phillips Lighting, Total, Inyenyeri, Little Sun, Kube Energy, BBOX, and Mobisol. The role of these organisations is highly varied: some are direct implementers and have business in refugee camps such as Mobisol, BBOX and Inyenyeri, while others are large energy sector companies considering market options and the potential to expand into humanitarian supply markets.

One group evidently missing from this list of organisations is nation states and host governments. There are a range of reasons for this. One critical reason is that energy for refugees and displaced people mostly involves communities who have relocated from one country to another. As a result, nation states often do not include these populations in their national and local energy planning or strategies, and so have not so far engaged substantially with energy in humanitarian settings. Notable exceptions are the governments of Rwanda and Uganda, who are taking an integrated host and refugee approach to managing displaced populations, and who may become more involved as the sector develops. Internally displaced people are also not often included in nation state response, as major IDP events are usually caused either by conflict or natural disaster, and global humanitarian organisations often fill the role of nation states during such events. At the field level for individual camps, national government representatives are often present but usually humanitarian organisations take the lead on coordination within camps.

Governance, regulation and institutional engagements would normally include oversight of the norms, actions and rules to structure, regulate, sustain and hold accountable a sector or set of actors. However, as the humanitarian energy sector is an emerging set of institutions and organisations, governance mechanisms are not as defined as they are in other sectors. For example, in terms of accountability and rule-making there is no inter-governmental or regulatory body designed to control and monitor humanitarian energy activities. In some circumstances, UNHCR, IOM and other refugee camp operators play this role as they usually have responsibility for refugee camps and to some extent regulate which projects and energy activities occur. Responsibilities for firewood and cookstove provision usually lie with UNHCR or WFP. In many cases, implementation of firewood distribution is outsourced to a local NGO as an implementing partner, and is sometimes overseen by refugee committees. Engagement with host communities and larger-scale energy investments are also overseen to some extent by national governments and governmental ministries. However, this engagement is often largely at the approvals stage, and government officials rarely participate

substantively. NGOs and private sector actors are also held accountable, but mostly to their stakeholders and the investing public than to a higher organisational body.

While there is no formal cluster for energy within the humanitarian system, the fact that several global policy organisations work together through international forums provides a form of light touch global governance. The Global Plan of Action for Sustainable Energy Solutions in Situations of Displacement (GPA) was launched in 2018, has started to cement these relationships even further and is emerging as the de-facto informal cluster on energy. While the GPA does not seek to control or regulate action on energy within displacement settings, it does provide a platform for coordination and technical resourcing to support humanitarian actors, working as:

> "a non-binding framework and entails concrete recommendations for accelerated progress towards the vision of safe access to affordable, reliable, sustainable, and modern energy services for all displaced people by 2030. The living framework is the result of continued consultation among humanitarian and development organisations, the private sector, governments, academia, and other stakeholders involved in the provision of fuel and energy services to displaced people … [To ensure that] Every person affected by conflict or natural disaster has access to affordable, reliable, sustainable and modern energy services by 2030" (UNITAR, 2019, p1).

As such, the GPA can be said to be providing a type of informal global governance for the humanitarian energy sector. However, with so many organisations involved with energy for displacement, it is difficult to provide an overview of who does what and how. In general, governance in the humanitarian energy sector can be said to be both global, led by international organisations, and local, led by site offices, implementing NGOs and in-country actors. Relatively few decisions are led by national states or formalised accountabilities within the UN system. Governance so far is informal, multi-institutional, and largely led by certain institutions.

Institutional Progression

The roles organisations play within the sector are still evolving, and many institutions are expanding beyond their traditional remit. For example, UNHCR has been moving, as one interviewee highlighted, "beyond refugees … by engaging multiple communities, internally displaced, migrants, urban people, forced migrants" (Interviewee 6, May 2017, Vienna Austria). International development organisations focused on energy (such as the SE4ALL initiative and ENDEV) are also expanding their remit to cover humanitarian issues. Institutional progression can be seen in two ways: firstly, in the form of new connections and networks within the sector. Secondly, development in the form of changes to the sector as a whole, which is being pushed forward and progressed by such institutional development.

This is largely seen as positive by the actors involved, who see practical as well as policy changes being incorporated into planning. As one commentator suggested, expansions in traditional remits have had a constructive impact: "there is positive disruption from renewables within [the] humanitarian system: it's not just diesel and cookstoves anymore" (Interviewee 6, May 2017, Vienna Austria).

The institutional progression of humanitarian energy has been led by a range of actors, not least UNHCR, who are increasingly investing in energy and environmental programming in country offices. There is also a recognition at the global level about the changing nature of the refugee debate and shifting to long-term development planning: "it should be more about facilitation than protection … energy is a new humanitarian sector, we need to learn from the lessons of the past" (Interviewee 7, May 2017, Vienna Austria). The recognition by individuals within institutions is interesting in itself, as it suggests a high level of awareness about the evolution of the sector and where it is heading. Speaking about a particular initiative, one commenter suggested that humanitarian energy:

> "will dissipate if non-one takes it on … if it doesn't define itself. The momentum was great for getting the sector started, but now we need much more data, examples, and practical ways of doing to move from talking to doing … it needs to expand, to keep learning fresh, and keep the examples going … otherwise it will die" (Interviewee 6, May 2017, Vienna Austria).

As the sector evolves, it is expanding into multiple sites of practice: with policies, programmes, and projects being enacted at global workshops, households in Rwanda and Kenya, and a great many micro-sites within these spaces. Examining how institutions organise within these spaces will be important to understand how decisions are made and what role institutions play: these topics will be considered further in chapters six and seven. The evolution of the humanitarian sector is driven by political choices and changing institutional remits. As governance is always political, we can seek to understand how the politics of life is reflected in the roles and responsibilities of humanitarian organisations (Brown and Cloke, 2017; Fassin, 2009; Feldman, 2012). To develop these ideas, examples of specific governance roles within camp environments will be considered below.

Local Governance and Energy Projects: Governance on the Ground

Humanitarian energy covers projects and programmes implemented in countries and at local sites within camps and regions. UNHCR and camp operators are usually responsible for overall coordination for camp activities, which includes shelter, registration, provision of resources, and resettlement processes. In the camps in Kenya and Rwanda, UNHCR partner with WFP who are responsible for food distribution, and NGOs, who lead on delivering health, education, and community services (Rosenberg-Jansen, 2018a). I briefly outline the specific agencies and partners below.

Energy in Kakuma Camp in Kenya

Kakuma refugee camp in northern Kenya has been established since 1992 and hosts over 190,000 refugees, mostly from South Sudan, Ethiopia, Somalia and Democratic Republic of the Congo (UNHCR, 2019b). A few kilometres away is the Kalobeyei settlement, which is jointly managed by UNHCR and the Kenyan government. Kalobeyei acts as both an extension of the Kakuma camp for South Sudanese refugees, and is also designed to be a more open, permanent space in which local Turkana people and refugees can live alongside one another (UNHCR, 2018a). This research has focused largely on Kakuma camp, but some examples of energy uses within Kalobeyei are also included.

Kakuma is managed by UNHCR and WFP (UNHCR, 2019e), who also have the institutional responsibility for the provision of energy. UNHCR have the broad remit for energy access and coordination, whereas WFP focus on providing food and cookstoves within the camp. NGOs and international organisations supporting these humanitarian agencies are very visible within the camps and all use a considerable amount of energy within their compounds and offices (UNHCR, 2019e).

Within UNHCR Kenya a distinction is made between implementing partners and operational partners. Implementing partners (IPs) are provided with a specific remit by UNHCR and are often funded by agencies to implement key activities. IPs with a role on energy include: Danish Refugee Council, Don Bosco, FilmAid International, International Rescue Committee, Kenya Red Cross Society, Lutheran World Federation, Norwegian Refugee Council, and Save the Children International (UNHCR, 2019f). Operational partners are organisations which have an independent remit to UNHCR and are comprised of both NGOs and international organisations. Operational partner NGOs in Kenya involved with energy include: Handicap International, Médecins Sans Frontières, World Vision International, Kakuma Mission Hospital, Association for Aid and Relief (AAR) Japan, and Swiss Contact. Other large-scale operational partners active who have a role on energy include: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation – GIZ), International Organization for Migration (IOM), United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), The World Bank, United Nations Human Settlements Programme (UN Habitat), Food and Agriculture Organization of the United Nations (FAO), United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF), United Nations World Food Programme (WFP) and United Nations Office for Project Services (UNOPS) (UNHCR, 2019f). There is a huge range of action on energy within these organisations, with some leading major energy programmes and some with a much smaller role to play. The roles on energy within some of these institutions will be discussed in more detail within the core chapters.

Within camps, firewood distribution is usually organised by the local 'energy and environment' implementing partner. In the case of Kakuma, this is a local Kenyan NGO called Lokardo, who is responsible for forestry replanting, firewood distribution, cookstove production and some livelihood activities connected to very small-scale agriculture such as vertical planting. Refugees are usually responsible for their own collection of firewood on distribution days and, while some have been given cookstoves and pots as part of the initial distribution of resources on arrival, many people do not use these or have them anymore. Many households rarely interact with formal institutions on energy provision, with the exception of firewood collection. As the amount of firewood allocated is often not sufficient, most households also have informal and exchange mechanisms to buy, collect or trade for more firewood or fuel to ensure they have energy to cook with. As the picture below highlights, many informal markets and shops selling energy products and services within the Kakuma camps were available.



Photo: Electrical store, Kakuma Kenya.

The remit for organisations within Kakuma to deliver electricity access for refugees is extremely varied. Most NGOs are responsible for the provision of their own energy, usually secured in the form of diesel generators, but have a limited remit to provide energy products or services for refugee households. Where institutions do provide energy, it is usually through individual projects which require energy as a first-order need. For example, generators to power the interventions of Film Aid, which runs movie showings within Kakuma.

Previous examples of on-the-ground renewable energy projects in Kakuma include solar lanterns distributed with funding from the IKEA Foundation, a solar lantern and schools programme with EDP, and some investments in solar panels for clinics. All of these projects were donor led – the funder requested to implement a project with UNHCR and local partners – and activities were undertaken by the local implementing partners such as Lokardo, Don Bosco, and the International Rescue Committee. Both local refugee committees and the local Turkana Kenya local government were consulted as part of the programmes, but were not key implementers. While the success of these programmes is not

evaluated as part of my research, it is clear that in many cases energy is not broadly considered within humanitarian projects, and the relatively few projects dedicated to the provision of energy are limited in scope and reach. This topic will be considered further in chapter six.

Energy in Kigeme, Nyabiheke, Gihembe and Mahama Camps in Rwanda

In the Rwanda camps, the story on energy is quite different to that in Kenya. Firstly, the camps in Rwanda are much smaller than Kakuma – with Kigeme in the south hosting over 20,500 refugees, while, in the north of Rwanda, Gihembe hosts 13,000 people and Nyabiheke 14,400 (UNHCR, 2019c). The vast majority of refugees in these camps come from the Democratic Republic of the Congo (UNHCR, 2018b). While the electricity needs of refugees are similar – energy is still needed for homes, businesses and community facilities – the availability and supply of electricity services is considerably less visible than in Kenya. The smaller size of these communities may be one important reason for this, as larger cities and population centres such as Kakuma tend to have more businesses and energy facilities. Another important reason might be the fact that these communities have not been established quite as long – Gihembe since 1997, Nyabiheke in 2005, and Kigeme in 2012 (Republic of Rwanda: Ministry in Charge of Emergency Management (MINEMA), 2018) – compared to Kakuma in 1992. This research also includes some examples of solar energy used in Mahama camp in Rwanda – which hosts 60,000 refugees from Burundi and has been open since 2015 (Republic of Rwanda: Ministry in Charge of Emergency Management (MINEMA), 2018). However, as Mahama camp has only been open for four years, the situation is more fluid there, with new arrivals and relocations happening often, and the overall energy situation changing rapidly during the course of my research.

UNHCR Rwanda has a range of operational and implementing partners who have a role on energy, including: Africa Humanitarian Action (AHA), American Refugee Committee (ARC), Humanity & Inclusion, Legal Aid Forum, Oxfam, Plan International, Save the Children, and World Vision Rwanda (UNHCR, 2019g). There are fewer partners within the Rwandan camps than in Kakuma, which may partly be due to the smaller size of the operation and to the fact that there is less media attention on the Rwandan camps. Despite this, there have been a number of humanitarian energy programmes implemented in the camps.

While UNHCR has responsibility for coordination and humanitarian action within the camps in Rwanda, the Rwandan Ministry in charge of Emergency Management (MINEMA), formerly the Ministry of Disaster Management and Refugee Affairs – MIDIMAR, is actively involved in the day-to-day management of the camps, including supporting the refugee committees and elections of refugee

presidents. Previously, firewood was provided in a similar way to that in Kakuma, thorough delivery by a local NGO. However, the government of Rwanda recently changed its policy on solid fuel and firewood use and as a result UNHCR have been asked to no longer distribute firewood within the camps (Patel and Gross, 2019). While the tendering and project development process to solve this problem was still underway at the time of writing during 2019, it seems as if cooking fuels and briquettes will be freely distributed within the camps. Other technology solutions will also be considered, such as LPG, which has been recently distributed to families in Mahama camp (UNHCR, 2019h).

UNHCR and partners have had a considerable programme of free distribution of solar lanterns. For example, the IKEA Foundation donated over €30.8 million to UNHCR to support the provision of lighting in Rwanda and other countries, and over 300 Little Sun lamps were distributed to elderly refugees in Gihembe and Nyabiheke (IKEA Foundation, 2017; Little Sun, 2018). As a result, some small solar lanterns are visible within the camps. Free distribution of solar products may have had a negative effect on local market systems for selling solar products as services (Corbyn and Vianello, 2018), which may also contribute to fewer varieties of solar lanterns and technologies being visible within the camps. Although there are some examples of working solar products in Rwanda, these are relatively few compared to Kakuma. The picture below shows one of the small solar lanterns charging on the roof of a home in Kigeme camp in Rwanda. Another example of an energy project funded in Rwandan camps is Inyenyeri, a Rwandan social enterprise company working in Kigeme camp with gasifier clean cookstoves (UNHCR, 2019i). While these projects have enabled some forms of energy access within the camps, they are far from comprehensive. Humanitarian energy projects, in the camps in both Kenya and Rwanda, only partially meet the needs of refugee communities. The role of institutions in providing energy is changing, and this issue is briefly considered below to highlight the context in which this research was conducted.



Photo: Solar lanterns charging on roofs, Kigeme Rwanda.

The Changing Nature of Governance in Refugee Settings

Another element of complexity within my research is the changing nature of institutional action on energy for refuges. Over the past ten years governance and the role of different institutions has changed considerably (Grafham, 2020). As the diagram below highlights, where traditional roles of agency and implementing partner used to exist, a range of new partnerships, initiatives, and modes of working have now emerged. Initial action on energy in refugee camps, prior to 2010, was largely driven by independent individuals and stand-alone programmes. This changed as the issue received increasing attention from global policy-makers and donors, and the first investment programmes in camps began. Following this, in about 2015, an intense phase of innovative action began, with alternative partnerships and global collaborative action taking place. We are now moving into a new era of humanitarian energy: one which many stakeholders hope will result in implementation at scale and a radical change in humanitarian delivery mechanisms and sustainable solutions. While positive results on the ground have been slow to materialise, change is certainly afoot.

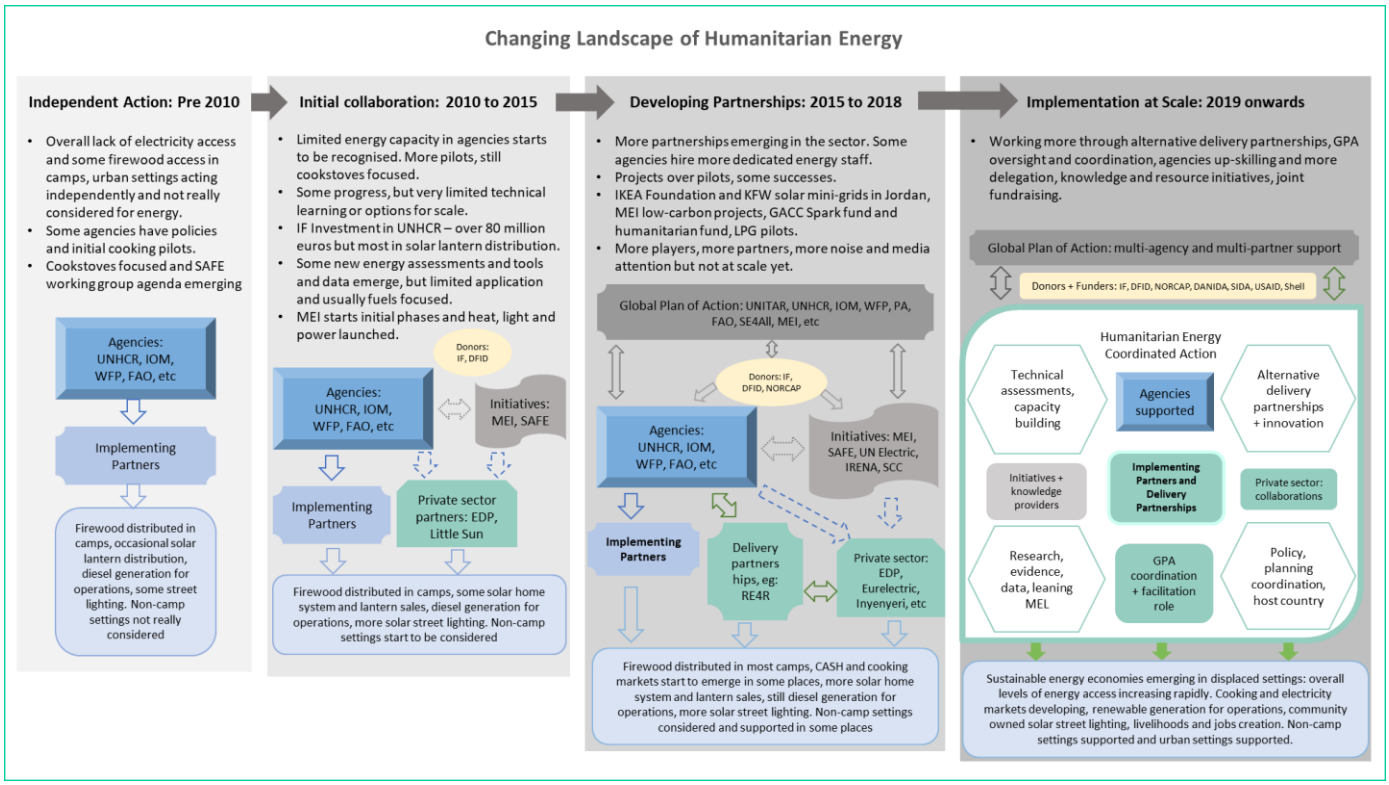


Figure: The landscape of humanitarian energy and evolution over time. Source: Author's own.

Particularly noteworthy is the emergence of development-led programming and the impact of the private sector in driving this transition (Patel and Gross, 2019; Van Landeghem, 2016). Alongside this, the creation of the Global Plan of Action has also galvanised coordinated action within the sector, and

many humanitarian institutions have now started to pay more attention to energy (UNITAR, 2019). UNHCR has been one such agency, and at the end of 2019 launched a new, progressive energy strategy and hosted the first Global Refugee Forum in December 2019, focusing on energy and infrastructure as a key theme (UNHCR, 2019a, 2019j).

It is important to think critically about the changing nature of humanitarian energy, and understand the political choices which are driving such changes. The politics of life literature (for example, Fassin, 2007; Feldman, 2012) can be helpful in adding to our understanding here. As Fassin notes, "humanitarian action takes place … on the wrong side of life" and is aimed at protecting life and survival (2007, p511). However, in the changing landscape of humanitarian energy, many energy programmes now acknowledge that "improving access to a clean and sustainable source of energy can transform broken lives" and increase opportunities to attend school, open businesses, and use entertainment technologies such as TVs and cinemas (UNHCR, 2019k, p1). UNHCR in fact explicitly reference the political changes shaping the change from provision of basic services to development-led approaches: "energy access is not only a development goal (SDG 7) in its own right, but also a bridge between short-term humanitarian responses and longer-term development goals" (UNHCR, 2019a, p7). The implications and realities of these changes will be discussed in detail throughout the following empirical chapters.

While this chapter has presented the emergence of the humanitarian energy sector and the current governance modes within camps in Rwanda and Kenya, many elements of this system are starting to change. Camps are likely to continue to be managed by UNHCR and core partners such as WFP; however, the roles of implementing, operational and other partners on energy are changing quickly. My research was conducted from 2016 and 2019, and many more institutions and initiatives have started planning for energy projects during this time. The research for this study was conducted within the context of these sector-wide changes and to some extent this research has had to adapt its lines of enquiry accordingly to incorporate new initiatives and sector actors. Chapters six and seven will consider these changes and the implications of institutional action on energy in more detail.

Conclusion: Evolving Governance

The varied roles of institutions in the humanitarian energy sector are already evident from this short overview. However, it is not possible to understand the detail of how policies and projects work by only examining institutional and governance elements of networks, as refugee households and businesses have a critical role to play in the energy access story of camps. Humanitarian energy is a

new sector, one inexperienced in providing energy for refugees, and as a result it would be natural to expect a certain number of disconnects between policy and reality. However, as the following chapter will demonstrate, it is the scale of these disconnects which presents a problem: what we seem to be witnessing now is a humanitarian system that is fundamentally at odds with the provision of energy services, and a series of political choices which do not support the graduation of refugees from humanitarian aid on energy. Evidence to support this will be considered throughout the following empirical chapters and reflected on in chapter seven.

In summary, this chapter has presented a brief overview of the energy transition occurring within the humanitarian space. To some extent, the changing nature of political governance of the sector reflects this transition; however, there are many more forces at play in dictating the lived experience of energy within individual camps and households. While this chapter has provided an overview of the governance mechanisms within the broader humanitarian energy arena, I will now turn to the specific angle of enquiry of this research: how energy is perceived and used by households, businesses and organisations within refugee camps, and the role institutions play within these energy uses.

Chapter 4. When We Talk About Energy, We Talk About Life: Perceptions on Energy Use in Camp Households

Introduction

In the words of refugees themselves, energy covers 'lanterns and everything else', 'family connections', and 'homes and lives surrounded by wires'. Energy means being able to do household tasks clearly and being able to run a successful business. Electricity access in particular offers progressive advantages that improve people's quality of life. Energy spans the total life of households, the in-between spaces of energy in the camps, and connects many aspects of living in a refugee setting. This chapter presents evidence on energy perceptions among households: quoting the voices of refugees directly, and contrasting these with the perceptions of global stakeholders within the humanitarian energy sector. In doing so, I question what types of knowledge are visible about energy: who owns and controls energy, which agencies and actors have responsibility for electricity provision, and who has power within refugee energy settings?

From a general perspective, energy use in Rwandan and Kenyan homes in camps is relatively similar: most people use firewood for cooking and have relatively limited access to electricity and electrical products – at least compared with western consumption levels. Most homes have a phone or access to a phone, and all had some type of appliance, for example, a torch, mobile charger, light bulbs, radios, fans, and a clock. A key use of energy is for entertainment; as TVs, radios, and other appliances are present in homes and many people mention these technologies immediately when talking about electricity. While smaller in number, considerable electricity in the camps is needed for powering appliances and businesses *within* the homes: for example, the solar tailoring businesses, phone charging shops, and hairdressers based within people's homes all use energy. Finally, energy is seen as important for safety and keeping clean, and many households referred to the importance of lighting to reduce accidents.

This chapter does not just provide a summary of the technologies, rather it focuses on the social nature of energy as outlined in the literature debates in chapter one. As one refugee commented: "when we talk about energy, we talk about life" (Interviewee 91, May 2018, Mahama Rwanda). Different cultures of energy use emerged from the interviewees, and perceptions on energy were varied. I build on this evidence, and the work of Fassin (2007) and Feldman (2012), to suggest that a politics of life centred on quality of life and access to different levels of energy access is present in the households.

Household Perceptions on Energy Use

Evidence on the Values People Place on Energy

Many interviewees suggested the inherent importance of energy within their lives. The sections below explore a range of social and economic values that were presented by interviewees, clearly demonstrating the links between energy sources and appliances and why these technologies mattered to them and their families. Several interviewees also commented on what the lack of energy means at the household level. As one interviewee noted, "if you have no battery, you have no torch. If you have no panel, you have no phone charging business. If you have no diesel, you have no lights or fan. If you have no wood, you have no food" (Interviewee 37, June 2017, Nairobi Kenya). The stories and empirical evidence collected in the field suggest that refugees are very informed about energy, and have strong opinions on the types of energy sources and appliances that are useful to them. Throughout the interviews, people regularly linked energy to ideas about permanence, what it meant to be part of a community, how energy enables an active social life and vibrant markets, and importantly how energy is connected to family life.

Social, Cultural and Practical Value: Community Connections

Of all the interviews conducted with household members, all linked energy use to social and cultural connections, and were focused on what energy was for rather than the technologies or electricity sources themselves. Shove et al. have suggested that energy use is connected to "outcomes of interconnected patterns of social practices, including working, shopping, visiting friends and family, going to school" (2015, p275). While Shove's work applies energy and social practice thinking to larger-scale western infrastructures and transport, social connections also feature prominently in refugee settings. However, these dynamics are often focused on off-grid technologies such as lanterns, mini-grids, and the usefulness of certain technologies for social practices. The specific narratives of such connections are outlined below in relation to individual stories presented by interviewees in the camps: the selected stories represent a number of themes which were repeated by dozens of families and households talked to throughout data collection. Interviewees talked about different technologies and types of energy use: of the eighty interviews conducted on refugee perceptions, three-quarters mentioned the value of lighting, over half focused on power and electricity, and only ten focused on firewood and cooking. But all interviewees talked about the usefulness of energy, and how it was connected to social, cultural, practical and community contexts.

In both Rwanda and Kenya, interviewees consistently connected energy use to social and cultural values. For example, in the story below an Ethiopian man explains how the lanterns and solar panels in his home were bought from markets and shops within the camp. During the interview we also spent some time discussing how his community – his friends and family – supported him in getting access to energy: for example, through loaning him money to buy the products, and clubbing together to buy a generator and run this at reduced rates for Ethiopian households. The interviewee placed considerable importance on the social value of his TV: it was important to him that he was able to invite people to his home in the evening and watch it together. The story demonstrates the social connections that electricity can support, as well as suggesting a considerable level of knowledge about energy sources within households in the camp.

"Lanterns and Everything Else": Interview with an Ethiopian Man

Whilst walking through Kakuma camp, I observed lots of wires connecting the Ethiopian households running across the small lanes connecting the housing blocks. After looking at these wires for a while, a man from one of the households came out to ask me what I was doing and we struck up a conversation about electricity. He was a middle-aged man of about forty-five and initially we talked about his family and background, including how he had moved from Ethiopia long ago and now had a large family. He then invited me into his home, and guided me around the types of electricity sources and products:

"We have lots of electricity here – the TV, the radio, the phones, and the connections. I have a panel and some lanterns, so we have all the types of electricity we would need. And energy for cooking, the firewood and fuels".

The man showed me many small lanterns and torches they were using, highlighting the d.light as one particular example:

"My favourite is the red one [shows d.light lamp] as this is the easiest one to carry at night. I have others, but when I am walking to the hotel at night, I am carrying this one. It has a little light but it has a handle and you can swing it and the light will move across the road".

We discussed where he got the lantern from:

"This one I bought from the electricals shop in the Ethiopian market. In the Somali market there are other shops that sell more lanterns but I bought this one and it is useful. It cost a bit, but it is worth it to have a nice red lantern".



Photo: Ethiopian household with solar lanterns – including this d.light one, Kakuma Kenya.

The family had many types of electrical appliances and knew a lot about energy in general. When asked further about this, the Ethiopian man responded:

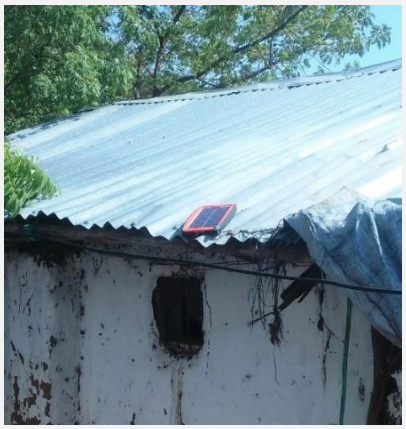
"We have lanterns and everything else. I have the TV that is connected to the small generator of our community [some members of the Ethiopian community have a generator they can use] and I pay for that when I use the TV. The man there is running it for us Ethiopians, and he likes my family, so we can use what we want and pay him when we have some money. That is very good and I always try to pay when I can. It is very open and good for all our houses [takes us outside and shows where the wires connect across the street]".

"I also have the small panel [points out small red solar panel on roof]; this one is extra good because it powers just one cable [inside the house he showed me an extensive cable and battery set up]. This cable is used for charging phones; I am charging this one now for my friend and he will pay me only 20 shillings [about £0.20] and it is nice to do it for him. Then I have a bit more money, and I will pay for my TV connection that way".

"My TV is worth having. I am paying a lot for the box and the connection, but I can have friends in the evening and then I can also watch the football if I like. The football is worth it, and then my wife goes to her sister's and they also have a TV, so we watch here and the women can be there, also relaxing … but not with the football [laughs]".




Photos: Ethiopian household with TV and plug sockets for phone charging, Kakuma Kenya.

Photos: Wires running between Ethiopian households and a household with solar panel on top, Kakuma Kenya.

Interviewee 52, September 2017, Kakuma Kenya.

These extracts represent a common example of the type of household interview I conducted: often people would initially describe themselves and their lives, show me around their home highlighting energy technologies, and then start to discuss how they viewed energy. In this case, the interviewee was very knowledgeable about the different sources of electricity but spent most of the longer interview talking about how useful his family found having energy in their home.

As the pictures above suggest, electricity in homes was often well organised due to the small spaces available. For example, power cables and connections were kept neatly and clear spaces were often created around TVs and radios. Energy products were highly visible within homes and were an integrated part of daily life. This interviewee noted how the nature of the lantern itself (its construction, its red colour, the handle that means it can be swung) was important to him, but so too was the experience of having light. He described how he would often swing the lantern and watch the light move across the road. The social values in this story are obvious: power enabled the family to feel connected to the other members of the Ethiopian community, and share experiences such as watching the football and having friends over to visit. The interviewee talked about the importance of electricity and the TV for relaxing and enjoying the evening, suggesting that the social values of electricity are multi-faceted and span both social and use values. The connections between the physical properties of energy technologies and social values were evident in many interviews, like this one, but it was clear that the *usability* of energy was important as well as the appearance or design of the products and appliances themselves. In general, while the majority of interviewees mentioned the use-value of their energy products, few detailed the design or physical dimensions of technologies.

This view was common in my interviews, with many people highlighting social connections: how TVs, radios, and access to electricity enabled people to connect more easily. The story below also highlights the physical proximity of homes to wires and how this relates to social connections, summarising how the home of one family is surrounded by electrical wiring due to its placement close to a mini-grid provider, and how they are "looking up and seeing all the wires".

Homes Under the Wires: Interview with a South Sudanese Student

Following a chance meeting with a set of students at the NRC training centre in Kakuma, one of the students invited me to his home to meet his mother and see the level of electricity access present in his house. The student was quite young, around twenty years old, but had taken on much responsibility within his home: he held at least two jobs to be able to support his family. He talked openly about electricity and his neighbour's energy supply, as well as the connections that run between them.

"This is my home; there is almost no electricity here. This is why I go for training and energy at the NRC school. There I am using all the electricity – for my phone, for my studies, in the classroom for my tasks, and

for the computers when there is extra time. Here, I don't have that. I am seeing all the wires of my neighbour, but we cannot afford that. Here, in the garden, we cook outside and I am looking up at my neighbours' dish [gestures to the satellite dish] and all his connections. I am asking [myself], 'How can they afford that?' and we are often asking to borrow from him. But he is a Somali, I think, and he is not welcoming us to disturb him all the time".

The pictures on the following pages show the wires surrounding the household and the large radio tower that can be seen close by. I ask about his neighbour's power, what he thinks about that, where the wires go and what they connect to.

"I don't know all the things he has connected, but he has a TV and a radio, and a fan for people who come to visit him. He is a popular man, and he is getting support from somewhere, making extra money with his business as well. So, he can afford everything. Even satellite TV in colour. He uses a solar lantern too, but most of the connections are from the generator behind the market".




Photos: South Sudanese household: life surrounded by wires and the nearby radio tower, Kakuma Kenya.

I asked a lot of follow-up questions about the market generator and what the student knows about electricity connections provided by that supplier:

"He is a nice man; sometimes he says he will connect my family as they are between all his wires. But sometimes he says it will cost too much for all the things we will want. I asked him about the big panels like on the NRC centre and he said he can get them: whenever we want and can pay, he will get them for us. That is what we would like, I think, because that is clean energy like we learn about in class at NRC: the renewable electricity would be better. His generator is smelling and making a lot of noise – we will visit and you will see. My mother wants the big panels as well, she says it is good to be quiet and the panels are clean and quiet. We like living here, it is quiet under all the wires. But then we look up and see the big post [gestures at radio and communications towers] and wonder what else is happening".

Interviewee 46, June 2017, Kakuma Kenya.

This story demonstrates how energy can flow across spaces: not just through physical spaces and connecting wires, but through institutional and informal spaces as well. The interviewee reflected on how he had learnt about energy, both through his school and from his neighbour directly, suggesting that energy literacy and knowledge sharing was part of the social and physical exchange of energy in the communities. He spoke passionately about how his mother and family would like more access to electricity, and how they would prefer clean solar panels to polluting diesel. His understanding of what

'clean' energy meant was informed both by climate change and international discourses on energy, *and* his family's lived experience of the physical dirt, noise pollution and smells of diesel. Like many interviewees, he expressed considerable understanding about the costs and challenges of connecting electricity – signifying a depth of knowledge and comprehension.

The results of these interviews suggest how the social practices of energy (Hargreaves and Middlemiss, 2020; Shove et al., 2015) are integrally linked to the politics of living: the everyday practical and social connections of energy technologies were shaped by community and family needs, but many families were disappointed they could not access more resources. Some interviewees also suggested they felt let down and unsupported by humanitarian organisations, and were frustrated about the choices on energy being made for them. This section also highlights that often energy does not appear to be a contentious political issue *within* the boundaries of the home, and many people emphasised the importance of electricity as a practical (rather than political) resource. However, once we move beyond the boundaries of households, energy becomes politicised by humanitarian organisations and NGO providers (chapter six provides a detailed discussion of this).

While most interviewees were positive about the role electricity played in their lives, some people also spoke of how a lack of electricity impacted them, and the interviewee above contrasted the lack of electricity in his home, comparing his house to his neighbour who had access to electricity and to his school, which was run by the Norwegian Refugee Council (NRC) and used power from diesel generators. He also expressed considerable sadness and even envy when talking about the levels of power available in schools and in the neighbour's home: wondering, "what else is happening?" As the photos above show, many homes are surrounded by wires, and energy technologies are often close by, despite many homes having limited access to electricity.

Here we see a politics of darkness start to emerge: some families within refugee camps have less access to energy than others, with multiple forms of inequality displayed through the lens of energy. The political dimension of this darkness has many elements. For some families their status and role in the refugee system enabled them to access more energy (for example, refugees who worked for NGOs and those jobs enabled them to charge their phones at work or have extra income to spend on energy). For others, political choices on energy were made for them: single female-headed households and the elderly were often singled out to receive more support to enable them to access energy as they were classed as more vulnerable. The politics of darkness was difficult to explore within households during fieldwork, as many people became upset when the conversation turned to why they might have less access to energy than their neighbours or others in their community. Darkness in this case is used, of

course, as a metaphor, to refer to a lack of energy of all kinds (power and cooking energy) not just lighting, in the same way that we refer to the importance of 'keeping the lights on' in the UK electricity sector to refer to all energy needs (Ward, 2018). However, the impacts of 'being in the dark' and being without energy were very real within the camps.

Lack of higher levels of energy access was something spoken about by a number of interviewees. Often people would express their desire for certain activities, such as entertaining at night or being able to watch TV, but very rarely would interviewees comment that they would like a certain product, such as a specific solar lantern or solar home system. In other words, they would focus on what use electricity would be for. While many of the interviewees had access to electricity, it was often the case that vulnerable groups within the camps had more limited access. For example, single mothers, poorer families, and disabled people generally had less access than others. This issue was particularly clear in cases of almost complete absence of electricity, for example, in the story below when the interviewee noted how much easier life would be if the spaces close to her home were lit. In this case the interviewee focused on how her children would be able to use the space near her home at night if there was public street lighting.

In-Between Spaces in the Camp: A Lack of Lighting

In Kakuma I met a single mother drying pans and kitchen equipment outside her home and we struck up a conversation about the outdoor space we were in. She was interested about energy but focused on the open space we were standing in.

"My children are playing here in the day, outside the houses. But at night, it is too dark in this area. We wanted a light here. We should have them here too". We then walked around the household area to show where the lights could be. "That would be good for the children, especially the older ones. They are using torches now, the small solar ones you charge in the day in the sun. But at night, if this space was lit, we could all be here – relaxing, playing, and being outside without fear. Now we do not go outside in the right – the dogs could bite you or maybe there would be a snake. But in the light you would know, while in the dark you do not".




Photos: View from behind households' space and close to households' space that could be lit. Kakuma, Kenya.

Interviewee 44, June 2017, Kakuma Kenya.

This story highlights how hard it can be to understand what an absence of electricity means to people. I found that long conversations about absent energy products were not easy to sustain, and many people seemed to feel uncomfortable talking about energy when they did not have access to it. As a result, this was not a line of enquiry that I developed in detail during the research, as it felt unethical and intrusive to continue such conversations. However, there were often cases during interviews where people compared life 'before and after' electricity, which was useful for considering how energy is connected to quality of life. For example, some interviewees explained how life was better since they acquired access to solar power, as they were able to spend less money on candles, torches and batteries, and had more money available to spend on other goods and services within the camps.

The first meaning of the title of this thesis, voices in the dark, refers to the literal darkness that many refugee families experience. Even in cases where households were able to afford technologies or services which offered a couple of hours of power each night, in many cases this would not last all evening and families reported having to go to sleep earlier than they wanted to as there was nothing to do in the dark. The implications of this are considerable: children could not study at night, businesses could not stay open, and families were not able to enjoy time in the evening together. Often interviewees would express considerable sadness at the lack of electricity, highlighting elements of their lives that were upsetting because of a lack of access. In almost all cases this sadness linked energy with quality of life: people became emotional thinking about all the activities they could not do because they did not have access to higher levels of electricity.

While envy and sadness at a lack of energy access did not seem to be a major source of conflict within the camps, there were certainly examples of people being angry and frustrated by the limitations of life without electricity. Few incidents of physical violence or theft within homes and communities were discussed by interviewees, but there was anger at humanitarian agencies and some reports of vandalism directed at community energy facilities such as streetlights. Active energy-related conflicts between the different populations in Kakuma seemed to be rare, although there were differing levels of energy access between communities. For example, Ethiopians and Somalis in Kakuma had considerably higher levels of energy than the South Sudanese and other residents (Rosenberg-Jansen et al., 2018). These differences were more likely to be caused by other factors than nationality – Ethiopians, for example, had been resident in the camp for a long period, whereas Sudanese were often more recent arrivals. However, these different levels in quality of life and access to energy did not appear to be causing conflict within the camps, and, in many cases, communities were sharing or exchanging access to support one another.

Linking energy to quality of life was a dominant theme in many of the interviews. In the story below, an interviewee associated improved energy access with improved living conditions, spending some time describing how energy was connected to his life – in his home, in the streets, in the markets. He commented, "when we talk about energy, we talk about life" and "it is more than light": signifying the importance of electricity access for quality of life. On a practical level, access to lighting helps to open up homes and spaces in the evenings and prevent accidents such as falling or tripping in the dark or spilling food or water on clothes and bedding. On a social level, energy also enables social activities such as having visitors over for tea, enabling people to be proud of their homes. This suggests that improvements in quality of life have both social and physical qualities linked to energy access. For example, having more access to higher levels of electricity enables a greater amount of light and access to technologies such as TVs and radios, but the social impact of electricity is also 'more than light'. In this interview, it is clear that energy access produces feelings of relief and safety for the interviewee: it links him to his past, through the clock, but also enables him to live contentedly in the camp in the present. This interview highlights how electricity access is culturally and physically important

Total Energy Life of a Mahama Family

While most of my research focused on three camps in Rwanda – Kigeme, Nyabiheke, and Gihembe – I was also able to visit Mahama camp in eastern Rwanda on a few occasions. Mahama hosts over 60,000 refugees from Burundi and is a more recently established camp as people have only been arriving since 2015. On one of my first visits I met one of the senior community members, who offered to show me his solar home system as he was very proud of it. He was a middle-aged gentleman who supported his wife and two children through his work as a community leader. We walked to his home from the central market and on the way he told me about his life and all the energy connections he had in his household. Once we arrived, he immediately started providing a lot of details about the solar home system.

"I pay for this [the SHS]. I bought it for my family and for my community when they visit: it is more than light … we use this room now".

Referring to light bulbs and wires connecting the solar home system he said: "Once I had the lights, I knew I would stay here". There were many energy appliances in the home, including a clock, torch, solar lantern and mobile phone. While discussing the clock the community leader told me:

"This clock I bought from home [Burundi]; it shows me that time passes but it is also the same".

We spent some time in his home, discussing energy and meeting some other community members, then the leader suggested, "let us walk, I will show you where I am getting all the energy things". So we walked through the town together 'energy spotting'. We saw cookstoves smoking between the homes, and walked through the camp to a central street which was lit by solar streetlights and contained a large market for firewood. We stopped to pause here and the leader told me:

"Sometimes I buy firewood from here, my wife buys, but mostly we have enough in the house and other people also cook for us so we do not use so much firewood".

I asked about the solar street lighting, and he told me that UNHCR and some of the NGOs are planning to extend it all over the camps:

"This would be good to have it everywhere [the street lighting]. Now we are walking in the day and it is easy, but at night it would be better to have light here everywhere. Now I am bringing my torch when I need to come here at night, but it would be easy with this lighting [gestures to streetlight].

We then visited the lively central market, where the leader showed me all the places he liked to go:

"I am coming here for the barber [we pass by a solar hairdresser], and here for eating [a restaurant powered by a diesel gen-set in the market], and here for meetings [the UNHCR and NGO offices powered by diesel generators and grid connection]. So now you have seen everything, all the energy and all the places I am going. It is not like home [Burundi] but at least we have everything we need: all the energy".

As I was leaving, the leader waved me off, laughing and saying he was happy to have spent the day with me, stating "it was nice to walk and talk about these things with you: when we talk about energy, we talk about life".

Interviewee 91, May 2018, Mahama Rwanda.

This interview highlighted the benefits of energy to families and communities. The interviewee was suggesting that his solar home system had really improved the quality of life by enabling his family to use rooms in their house and feel like they could stay in Mahama camp as their home. His reflection on the clock as an item of technology that enabled him to see that time passes, while also feeling connected to the past, was very moving and suggested a clear connection between the clock as an energy object and the emotional significance of his history. Often this interviewee mentioned his life in Burundi and reflected on how electricity in Mahama had made his life better. He viewed electricity as a basic good that the community needed and was essential for them in building a good life in Rwanda. Perhaps implying that surviving and fleeing conflict in Burundi could happen without electricity, but once he arrived in Mahama he needed electricity to starting living again. While some of the residents in Mahama and the other Rwandan camps also mentioned energy in connection to their home countries, this was much rarer in Kakuma. The interviewee above had relatively recently moved from Burundi and was rebuilding a life in Mahama, whereas many refugees in Kenya had been in the camp for most of their lives and had more distant memories of energy and life in other countries.

Energy access was seen as an important part of long-term settlement and an improved quality of life. Interviewee 91 mentioned many times how he demonstrated his social status, and how important his solar home system had become as a signifier of social standing. The link between status and energy was clear in all the locations I visited: how those with more money were able to afford more access to electricity. This issue went beyond income levels. Access to electricity was also a signifier of people who had more power and influence, securing access to electricity, for example, by connecting to neighbours and businesses in the camps. Most of the refugee committee members and community

leaders I met in the camps had electricity in their homes, and this was used as a demonstration of their position. These interviewees would often make a display of their appliances and energy products and make a show of boiling the kettle or switching on their solar home system to demonstrate it worked. Having power in this sense was both literal and figurative: its symbolised authority and wealth in homes and demonstrated clear differences in the social structure between some families and others.

Elizabeth Shove's work on the social connections of energy is particularly relevant here. Shove et al. identified that infrastructures such as electricity grids "constitute forms of materiality" that are "typically connective, multiple", linking directly into the social practices of individuals and communities (2015, p285). As has been demonstrated in this section, such linkages are also clearly present in refugee communities and the social practices of energy are realised through everyday life: through cooking food, travelling to gather firewood, having friends over in the evening to watch TV, playing and relaxing in public spaces in the evenings, and calling family on the phone. The materiality and practicality of energy quickly became evident during research as interviewees traced the routes by which they accessed energy and why it was important to them. In this way, the social life of energy has become visible and the traditionally "invisible" nature of domestic energy can be understood (Pink, 2011, p117). Shove's work enables us to consider "what is energy for?" (Shove and Walker, 2014, p41). In the case of refugee communities, I found that energy access is critical for quality of life: less energy means less access to many social and cultural connections, and more access enables community and familial relationships to thrive.

To conclude this section, it is clear that the value of energy is closely connected to the practical and social importance of electricity in connecting families and friends, in providing status and signifiers of wealth, and of enhancing happiness felt by families. Energy access within the camps is an important part of improving quality of life, in terms of practical improvements in living standards (for example, avoiding snakes and accidents) but also in terms of culture and status. Ethnographic methods helped to open up these discussions within the camps, and demonstrate the range of opinions on energy; indeed, these views and values were present across a range of people within the refugee communities, showing that energy knowledge within refugee households was substantial, diverse and well informed. But we also start to see the politics of living emerging, and in particular the potential impacts of the politics of darkness and a lack of energy access: life without access to electricity and appliances is difficult and challenging. The impact of these findings will be explored throughout the rest of the chapter.

Costs, Selling and Economic Value: More than Money

As well as its social value, many of the interviewees also highlighted the importance of the economic value of energy, explicitly linking solar energy to the benefits of reducing spending. This is exemplified by the story below, which emerged during an interview with a Congolese woman in Nyabiheke in Rwanda. She suggested that the cost of candles was an important reason for her buying a solar lantern, providing a detailed analysis of the costs and benefits of candles versus lanterns. She also linked the use of solar to reducing problems in the house: electricity and brighter sources of light could ensure that people can stay up later during the evenings, and would reduce worries about being in the dark.

"I Am Doing Everything Clearly": Interview with a Congolese Woman

During one of my trips to Nyabiheke I met a woman who was running a small business and using solar lanterns in both her home and her shop. The lady was only slightly older than me but had a large family to support. Financially it was important to her to run her own business and have income from her shop, as well as electricity in her home. Much of this interview was conducted through translation and in broken English, with a senior member of the camp committee present who translated her words into English. She seemed happy to talk with me, discussing her family interactions are well as the costs of solar and why she enjoys using it.

"Here in the house, I have a solar lantern, and it made such a big difference to our lives. I prefer using it to the candles, because candles are always expensive and you have to buy them all the time. It means you always need money in your pocket. Every evening we used at least one candle, sometimes more, so every day I had to buy a new one. They are 50 RWF or more each. And sometimes one candle was not even enough. Every day I was worried about this. And thinking, will it be enough or will it be dark? But now I have light so much of the night, until I want to go to sleep. I never pay for light anymore. It is free from the lamp! The sun charges the lantern for us. I can even charge the phone on the lantern, but I don't do that often as it reduces the light at night to 30 minutes. I charge at work instead. Or I pay 50 RWF to charge the phone in the shops in the camp. 50 RWF! It is so cheap, the cost of only one candle. I can afford all this now. Thanks to the solars. Before, I had one candle a day, and now I have so much more – all the energies I want."

The interviewee also reflected on the use of energy by her family, especially her sister who she supported financially:

"My sister does not always have money for charging in the camp. It is a disaster! It is a big problem because she uses the phone for lighting in the house at night, so no phone means no light. She eats in the kitchen with the light from the fire, but it is not much. She has to cook early and go to bed because there is no light. She broke her leg walking in the camp at night in the dark. She needs more light in her life. I try to help and buy her things, and buy her charging for the phone in the shops. But she has many children and no jobs, so it means there is not enough money for all the energy she wants. She can save slowly, and she will buy a lantern for the house. I told her to wait, and get a good one like mine. It will last two years and she will have all the light she wants like me!"

"I prefer using the solar lighting energy because it gives good light. I have eight people in my family and they need it. It is helping my children doing their revision easily, and my business – I am doing everything clearly. Now I can find everything my client needs and I can charge my phone without paying any franc. We decided to buy a solar system because before the way of lighting was not powerful. I had to use non-rechargeable batteries and small bulbs like for torches connected with wires, but with a low lighting intensity. Now I have a television I watch, and sometimes some music or anything else I want to do."

"We do not have time for household conversations or cooking late when there is no light, because at 7pm it is completely dark. The children could not revise their lessons, or play before sleeping. Even I used to sleep at 7pm already because it was so dark but I wanted to sleep at 9pm or later. But now this is changed – thanks to the solars. There is a big difference between the solars [SHS] and the lanterns, but before when we had nothing it was so dark always. At night, thieves can move around, and you cannot see them because it is dark. If it was light, if there was the solar lights in the streets, then we could see them and tell their mama. I would tell her. And then there would be no more thieves."





Photos: One of the solar lights in the household and surrounding homes using electricity – satellite and lanterns, Nyabiheke Rwanda.

Interviewee 70, August 2017, Nyabiheke Rwanda.

This interview was quite a challenging one, as working through translation was slow and the lady often expressed frustration and delight: the nuances of which may have been missed in my reporting of the story. In general, this interviewee was very passionate about energy and expressed a certain dominance towards the refugee committee member helping us with translation: she clearly knew more about energy that he did and was keen to demonstrate her knowledge on the topic. This story also highlights the core values around energy present in many of the interviews: how solar energy solutions can offer cheaper, 'better' solutions which have a direct usefulness within the lives of people in the camps.

The value of energy in reducing costs for households was a dominant theme in the interviewees, with many people, especially in the Rwandan camps, returning to the issue of cost savings again and again. The story above highlights some of the nuanced understanding of this type of value and the costs associated with energy; in the longer interview, the shop owner spent considerable time explaining how she had undertaken an analysis of her energy use. She explained to me that the candles were cheap and so she could afford to buy one every day, or a few per week, but she could not save money to buy lots of candles at once (and when she ran out of candles she had to live in the dark). Then her neighbour bought a solar lantern and told her the cost, so she lived without light from candles for a month to save and buy a lantern. After that she was able to save so much money from not buying candles, she was able to buy a phone, and even pay for charging that when the power from the lantern was not enough for both lighting and phone charging. For this family, this is a considerable cost saving,

which means they can spend money on other things. This interview highlights a number of priorities on energy and economic value – for example, in detailing the comparative costs of energy sources (such as solar home systems, lanterns and candles), the interviewee demonstrates a clear knowledge of energy-spending patterns. She identified savings both in terms of costs and time: more time is available in the evenings because of the light provided, and more money is available as money spent on energy 'saved slowly'.

The monetary value of energy in many spaces in the camps comes not just from direct cost savings (as outlined in the story above), but also through the 'selling value' of energy – that is, value produced by creating income from energy technologies. In the story below a shopkeeper in Kigeme in Rwanda discussed how energy can contribute to the economic life of the community. Social values are also clearly on display here, with the interviewee often mentioning the balance between creating a competitive business from which he earns money and being able to be fair with and supportive of his community. Interestingly, most of the small businesses in the camps are based within households, and many people have informal livelihoods associated with small businesses such as selling charcoal, running milk bars, hairdressers, tailors, and restaurants.

Households and Enterprises: Interview with a Mobile Charging Shop Owner

During one of my visits to Kigeme camp I met a man who was running a solar charging business for phones. I was able to interview many such businesses, but below I have chosen the story of a mobile charging business as the interviewee covered a wide range of topics and had many opinions on energy. He was quite a young man (roughly under thirty) but had been managing his phone business for several years. We started discussing the shop and he told me that, in general, phones need to be charged on average once every two days, and that it costs between 50-100RWF for a charge (£0.50p to £1) depending on which business the customer goes to. The shop owner mentioned that charging can be done inside or outside the camp, but outside the camp is sometimes a bit cheaper, and that, while many people use businesses like his to charge, some are able to charge in their homes. I asked him about the shop and how he works with other refugees.

"It is my shop. I own the shop, the panels, all. I sell them the power, the repairs, it is a very good way to make money. I always have enough. When I serve a refugee like me, I try to maximise the money for them. If they pay, I fix everything, charge everything. I know they do not have a lot of money and for me they are my brothers and sisters. We all help each other; I just help with the electricity".

I then asked about where the electricity comes from:

"From the solar, it comes from the solar, the panel, and the battery too, I think. I use all the wires and some work better than others. The torches are good – they charge quickly. I only charge a small price and they can charge all day if they like. Once it [the phone or appliance] is full, it is full. Everything works and the shop is very popular. It is a good technology [the solar panel]. I got it from my friend. He found it, he put it with the battery because he knows how they work. Then I started the businesses. 'Ha', I said. 'How clever!' These people [gestures at UNHCR rep nearby], they don't even know how to buy doughnuts. But I know. And I know about my solar, my business. I earn all the money and things I need. I help the little ones, the boys, and they work for me in the shop".

I asked if he liked being an entrepreneur.

"Me, I am not just an entrepreneur, I am the best. I am laughing, and happy. The panel, it helped me get happier, but I was always looking, always happy".

We then moved on to talking about other energy uses in businesses across the camp:

"One day soon I will buy a TV, I will have it in the shop. Maybe I will make another space like on the other hill. There you can go and watch the TV if [you] pay. The man there is running a good business. He will let you tell him what you want, you can pay and choose the movie. I like the American movies, but not when they make movies about Rwanda. They do not know Rwanda; this is a good country. They let me stay here, when I was only small; I did not die like the others [in Congo]. The Americans do not know that [that Rwanda is a good country]. But I know they think it, because I saw it many times on the television. I heard them, on the radio. They do not know really, about it all, about how good and safe it is here. You can make a life and become an entrepreneur. In the other camp, you will ask and they will tell you [about Gihembe and the massacre], when the people come – they let them [the Americans who are sometimes blamed for allowing the massacre to happen]. We know how to be angry, that we have to do it for ourselves. Get everything for ourselves, because, when it is difficult, they will not come to help, the American men. [Changed the subject] But this is not about electricity! How could they even think of bringing a solar panel, they did not think of this. I did [grins] …. Because I am the clever man".





Photos: Solar charging shop, inside with the appliances charging and panel on household rooftop, Kigeme Rwanda.



Photo: Solar charging shop, homes mixed in with businesses, Kigeme Rwanda.

Interviewee 67, August 2017, Kigeme Rwanda.

This story provides a clear example of the importance of energy in providing livelihoods and income within the camps. The shop owner linked owning the shop and the panels with the services he provides to the community (maximising the amount his follow refugees get for their money). He also linked having energy with creating employment across the camp (the boys he refers to are paid a small amount for helping him with tasks). He also equates energy use with happiness and the joy he gets from both having a successful business that provides energy, and that this livelihood is used to help and support others within the camps. As this story suggests, many conversations on energy started or meandered into other topics. In this case, the interviewee linked energy use with knowledge and information coming from TVs and radios, and talked a lot about how access to a TV enabled him to learn about the media's representation of Rwanda. He also highlighted the differences in his knowledge – as a person directly connected to energy provision – and that of aid workers.

The entrepreneurial spirit within the camps was evident throughout my research. Indeed, there were many other examples of homes and businesses that had either 'found' energy technologies and put them to use, or had sought out specific technologies to make a business. As these stories highlight, being able to earn money from selling energy has a value in itself, but this value is also linked to social and community connections. For example, Interviewee 67 above explicitly linked being able to afford a TV with improvements in his life since moving from the Congo. For him a better life was intrinsically linked with both energy and safety (being away from the violence in Congo), and being able to be an energy entrepreneur who is able to help his 'brothers and sisters' within the camp community. In this case, energy is clearly about more than money. Having energy, being able to provide it as a service to the refugee community and earn income from it, was seen by many interviewees as benefiting both the business owner and the wider community through providing affordable access.

This story also presents the contrast that many people felt regarding UNHCR's role on energy and in general on managing the camps. The vast majority of small households and businesses in the Kenyan and Rwandan camps had secured energy themselves: they had bought and paid for the products and services and found a way to connect energy sources for powering their homes or entrepreneurial activities. Very few businesses in the camps were supported in any formal way by the camp authorities. Although this did not seem to be a major source of conflict within Kakuma or the Rwandan camps, many people did comment on it. As the interviewee suggested, the level of knowledge in UNHCR about energy was relatively limited: "they don't even know how to buy doughnuts," he said. The interviewee then contrasted his level of understanding about solar energy with UNHCR's and American and western people in general: "they did not think of this" he said, suggesting that refugees have the knowledge and capacity to act on energy as opposed to humanitarian agencies.

Here the politics of living is specifically linked to income, and those who can afford energy. While access to electricity is clearly worth more than money, having income or cash to spend on paying for goods or services was still vital for refugee families to access energy. The politics of life (Fassin, 2007) is visible both in terms of who can afford what in terms of energy resources, but also in the differences in quality of life produced by being able to sell energy as a service. The political dimensions of this issue are highlighted by interviewees who criticised humanitarian agencies ability to provide such services (they do not even know how to buy doughnuts, let alone the address the complexity of energy needs). Of course, it is obvious to say that income and distribution of resources are political, and create and perpetuate some forms of inequality. But in refugee settings, this form of politics is disguised by the mode of access. Humanitarian organisations claim to be impartial and neutral in their treatment of refugees, and yet some people have access to higher levels of energy access because they can afford to buy independently of the humanitarian system. This argument is detailed further in the politics of self-provision arguments discussed in the following sections.

In conclusion, the selling and economic value of energy to households is closely connected to energy use by households and small businesses in the camps. Refugees connected economic value in terms of reducing costs and providing income, but also linked these benefits to wider social and community benefits, suggesting that the value of energy goes well beyond monetary value. There is considerably more to be said on the economic value of energy for refugees but I will return to this topic in chapter five on energy uses in small businesses.

Energy, Progress and Better Lives

The 'value' of energy in the camps was a complicated construction. As well as the social and economic values of energy, there were also multiple views on why energy mattered, focusing on its perceived benefits and worth. Many of the interviewees in both Kenya and Rwanda talked about how renewables were 'good', specifically linking this to the properties of solar lanterns and panels which meant they are 'clean', in the sense of not physically dirty or noisy. Interviewees often went beyond this conception of 'goodness' and linked solar energy to being 'better': a source of happiness and pride. Partly this view emerged from the physical and aesthetic features of solar energy: the blue panels, the reflective surfaces, and the 'beauty' of solar objects. In fact, many interviewees commented on the colour of solar technologies: including red d.light lanterns, blue UNHCR lanterns, silver reflective shiny panels and the yellow of the Little Sun lanterns. However, as the interviewee in the story below states, valuing these technologies can go beyond pride in the appearance of the technologies, linking them to the concept of development.

Renewables "Are So Good"

During a workshop in Nairobi, one of the local workers in the camps commented that renewables had a value beyond the commercial one being discussed. After the event I followed up with him for an interview and we discussed the nature of renewable technologies in refugee settings. The interviewee was a young Kenyan man who had already spent considerable time in the camps as a local worker within an implementation partner of UNHCR. He was keen to promote the importance of renewable energy sources, suggesting:

"Oh they [renewables] are so good. Not everyone [in the camps] has them, but some have the lanterns and the panels. Some even have the thingy … systems with the panel and the light and the TV [solar home systems]. They are cheap overall and people love them – they are blue and pretty and you can see them and they shine. The coffee shop I go to [in the camp] has a system [SHS] and the boy there cleans the panel every day to make it shine at the entrance … it is like, if the panel is shining and clean it is the sign the shop is open for coffee. I always go to that place over the others, because the man there is nice and he pays the boy to clean the panel even though it doesn't need it every day. They are so good, the renewables. I am liking them. If that was a generator, the man would not pay the boy, because generators are already so dirty, why would you clean them? But the panels, they are beautiful so you want to keep them beautiful. It is pride, but also presentation. Saying, 'Here, I have this, it is something valuable and technology', it is really saying, 'I have a future, something nice and good in my life, I live in a hut in the desert, but I have this and I am connected'. I find it so good, so good for people to have this. Pride – or something better than pride – happiness, future, dreaming, value in this panel – this brings a very good element to life. Something so much better than without. That is what renewables can bring: something better than without. I am glad the refugees are having this, and we in Kenya are having this. That is why renewables are good".

Interviewee 37, June 2017, Nairobi Kenya.

The position of this interviewee was clear: he was pushing renewable energy as a positive (and perhaps even glamourous) solution, one which, in his view, could solve a great many problems in the camps. To some extent his opinions also reflect his view as a Kenyan man interested in a long career in the off-grid sustainable energy sector: indeed, later in the interview we also talked about international job opportunities for him in renewables. To some extent this interviewee was also suggesting that he spoke for those in the camps, as he offered many comments that apparently came directly from the refugee communities he worked with. While we can of course be critical of this, the interviewee's analysis of energy as a quality of life and development issue was useful, and was reflected in many other interviews I conducted.

Expressions linking solar energy to dreams and the future were commonly put forward by refugees, with many interviewees commenting on how solar technologies would offer them a higher quality of life. Part of this idea is likely to come from the fact that solar panels and systems are newer: in the sense that they are recently arrived, innovative and 'just off the shelf' products compared to older diesel generators and other energy products that have been in the camps for some time. As a result, newer products are seen to offer progress and value. From a certain viewpoint these opinions can be

seen as expressions of modernity. However, here it is important to note that within households these dreams of the future, these ideas of having a better life were strongly linked to the *usefulness* of energy. It was simply not enough to have a beautiful new lantern; interviewees also stressed that there was value in the *use* of these products. As the story above demonstrates, renewables can offer a vision of progress, but one which is directly useful to households and improves life in a concrete, connected way. Interviewee 37, in particular, demonstrates how concepts of pride and happiness can be explicitly linked to energy: how 'being developed' and having a high quality of life is understood to require electricity, to be connected, and having valuable things includes energy goods and appliances.

In particular renewable technologies were often seen as 'high-end' technical products that signify growth and progress. There appears to be a significant link between the value of energy and development: having electricity access is portrayed as a core component of having a higher quality of life. Progress in this sense is often linked to practical improvements, the difference electricity can bring to everyday life. Rather than an inherent modernisation imperative, having a higher quality of life was important to people in terms of practical and emotional benefits rather than 'wanting more' commercial products. At times it was difficult to establish in more detail the practical value of energy. Energy was seen as just being inherently useful, and this seemed too obvious to explain. When I asked follow-up questions on how energy was useful, many people would shrug and link back to the activities they would carry out (cooking, studying, socialising in the evenings). Despite trying to delve into this idea further, I sometimes found that few critical answers were forthcoming.

Expressions on the value of energy in terms of development were also presented as comparative social and economic advantage. For example, the interviewee cited below outlined how electricity enabled her business to grow and for her home to become a social space for friends and her children. She notes "everything would be better" if solar electricity was more freely available in the camps, and was very proud about being the first business in the camp to have reliable electricity. Many interviewees expressed pride in their independence in securing access to electricity, noting the differences between the lack of street lighting and power available in community facilities, and the way they had managed to successfully secure power for their businesses and homes.

"I Am First"

One interview with a middle-aged woman in Nyabiheke was particularly interesting because she explored all the areas of life where energy could be used. The lady was looking after her children and making lunch, so the interview was quite short, but, when asked about how electricity was valuable to her, she responded:

"I am the first, the first to have electric power in my business. In the restaurant, it is for lights and for cleaning, and for heating the water. I use it every day. I can say electricity is magically. It is good for the home, for the businesses, and, if they would put it in the streets, everything would be better. I use it for lighting every space at home. I charge my phone, I use the kettle for boiling water; it can keep people busy and talking. They can relax when the lights are on … or watching television. My children stay here in the nights with me in the restaurant – then they can't go wandering and fall or be outside in the dark."

Interviewee 70, August 2017, Nyabiheke Rwanda.

Many interviewees talked about their dreams and hopes for the future. While this was not always linked to energy, it often was explicitly connected. Interviewees sometimes talked about the benefits of 'good' energy and the change from using burning sticks or torches, and they proposed concrete ideas about how new technologies could help families to feel happy. For example, Interviewee 70 stated that "it made such a big difference to our lives" to have solar energy in her home, and many interviewees commented on how they could use public spaces more extensively if there was solar street lighting in the camps. Households linked dreams and desires for the future specifically to social connections, practical usefulness, and economic value. While there were some examples of people inherently valuing products and technologies, the majority of refugee interviewees valued solar energy in terms of its usefulness and the direct benefits that electricity and energy appliances brought to their lives. When we turn to global policy narratives and interviewees outside the camps, however, the story becomes quite different, evolving into a narrative centring on intellectual conceptions of why energy is important.

These extracts enable us to question what role energy plays in some people in refugee camps having better lives than others. Many interviews made the argument that the difference between having higher levels of electricity or not, was the same as having a good life or not. The politics of living here are displayed as the difference between surviving and barely making ends meet, and living: electricity access enables people to thrive and have a 'better' life. While many factors go into improving living standards, I would argue that access to (reliable and affordable) electricity is one of the critical components in improving quality of life. The section below considers this further and details how part of the value of energy is concentrated on improving living standards.

Understanding the Value of Energy: Improving Quality of Life

One thing is clear from the perceptions about energy presented in this chapter so far: energy has a number of physical, social and economic values for households. These findings speak to the first research question, how is energy valued and perceived by refugees and humanitarian practitioners? For refugee households, energy is perceived as essential in improving quality of life; value is centred

on the usefulness of energy. Divisions and categorisations of energy, for example, separating cooking and electricity, or household and business energy use, are not evident within the daily realities of people's lives in the camps: energy is mixed and connected. There are a range of technologies, appliances and energy sources which people living in the camps found useful and important. The usefulness and practical value of these energy products and services are fundamental to understanding the value of energy. Energy is not just valued as equipment or sources of power, but is thought of as source of economic, social and emotional value. As the quote below from one interviewee suggests, energy is "all connected, all together". The way we study and research energy should reflect this connectedness, listening directly to why people value it.

"It Is All Connected: All the Energy, All Together"

During one interview, with a South Sudanese woman in Kalobeyei, we turned to the discussion of the physical and social connectedness of energy. A young woman who had recently moved from Kakuma camp, she suggested that energy was useful for lots of reasons:

"Yes, it is very good. I am using [it] for free from the workers there [gestures behind], and I am using these to connect all the wires [gestures down at foot where connectors, invertors, and extension cable are]. It means I can have light, the electric machines, and other things. For my house I have the other system [shows us the small generator behind the house] which does the lighting and electricals in there. It is all connected, all together, the house and shop electricals because in the day I am in the shop and in the evening, I am in the house. Firewood for cooking as well, all the energy, all together".

Interviewee 63, September 2017, Kalobeyei Kenya.

The inter-connectedness of energy is a theme that runs throughout my research – how energy underpins and connects many of our daily activities. For example, the interviewee cited below suggests how energy becomes a linchpin that links basic human needs with a higher quality of life. In this excerpt, the interviewee suggested that energy is 'underneath' and often invisible because we are focused on the benefits energy brings – such as a hot shower, a good cup of tea, the ability to cook our dinner and watch TV (rather than the energy source or technology underpinning uses of energy). When energy is freely and cheaply available, this can lead to people undervaluing energy. In the case of refugee communities, the relative scarcity and expense of energy resources meant that energy was a highly valued commodity. However, in the case of humanitarians, who were used to considerable levels of access, some aid workers would lose sight of why energy is important and assume that refugees do not need access to electricity as it is a 'luxury good'. One of the interviewees I spoke with reflected on this and why he thought energy was important, as presented in the story below.

Energy Underneath: Interview with an Energy 'Coordinator'

During one of my trips to Kenya I met one of the 'energy coordinators' for the camp. A young Kenyan man working for a major NGO based in Kakuma, he outlined why he thought energy was important to communities. We met in Nairobi for tea to talk about Kakuma and the situation there, during which it emerged that, while energy was not his official job in the camp, the coordinator was fascinated by it.

"Energy is underneath. It underpins so much of human activity, we need to see it as cross-cutting and embedded within people's lives … it has gone ignored for so long by the humanitarian system that it needs to 'invent a new narrative' to succeed in the highly competitive world of humanitarianism. We see it everywhere … energy, electricity, firewood, batteries, sticks for lighting, and the generators. And then I am telling people 'this is important' and they are too busy typing on the computer or texting on the phone to listen. I say, 'That is using the energy too, you know', and they roll their eyes at me. I shout and say 'listen' but no-one is caring: energy for me is not the same as energy for them. They are teeth sucking, and I am thinking of people in the dark".

I asked follow-up questions on the types of energy he saw in the camps, and then together we brainstormed all the energy objects we had seen in Kakuma. After we had made a list, he remarked:

"You see, this is underpinning everything. If you have no battery, you have no torch. If you have no panel, you have no phone charging business. If you have no diesel, you have no lights or fan. If you have no wood, you have no food. We could make all the lists and show them [the camp operators] but do you think they would listen? I am not sure, I think they would say, 'See, they have some energy already, it should be enough, it is not our responsibility, we do not have the money'. Tsk, I am getting angry again. Come, have tea with me …. [laughs loudly] WAIT, how will we have tea with no kettle?! You see, it [energy] is in everything we do. Luckily, we have a kettle".

Then we made tea together.

Interviewee 37, June 2017, Nairobi Kenya.

This interviewee noted one of the most important aspects of electricity access: that the electricity source is often considered secondary to the benefits of energy. For example, we do not necessarily value the electricity which powers our kettle but rather the hot cup of tea it enables; having a mobile phone is a visible benefit whereas the power needed to charge it is 'invisible' to a certain extent. For this reason many NGO practitioners highlight the fact that energy enables, and that energy access and use are thoroughly intertwined (Practical Action, 2019). This interviewee supported such a narrative with comments on how energy 'is underpinning everything'. However, electricity itself is often not recognised as directly important by those providing humanitarian services. This has a number of implications on how decisions are made within humanitarian programming, and who energy is important for, which will be discussed further in chapter six.

So far, this chapter has presented evidence on why and how refugees value energy. From the evidence I have presented it is evident that people in the camps are generally very informed about energy technologies and have strong, considered opinions on which technologies work best for them. This evidence challenges the notions put forward by many international organisations that refugees in

camps do not have access to energy, and that people within the camps do not understand electricity. While a range of energy values are presented in this chapter, the UNHCR rationale on why energy access is important is somewhat less complex than the narratives put forward by refugees, as the following sample from the official UNHCR narrative on energy attests:

> "Improving access to a clean and sustainable source of energy can transform broken lives. It can power health centres and ensure that life-saving medication is refrigerated. Street lighting allows people to move around camps in greater safety at night, particularly women and girls, and solar-powered lamps mean they can work, cook, study, socialize and continue with their lives long after the sun has gone down. Additionally, with a clean, sustainable fuel, or fuel-efficient technologies, refugees can cook meals and avert the malnutrition and ill-health that may occur when using open fires" (UNHCR 2019, Energy Webpage).

However, a closer contextual look at the reasons refugees need and want energy presents a far more complex picture. While safety of movement at night was mentioned occasionally by refugees during my research, it was almost always in the context of physical safety from accidents rather than because of violence against women and girls (VAWG). While gender-based and sexual violence is a serious issue, many current studies now do not support the argument that firewood collection is one of the main risks for violence, as the majority of gender-based violence is by partners and family members in homes: "Most evaluations conclude that the root causes of VAWG are complex and cannot be addressed by the distribution of energy products. Findings suggest that firewood collection provides a convenient context or location for rape, but should not be viewed as its cause" (Parke and Fraser, 2015, p2-3). Similarly, many narratives on humanitarian cooking suggest that clean cookstoves can reduce violence. However, this is likely to be a technological panacea developed by humanitarian agencies (Abdelnour and Saeed, 2014). While solar lanterns and household lighting can be useful for enabling women and families to feel safer, many interviewees in this research suggested that one of the main reasons for this is to avoid thieves and physical accidents in the night. When asked openly about energy, instead of targeted questions which pre-supposed a link between firewood collection and violence, many of the women interviewed were vocal about the range of benefits of energy, which were not about protection from gender-based violence.

These differing perceptions challenge what energy *is* in refugee settings; they open up the question of whose perceptions matter and what views are reflected in the realities of energy use. There are many opinions on energy in the camps, including specific understandings of what 'energy' is and what it is not, which objects and technologies are important and which are not. Many people in the camps were happy to talk about energy and had a detailed understanding of it, although often an informal

discussion about other things – people's jobs, home lives, children's schools – was needed before turning the topic towards electricity. The story below highlights a different perception on energy than the narratives put forward in international discussions.

"No Energy, Only Eggs": Interview with a Somali Shopkeeper

During fieldwork in Kakuma, one of my earliest interactions was with a Somali shopkeeper: a middle-aged man who was the owner of the business. The shop was doing a roaring trade with many customers moving quickly around the small space. I had entered his shop as there were many wires flowing in and out of it and the space was clearly connected to some type of electricity. While many of the people I met were keen to talk about energy, this man did not really want to discuss anything at all, stating: "I don't want to talk, I am doing my work". But, once we started talking about products in the shop rather than electricity, he became very animated and was happy to talk with me as I was interested in 'his work' not just energy. But he insisted:

"No, I have no energy here, only eggs"
[gestures down to boxes of eggs next to the till].

As the picture illustrates, next to the eggs were several wires, a battery, and a set of extension cables powering the shop. I bought some eggs and the shopkeeper became happier to talk about the batteries and the panels that charge them:



Photo: Only eggs (and some electricity), Kakuma Kenya.

"I keep the eggs next to the battery, because it makes them warm, like under the chicken. And no-one is coming behind here to steal my power [behind the counter where the eggs and batteries were]".

He then became quite positive about talking with me, and I asked some questions about the battery and how it was powered:

"Sometimes I am buying a new battery. But most weeks I am taking to the solar shop [gestures next door where there is a shop powered by solar] and he is charging for me. That is good, and I am also connecting to the shop for other powers. For the lights, for the fan and the radio, that power is coming from there. This battery is for plugging, for putting in the phones and the other cables. This is good to have, but it is only a small power. Having the big power is better, then my shop is always with the lights on, and the customers are liking the radio and the phone. And the fridge! They are very much liking the fridge – the cold drinks are good, and it is making ice on the side, and the people – they are my customers – they are liking those cold things".

Interviewee 41, June 2017, Kakuma Kenya.

In this story, the shopkeeper suggests that energy services and the 'types of power' available are often more important to people that the product itself. He makes reference to many everyday objects, such as fans, the fridge, the radio and the phone, which were as important to him as the battery, solar panel and electrical connection. This story raises a number of questions about the role energy plays in

people's lives and how they access energy. For example, if this shop owner had been interviewed as part of a quantitative yes/no questionnaire on energy access in camps, his business would have been marked as not having access to energy, as his primary answer to the question of whether there was energy in his shop was no. This suggests that considering a wider understanding of energy and using qualitative methods to develop a fuller picture on the value of energy is vital in conducting energy research in displaced settings.

Here we can ask ourselves a challenging question: how much energy is needed for 'quality of life'? While many would consider the answer to this to be subjective, UNHCR have apparently already decided on the minimum amount of electricity that is needed for refugees "to satisfy their energy needs in a sustainable manner, without fear or risks to their health, well-being and personal security" (UNHCR, 2019k, p4). UNHCR's recent energy strategy outlines a clear minimum level of electricity access for all refugees under their care (although these levels are rarely met). For example, the strategy states that: "refugees have access to 200 Wh/ household/ day, allowing for basic lighting and connectivity" (UNHCR, 2019, p19). To understand these figures, this is considerably less energy than is required for certain appliances: for example, a standard light bulb is 60 Watts, whereas a kettle is 1,800 Watts. Due to increasingly efficient appliances, charging a smartphone is a lot less (between 2.5 and 5 Watts if charged efficiently), and a standard phone charger 7 Watts, while a laptop is between 80 Watts and 250 Watts depending on the make and type. As these figures highlight, only providing 200 Wh (Watt hours) a day requires serious choices about which appliances would receive power and which would not. Other standard western appliances would not be able to be considered with such minimal access to electricity: electric stove (2,000 W), desktop computer 450 W), fridge (220 W), hairdryer (2,000 W), washing machine (500 W). Generally, 200 Watt hours of electricity equates to being able to power one or two light bulbs for a few hours and being able to charge a phone once a day.

We can question whether this level of energy is an appropriate amount to meet "refugees' energy needs, prioritizing renewable energy technologies, [and] enhancing livelihood opportunities" (UNHCR, 2019, p19 and p9). However, it is important to note that access levels provided by humanitarian organisations in Rwanda and Kenya are far from currently meeting the minimum standard of 200 Wh a day, with many refugees not supported with electricity access at all. The provision of basic solar lanterns to some households in the Rwandan camps and Kakuma has been selective and has not reached all households, and in any case many of the basic lanterns so far provided do not amount to the level stated by UNHCR as the minimum. Even the newest model of the Sun Bell Bright lantern included in some humanitarian responses as a core relief item is only 5 Watts (Sun Bell, 2019).

UNHCR's target of 200 Wh is equivalent to tier 2 in the World Bank's Multi-Tier Framework for energy access. According to the Bank's standards, this should include enough power for "general lighting and phone charging and television and a fan", be equivalent to more than 73 kWhs of annual consumption per household, and provide a minimum of 2 hours of power per evening and 4 hours per day (ESMAP, 2015, p6 and p77). While this yearly figure is technically equivalent to the 200 Wh per household per day figure chosen in the UNHCR Energy Strategy, the hours per day or night and the annual consumption are not mentioned within the UNHCR document – perhaps deliberately, in order to avoid questions about how to achieve large-scale electricity supply in refugee camps. As is evidenced throughout this thesis, the levels of access provided by humanitarian organisations in refugee camps for households in Rwanda and Kenya are very far from these levels of power.

I have included these statistics here to draw attention to two elements. Firstly, the energy needed to ensure quality of life for refugees has been politically determined by UNHCR as 200 Wh per day per household. This strategy was produced without consultation with refugees and is widely acknowledged to be currently unachievable. Indeed, when I asked one of the authors of the strategy about this figure, as it seemed very low, he declined to comment formally but responded: "it isn't 200 Watt hours anyway, just 200 watts. Just enough to switch things on and off, not to have multiple hours of power. They [the refugees] will never get 6 hours of power a day. We can't afford that and won't do it. The governments don't recognise tier 1 as energy access, so we had to choose tier 2. But it will never happen" (informal comments but made in a public setting, by Interviewee 96, July 2019, Addis Ababa, Ethiopia). This statement highlights the political nature of decision-making in UN organisations. In this case, as many national governments (such as the Government of Rwanda) do not accept tier 1 as basic energy access, they will only accept development or humanitarian programmes which offer tier 2 level household power or above. As a result, humanitarian organisations are 'forced' to present higher levels of power to aim for in their strategies, but, in reality, they have little intention of implementing such standards. This demonstrates one specific example of how the politics of life is operating in refugee camps, and the role both national governments and international organisations like UNHCR have in deciding on the quality of life for refugees.

Secondly, I draw attention to these standards because of the political nature of the value judgement on what constitutes a minimum acceptable level of energy access. The World Bank and other organisations often refuse to state what level of access counts as 'modern' access: is it tier 2, or higher levels of electricity which can power multiple appliances, such as tiers 4 and 5? Rather, the Bank's Multi-Tier Framework offers a relatively neutral way of measuring access, without proposing specific targets. The UNHCR strategy, however, does chose tier 2 as its minimum standard. This represents a

political value judgement on how much energy is enough. In this way the strategy portrays a vision that UNHCR is providing 'modern' energy for refugees, whereas really tier 2 is just a couple of light bulbs and is very far from what most people would consider an acceptable level of power. This is a debate which rages on in the energy access sector (Pelz et al., 2018), with many authors agreeing that "the middle tiers are misleadingly low" and that "73 kWh/year is barely enough to power lights and a phone charger, while a single family refrigerator needs 300-500 kWh" (Moss, 2017, p1). However, this debate does not seem to have reached the humanitarian sector yet, as many humanitarians I spoke to were of the opinion that tier 2 access was more than enough for refugees.

I present these arguments to highlight how decision-making about energy access in refugee camps matters in terms of the politics of life in humanitarian settings. In the example provided above on the UNHCR energy strategy, political choices are being made about what counts as access to energy, and these choices are often made without input from refugee communities. While UNHCR provides one example of an institutional decision, many other organisations such as WFP and FAO also have similar targets and strategies for cooking needs in humanitarian settings. We can use such examples to open up the discussion on whose knowledge matters in the politics of living: which groups are making which choices and how does this matter for electricity access? As will be further evidenced in the sections below, refugees are often securing energy for themselves, rather than waiting for humanitarian provision of services. And, as such, whether UNHCR decide that 200 Wh an appropriate amount may be immaterial to the lived experience of many refugee families. However, this discussion is included here to understand the types of political judgements being made within all parts of the humanitarian energy system.

In summary, refugees understand a substantial amount about the role energy plays in their lives, have considered opinions, are making informed choices, and have considerable knowledge about energy products and services. However, despite similarities in the social value of energy to western experiences, refugees have considerably less access to power in camps than households in, for example, Europe. We can question why that is and which value judgements and practical reasons sit behind the lack of energy access in refugee settings. This chapter so far has demonstrated that it is not energy sources or technologies per se, but what *energy is for* and how it improves lives, that matters most to refugees. This may seem like an unsurprising finding; however, it is one which runs contrary to traditional humanitarian narratives on what level of energy is needed. This chapter will now turn to examine further how this knowledge is reflected in international programmes and how this intersects with the politics of living and themes of participation, ownership and power. Who knows about energy within refugee camps? How is knowledge used, and for what purposes?

Knowledge: Who Knows What About Energy in Refugee Camps

There is considerable knowledge on energy within refugee households in the camps, as the evidence in the previous section highlights. For example, many refugees talked in detail about the types of technologies in their homes, where they found access to electricity, and how much energy cost them. However, perceptions on energy knowledge within refugee camps is contested: during fieldwork many international workers and NGO staff members within the camps claimed that 'refugees know nothing about energy'. Many staff members stated, "there are no renewables here [in the camps]" (Interviewee 26, May 2018, Kigali Rwanda), and were confused or irritated when shown photos or examples of solar home systems and lanterns. There were many reasons for these reactions: no-one likes being corrected and shown to be wrong, of course, but it is likely that these reactions also flowed from other issues. For example, some of the camp authorities took a deliberate line that 'there is no energy here' (in the camps) in order to gain more funding and support to improve energy access. Knowledge on energy within camps in this way is political, and can be tightly controlled. Many field workers from UNHCR, for example, stuck closely to the narrative of limited energy access and the importance of creating new forms of self-reliance in the camps, without any acknowledgement that many households were already securing and paying for their own energy.

As the two sets of quotes in the boxes below demonstrate, some specific types of knowledge on energy are valued within the camps. Knowledge on how to secure more funding for energy programmes in the camps, on climate change and self-reliance of refugees, and on the potential for cost savings for the humanitarian system, in particular, was highly prized. This knowledge focused on donor-driven priorities and often used phrases such as 'outcome statements' and 'doing sustainability' instead of talking about people obtaining access to electricity. In many ways, this knowledge is not actually about energy or its benefits at all; it is about how to sustain the humanitarian system with increased funding and how to ensure that donor priorities and ways of working are met.

Energy Information: Who Knows

Part of my research involved engaging with global policy-makers and practitioners during workshops and events in European and western contexts. During these events I was often able to conduct short interviews with global interviewees in the margins of discussions, or ask specific follow-up questions about something mentioned in the workshops. The two sets of quotes below are from such interactions during a large international project event in Kigali, where I was able to ask two officials from UNHCR about their perspective on energy in refugee homes. Both interviewees were older gentlemen, both white and from western European countries, who had worked at the field level in developing countries before moving to

more senior global advocacy and donor-facing jobs. When I asked about local knowledge on energy in the camps, this produced two distinct answers:

"Site-specific analysis with UNHCR camp managers on energy can be higgledy-piggledy. You go there, you ask about energy, and they say, 'No, there are no renewables here'. Then you look: forty solar home systems. Later you ask, 'Well what about all these?', and they say, 'Oh, people bought [them] themselves, so they don't count, we didn't provide them'. All the time while talking about how refugees need to become self-sufficient and less of a burden on the humanitarian system. Energy and people's use of energy, is just not understood by many people – in the camps, certainly not".

"The global level can inform the wider system knowledge, so we can test our outcome statements. But when we ask in the field, they roll their eyes and ask if this means another day in the camp, asking people there our questions. When people face a problem in the camps with their new renewable energy, they go back to their old ways of doing things. So, sustainability is difficult. People are capable of buying better alternatives, but when things get difficult with energy they give up".

Interviewee 26, May 2018, Kigali Rwanda.

"What is wisdom for a refugee? We are taking a very academic approach but we need to also think about what that means on the ground. The first type of energy they need is lighting. I analyse then I decide. You don't need to scatter energy: just decide a way forward. You decide for them, the people at the bottom of the pyramid. The community [refugees] plays a big role for NGO sustainability: you need to keep them going so they can feed you [humanitarian organisations]. We need to work on how the community understands what we are going to bring them. We should come up with the things and programmes for them: it is essential for the success of the project".

Interviewee 73, November 2017, Kigali Rwanda.

These comments were typical of many senior and international actors in the humanitarian energy space, with many suggesting that global knowledge was more important than field-level information. As evidenced in these comments, 'practical' knowledge (knowledge directly about energy systems, how much energy costs and where it is available, how it is used and what it means to people within the camps), did not seem to be valued by camp authorities or staff members within the camps. Only some types of knowledge and knowledge about particular household energy sources 'counted' and mattered. One interviewee suggested that if people in the camps had bought solar home systems themselves, this did not 'count' because the humanitarian system did not provide them for refugees. This suggests that there is a mind-set that only humanitarian aid provided through a traditional donation model can be used to solve the problem of household energy. It is an attitude that was common among NGO staff and field workers, who propagated a narrative of beneficiaries as powerless people who could not assume responsibility for their own energy needs as they do not know about energy or understand it. A particularly stark example of this is provided in the question: "What is wisdom for a refugee?" as cited in the quote above. This interviewee then went on to explain how he knows much 'more' about energy and so he and his institution should be the ones to "decide on a way forward". We can critically question what this implies about different forms of knowledge

on energy use and whose opinions matter. Clearly, in the case of these interviewees, knowledge from humanitarian practitioners was more important than information from refugees themselves.

There was also considerable misinformation and confusion on energy in the camps, particularly within the camp authorities and NGO staff workers. While energy is quite a technical subject, many staff members did not understand the difference between energy (which is an overarching umbrella term for anything that can get rapidly hot or cold, switch on or off, and can include sources of fuel and electricity as well as appliances and supporter objects) and electricity (which is usually limited to power sources and appliances). The story below demonstrates this and highlights the lack of knowledge on energy within some staff members working within the camps.

Misinformation and Confusion: Electricity vs Energy

At several points during my research I was able to ask humanitarian field-level practitioners about energy and electricity. In one such case I interviewed a young Kenyan male staff member working for the main implementing partner of UNHCR in Kakuma. When I asked specifically about electricity sources and uses for refugee homes in the camp, he commented that: "For electricity, our biggest space is the stove production centre", so we went to visit it. He stated: "We produce a lot of our own electricity – we will show you the site; the women there are making it themselves".

However, the site turned out to be producing cookstoves manually, and had no electricity access at all. There were worrying gender dynamics embedded at every element of production and description of production, with women doing heavy work to manually create the stoves and men 'supervising' the process. The centre was producing cookstoves, some pots, and had a small agricultural plot attached which was growing vegetables and harvesting crickets. It was very interesting, but had nothing to do with electricity, and did not even have basic lighting available. When I asked the implementing partner staff member about it, he replied:

"This is energy, it is the biggest type of energy we do. Every day we are making the stoves here".

This opened up a discussion about the difference between energy and electricity. We agreed the centre was very interesting but then started discussing why it did not have an electricity connection. The staff member commented on electricity:

"Oh, like power for the computer: this is not energy for refugees. Energy for refugees means cooking stoves and pots like the ones we make here. They do not have computers or phones so they are not needing this type of power for computers".

Interviewee 55, September 2017, Kakuma Kenya.

This story demonstrates with real clarity that often there was no real depth of knowledge on the part of camp staff members about the ways that refugees use energy. For example, this staff member actually had 'energy focal point' as part of his title, but, when questioned about electricity, he stated that electricity "is not energy for refugees" and said that refugees do not have computers or phones. This is not the case as many electrical appliances can be seen in the camps, but none-the-less this was a perception held by many staff members.

There was a considerable difference in the types of knowledge present on energy in refugee settings in Rwanda and Kenya: while refugees themselves are largely determining their own energy access needs, staff and international policy-makers demonstrate a considerable lack of knowledge on the direct energy situations in the camps. Staff narratives focus much more on donor programming and humanitarian aid initiatives. This can lead us to question whether the most informed people on energy (refugees) are therefore being consulted and involved in decision-making. Is their knowledge being embedded within humanitarian responses on energy, and what are the implications of misinformation and lack of relevant knowledge being used in policy-making and intervention designs?

Here the politics of humanitarianism (Fassin, 2007) becomes visible, with humanitarians deciding what knowledge matters, and only valuing certain opinions. In some cases, agency and NGO interviewees would also stick to their own narrative even when presented with alternative information which suggested their knowledge about energy was not correct. This highlights how the politics of life is linked to power relations between communities, and that many refugee voices were not valued in discussions on energy. Humanitarians, however, were repeatedly labelled as 'experts', even when they had little energy background and, in many cases, contributed to the misinformation and disorganisation of energy provision in the camps. In this chapter I have suggested that in many cases refugee knowledge about the levels of energy they require and use is considerably more than that of the humanitarian practitioners interviewed. This leads us to question not just who knows about energy in refugee camps, but also who is responsible for providing energy access.

Household Energy Access and Self-Provision

The vast majority of energy activities in camps in Rwanda and Kenya are secured and paid for by refugees themselves. Depending on the access level of the household or businesses, this included buying household solar products, paying for mobile phone charging, connecting to local informal mini-grids, spending on motorcycle transport to markets, payment for batteries and torches, making or buying cookstoves, paying for access to 'cinemas' and watching television in informal shops, going to cafés with lighting or radios, buying charcoal or other fuels, or spending resources on additional firewood or charcoal to supplement that distributed by humanitarian agencies. The considerable array of energy uses in refugee camps was largely unregulated and unrecorded, and was powered by informal economies and dynamic mechanisms of local exchange. It is only recently that some studies of informal economies within camps (Betts et al., 2014) and the lived experience of refugees on energy have started to emerge (Rosenberg-Jansen et al., 2018). As a result, there is limited detailed

knowledge on how refugee households and communities secure energy independently from humanitarian provision.

There are a number of elements to this 'self-provision', defined here as independent access to energy resources by refugee communities. Firstly, humanitarian provision of energy products and resources in the camps met a tiny proportion of energy needs. While firewood was distributed in both locations on a monthly basis to families, this was never enough to meet basic cooking needs, and, if households received any support on electricity access, it was usually in the form of a free solar torch or lantern. Therefore, there was a large gap between the level of access provided directly by humanitarian organisations and the amount of energy needed in households. This gap is being filled by refugees themselves, who are choosing, securing, and owning energy products and services directly.

Secondly, a critical element of self-provision is choice on energy products and services. As part of self-provision in camps, many refugee families reported choosing which technologies or sources of energy would suit their needs best. For example, in the stories presented in this chapter, some families connected to the local Ethiopian mini-grid, some bought individual solar lanterns or torches, and some invested in solar home systems and batteries. In all interviews, refugees gave clear and concise reasons why they had chosen particular forms of energy and why they did not choose other options. Some of these choices were positive, in the sense that refugees could choose between buying different energy products in the market, and some were negative, as many families were guided by cost constraints. Such choices were very informed and showcased the level of refugee knowledge. Humanitarian agencies played almost no role in these choices: I never once heard a refugee say that a humanitarian staff member had helped them choose their energy source.

The third element of self-provision is regarding payment for energy products and services: every family I spoke to had paid for some form of energy independently, from their own cash or resources. Whether this involved paying for candles and matches and buying firewood and charcoal, or saving for a solar home system and making repayments over time, a considerable proportion of household income in refugee camps is spent on energy. I also observed some cases of refugees selling the solar lanterns they had been given for free by humanitarian organisations, and then using the cash received to buy alternative energy resources that more suited their needs. Particularly in the case of single women in the camps in Rwanda this seemed to be common practice, as their need for cash to spend on firewood and charcoal was in some cases quite extreme. Many examples were reported of families spending considerable amounts for higher levels of access. For example, in the Ethiopian and Somalian sections of Kakuma, many people were spending upwards of $50 dollars a month for basic TV access and power

in their homes. This may not seem like a lot of money, but compared to the cash and financial resources available to the families, and the tiny amount of power they received, this was often over half their disposable income. The role of humanitarian agencies in the payment for and provision of energy is complicated. On one hand, families rely on cash and voucher distributions from UN agencies and support from implementing partner organisations. On the other hand, families can be seen to be accessing energy provision independently. The relationship between these two elements is interdependent, but in terms of decision-making the power dynamics are clearer: refugees choose and pay for the energy technologies which most fit their needs and humanitarian organisations have little to do with that.

Finally, a point on ownership and self-provision: of course, all energy products bought by refugee families themselves were owned by them. But so too were the products freely distributed to households by agencies, for example, solar lanterns which have been provided to some families in Kakuma and the camps in Rwanda. Once owned by families, people were free to do as they wished with these products. For example, even in cases where energy products were supplied by humanitarian organisations, it was common to see these being resold in the camp markets. There were also examples of humanitarian-supplied technologies, such as solar lanterns and streetlights, being taken apart by refugees and the parts (especially batteries) being sold. Ownership is an important part of self-provision in this sense, and that energy products can provide small examples of capital within household life, which can be exchanged or sold for access to other resources. In summary, refugee household access to energy can be characterised as one of self-provision.

The self-provision of energy by refugees does not stand completely without caveats: humanitarian agencies and governance systems clearly have a role to play within camps. However, in terms of energy access for refugee families and businesses, there appears to be a substantial gap in the humanitarian provision of energy. This gap is political in nature and highlights that currently humanitarian agencies are not able to meet the energy needs of refugees. In attempting to set minimum standards for energy provision, the desire of the humanitarian system to control refugee life is revealed: a set level of access to services has been defined, once which represents the judgement of how much energy refugees are to be allowed. Feldman suggests that in this way the politics of living concept helps us to understand how humanitarian action can contain refugee lives and limit their choices, by reducing "the people it seeks to help to 'mere' victims—objects of compassion, but restricted in their capacity to act as full subjects in their own right" (2012, p155). In not engaging with refugee knowledge on energy, or acknowledging the modes of self-provision already in place, the humanitarian system is attempting to disempower refugees. While this may not be a set of intentional

actions, the results are quite extreme and there is a considerable divide between refugee and practitioner knowledge and action on energy.

In addition, the self-provision of energy within refugee communities could represent a considerable challenge to the humanitarian systems set up to support them. While it is important to understand the roles of institutions acting on energy in the humanitarian sector, and the modes of governance being enacted, it may be that the institutions presented here have a limited role to play in the provision of energy compared to refugee communities. The impacts of this, and the role of humanitarian provision of energy products and services, will be returned to in chapters six and seven.

The Power of Power: Inequality, Us and Them

Understanding these themes of knowledge and access in terms of household electricity in the camps raises a number of issues around power inequalities. Who, after all, has power literally and figuratively within the camps? Inequality is one of the core components of the politics of life: some actors will always have more power and control of resources than others (Feldman, 2012). As Fassin suggests "the politics of life, then, is not only a question of governmentality and technologies, but also of meaning and values ... [it represents] a production of inequalities" (Fassin, 2009, p44). In the case of energy in refugee camps, access to power is literal as well as political. Access to electricity is inequitable: many field workers and staff had smartphones and high levels of electricity access, while households within the camps had comparatively less. These inequalities were recognised by many refugees and staff interviewees throughout the fieldwork. For example, in the story below one interviewee drew particular attention to the difference between energy 'for us' and 'for them': remarking on humanitarian workers within the camps who viewed energy as essential for their own needs (to work using a computer in air-conditioned offices), while questioning the value of energy for refugees (saying it was not an immediate relief item, so "why do they need it?").

Energy for Us Versus Energy for Them

One of the humanitarian agency staff members I met was keen to discuss the differences between energy for refugees and energy for humanitarian staff members. An energetic young Kenyan man, he spoke with passion about energy and his upbringing in rural Kenya. In the margins of an international event, we sat discussing who energy is for and whose responsibility it was:

"Energy is somehow my job now. My job does not say 'energy' in it anywhere, but I am trying to do it and I am known as 'the energy guy' – like I can 'do' all the energy by myself, I will just plug in it and BOOMMM! [loud gesture and laughing]. So energy means more to me than it does to the [humanitarian] operation, it is more important for me and to me. But I am also meaning that they [the humanitarian operation] do not think energy is as important for refugees as it is for them. They think, 'My phone is so important, I must have my computer, if the air con is off I cannot do anything' and if there is no power, they are getting very angry

with me and saying, 'Fix it now, or things will happen'. It is everything for them really. But they also think it is not important for the people in the camps, people in the villages, in the sections – 'It is not an essential item, why do they need it?' they say. 'Why do you?' I always ask them back [laughs]. I am not a very popular person for asking this question".

Interviewee 37, June 2017, Nairobi Kenya.

This interviewee was particularly informed about energy needs in the camps and was concerned with the issue of inequality, drawing attention to the question of why some people perceive energy as more important for themselves than for others. He provocatively asked whether staff members think they deserve a higher quality of life than refugees, and reflected on what this says about the structure of the humanitarian system. The inequalities implied within the exchange of 'I need electricity but refugees don't' was common in the camps, and when asked about energy uses many practitioners replied that there were no electricity sources used in the camps and that all the refugees relied on firewood for cooking. This is empirically inaccurate. When challenged interviewees were often dismissive and critical of refugee households, suggesting that if refugees are 'rich enough' to afford electricity, then they should not be refugees.

One of the refugees in the camp also drew attention to this issue, as described in the story below, suggesting that institutions within the camps have electricity but they will not extend this to households. Referring to this as 'big' electricity (in this case meaning national grid or grid equivalent levels of power) the interviewee was angry about the differences between electricity in her home and in staff homes and nearby villages. She suggested that laziness was the reason: that the staff members would not connect the camp because it would be too much work for them.

"They Will Not Do It"

During a walk through the camp one morning, I met up with one of the refugee women I had previously interviewed. A middle-aged lady with a small nuclear family, she had relatives abroad who would sometimes send her money. She was in the market and struggling to find the batteries she needed from one shop. We started discussing where the sources of energy are within the camp and who provides them. This opened up a discussion about why the institutions in the camp have energy and the homes do not:

"There is the big electricity, but it is not for us [gestures overhead at the grid connected wires]. They will not do it [the institutions responsible for energy in the camps]. It would be so convenient to have electricity in our homes. Some could even pay for it. But they will not do it because it will be too much work for them. They go home in the evenings when it is getting dark [most of the camps have an informal curfew of 5-6pm] and they do not stay here in the night when it is dark. What is there to do then? They go to their homes with electricity and they relax, they watch their DVDs and listen to their music. But they do not want to do the work to let us have that too."

Interviewee 65, August 2017, Kigeme Rwanda.

The theme of anger and discontent about energy within the camps was present in many of the interviews I conducted. In the story below, for example, an interviewee mentioned a number of issues she was angry about: ignorance within UNHCR staff, their logo being on the walls of her house, the inadequacy of the lantern they had provided her with, and how humanitarian staff were not listening to her. Her statement that UNHCR staff do not "know what energy women need" was categorical and well evidenced in the examples she provided. While this story is long, I have included it here to show the depth of knowledge this interviewee had on energy as well as to evidence her strong opinions on UNHCR and staff from humanitarian operations.

"When I See Blue, I See Red": Interview with a South Sudanese Woman

During a visit to Kalobeyei, I met a South Sudanese woman who invited me into her home to discuss solar lanterns. She was quite young and had four children. She had been living in Kakuma camp for most of her life before moving to Kalobeyei. After some initial exchanges she commented:

"You are welcome here, because you know about the lights. They are so good for us, and now we have lights in our home. The UNHCR people, they don't care about this. I am not inviting them into my house, they have the name on the walls and that is enough. We used to have the blue lantern, my neighbour still has. But I am not liking this as it has that name on it and lots of silly things. These little ones [gestures to lights charging on roof] are very good. We leave them there on the top all the time and they are lighting the whole area inside. It is just enough for us. I am very happy we have them, and now you can sit inside with me and talk about anything".

I asked how she was able to get the lights.

"They came with the house. They were bringing us here and said it would be good to sit under the new sun, in this new settlement. The old place [Kakuma] was too crowded and the children did not have space to play near the house. I wanted to come and I saw all the space, and the lights, and so I moved here with my little children. I have good English and studied in the schools, all the schools in the other camp [Kakuma], because I know you need to read, always to read everything. To do the forms, and to choose to come here, you must be able to read. And in the night you can read now with the lights."

We then walked to neighbour's house to see the other lights.

"See, these are the ones. The lanterns from before. I gave mine to a sister, because I read the box and was annoyed. Reading and understanding is important. I thought the light would be good, so I took it when I came here. But one day my daughter was playing with the box and I saw this [points at logos on box] and I was annoyed. The drawings like we are dancing and playing all the time. The muzungu acting like we are so happy and are dancing and walking everywhere. This is dark here in the night, it is a bit better with the big lights outside, but around in the sand, it is dark everywhere. We cannot go walking everywhere and we could fall or there could be biting things. So, it is a stupid lantern and a stupid box. But my sisters thought it was good for them, they do not have little lights like my ones, so I gave it to them. Still, I am looking at it and I am annoyed. The dancing man is very annoying. These lights do not play music, how are we going to dance. Muzungu [she points aggressively at a male UNHCR representative nearby], I will tell him to sing for me and then he can dance. I will not have music or be dancing because it is on a box. He is acting happy [the UNHCR rep] because he gives the blue lanterns and the blue name is on my door, but it is a bit of light and we need much more. It will not come from him, all the things we need. I choose, I buy and I am thinking carefully before I do things".

I was then able to ask some follow-up questions on the types of energy and electricity she used:

"I choose everything myself. The lights, the wood, I go to the market and find the things I want. I am using my Bamba Chakula [mobile money] and my phone to find everything. Like this small one [holds out small blue solar rechargeable torch]. I saw [it] in the market and it was costing a small amount, but I tried it and then saved the amount, then I went back and bought it. It is very useful for looking under the bed, for checking for things in the night. For playing with the children when they are crying and won't sleep. I am putting this side in the sun all day and it is getting light. Then at night I am using it for not long. It is not running out of batteries and it was only a small cost. This is much better than the big blue lanterns they gave use. They are too big and I cannot put them under the bed, to check for biting ones [small animals that could bite]. In the house I am just using this and the good lights, then I have the cooking wood, and sometimes charcoal if my sister is lending it to me. My sister's son is having a good phone, and he was playing music yesterday and watching videos. He showed me some and that was nice. But he is paying a lot to keep the energy in it. I have only this phone for Bamba [shows mobile money non-smartphone] and that is keeping energy for a long time. I turn on when I am at the market and it is showing me the money I can spend. So, it does not do videos but it [is] good as well. That is me, that is all the energy I need and I have it all [grins, and then whispers] … don't tell the muzungu man that [looks at UNHCR rep again], he doesn't need to know what energy women need".

I asked why she dislikes UNHCR or whether it was that man in particular?

"It is not him [that I dislike], it is all of them. I laugh with my sister and say, 'When I see blue [the UNHCR colour for hats, logos], I see red'. They are never helping us: I am not asking for anything for the first seven years we were here, and then I needed help for my son. So, I asked at the clinic and the blue man said, 'No', so I went to the next blue man, and the next one, and they all said no. He had an infection and, in the end, I found a woman. She said yes and helped us get a warmer water [possibly meaning a water heater or purifier] and it cleaned his infection and his leg was better. I was angry with all the blue men I met then, because his leg was bad and they could see it was bad. I was saying:' I am not asking for luxuries and to be special, but you can look down there and see his leg is bad'. But they would not help me get it. But the women do. The woman, like you, she understands and is a mother, I think, so she helped. The men, most of them are muzungu and they don't know anything".

Finally, I thanked her for her opinions and taking time to talk to me, and asked if I was asking silly questions:

She laughed loudly: "You are not brown so you could be muzungu and asking silly questions, but you are a woman so this already is good. I saw you looking at the panels before [meaning the sewing cooperative next door that had solar panels where I was before the interview] and you were listening to the women in that place. Not talking, listening. So, I knew you were interested in the energy, and I wanted to tell you about the blue lanterns and so you are welcome in my home to talk about these things".



Photo: Solar torch within the home, Kalobeyei Kenya.

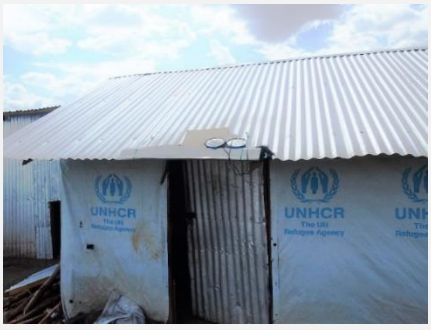
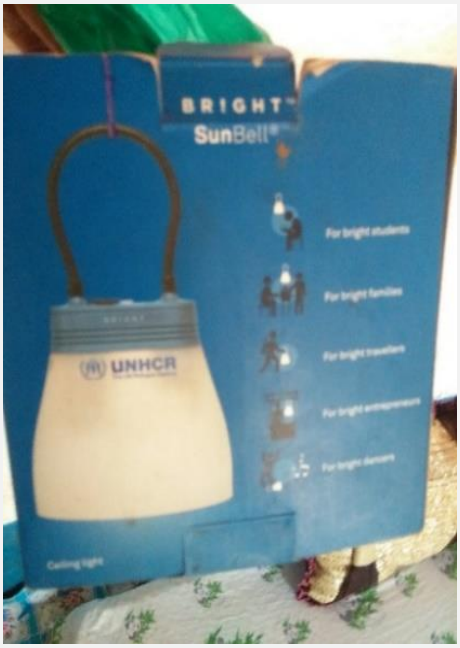
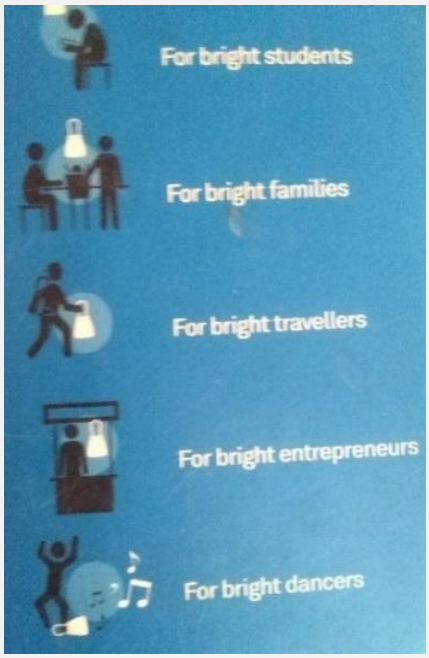


Photo: Solar lights charging on top of the household, Kalobeyei Kenya.





Photos: Kalobeyei settlement, UNHCR lights in Sudanese home, showing 'uses' of the lantern for students, travellers. However, this lantern does not provide music so the box and infographics are misleading. Kalobeyei Kenya

Interviewee 49, June 2017, Kalobeyei Kenya.

A number of themes emerge from these sections, including the way that different types of knowledge are more valued than others in the camps, and that there are unequal power relations within refugee settings. One of the most striking elements of the interviews within the camps was the frustration that households felt because humanitarian agencies were not doing more to support them on energy. The impacts of power and control on the everyday experiences of households were clear: a lack of knowledge by humanitarian agencies was limiting electricity access for households. Many interviewees expressed clearly that they understood the reasons for this (limited budget, time, skills, and ability to change the humanitarian system), but it was rare for non-refugee actors to acknowledge the impacts that this was having on daily lives or to propose solutions regarding how to change this. The politics of power is contained both within the actions and knowledge of humanitarian organisations: access to household energy was limited, but so too was knowledge on energy by practitioners. The following chapters will explore this issue further with regard to electricity for enterprises, community facilities, and institutions, which to some extent demonstrate an even greater disparity between end-users of electricity and humanitarian systems.

Conclusion: Political Perceptions and Energy Values

In this chapter, I have argued that energy and electricity in homes represents a highly visible set of technologies in refugee camps. While levels of access may not be extensive compared to western standards of consumption, there are many examples of technologies and appliances – especially when considering the view of some practitioners and global policy-makers that 'there is no electricity in the camps'. All refugee families had some access to energy, whether this was a basic form of access such as candles and three-stone fires, or higher levels of access from electricity or cookstoves.

This chapter provides much of the evidence to answer the first research question: How is energy valued and perceived by refugees and humanitarian practitioners? Perceptions on energy within refugee communities were extensive: energy clearly had a practical and use value associated with everyday use and the realities of needing energy products and services. Renewable energy was valued for reducing costs and for supporting economic development. But energy was also socially and culturally valued, with historical connections made by refugees linking energy use to their past and home countries. Energy represents more than access to many people, and is an important signifier of status and social standing. Many refugees also spoke about the emotional importance of energy for them, in terms of feeling clean and for improving quality of life. This conception is fundamental to understanding the value of energy: power represents not just a single light bulb; it involves being able to watch TV at night in a lit room with friends and family. In the same sense, energy is 'non-technical' in its importance: value is not expressed in kilowatt hours but in pride and happiness. The inter-connectedness of energy and mixed nature of energy is often non-linearly connected to the direct benefits of energy. For example, many of the interviewees appeared to segue into discussion of family life, their business, or other topics of relaxation and income generation in the camps. These non-linear connections are a vital part of the value of energy, which lies 'underneath' many of the activities which we all value every day: making tea, using computers and phones, and being able to switch on the lights when it gets dark. This suggests that the value of energy for refugee households is one centred on quality of life: having more access enables a better quality of living. Families would go to great lengths to secure energy, and most of the electricity in the camps was secured independently by refugees themselves. Refugees also knew a considerable amount about energy access and demonstrated sustainable knowledge on types of energy sources and uses.

In this chapter I have argued that the humanitarian politics of life (Fassin, 2007) becomes visible as we investigate energy access in refugee households. There are a number of dimensions to this. Firstly, energy and social practice are inherently linked, and access to energy is not simply a technical or

neutral issue. In this way, having and using energy is about the politics of living: enjoying social and cultural activities, spending time with family and friends, and being able to live a productive and fulfilling life. I have investigated what role energy plays in such dynamics, including the "complex realities of the politics of life" (Fassin, 2007, p501), and, in the case of energy, the multiple views and perceptions on these realities. I have also presented evidence that the politics of living is often linked to income and who can afford what. Through this lens it is possible to see a politics of darkness within household energy communities: questioning how does not being able to afford energy access reduce quality of living.

Secondly, the politics of life is underpinned by a politics of perception within the camps: there are disparities between the perceptions and values of refugees themselves and the humanitarian organisations that support them, and the levels of knowledge and experience on energy between these two communities. Refugees inherently valued energy as a way of improving quality of life and were spending considerable amounts on providing it for themselves. Yet many humanitarian practitioners did not recognise either the existence or value of energy in these spaces. The politics of perceptions is important for refugee households because, without an accurate understanding of energy in refugee camps, humanitarian organisations will not be able to support households in improving their quality of life. This speaks to one of the meanings of the title of this thesis: refugees speak into darkness when trying to make their opinions about energy heard. Currently, the humanitarian system is not able to listen to their needs or provide enough energy for refugee households.

Thirdly, value judgements underpin the politics of living in refugee camps. This is evident in both humanitarian inaction on energy and the written strategy documents produced by agencies. In this chapter I have tried to contrast what energy means to refugee families against the minimum standards imposed on communities. In the case of the UNHCR energy strategy, a concrete figure of 200 Wh per day per family is provided to establish this and provide a narrative that energy provision should be for protection needs. Many global organisations are trying to change this narrative and ensure that humanitarian commitments on energy are progressive and ambitious (UNITAR, 2019). However, the reality on the ground is very different, where delivery of services is still focused on basic provision. The self-provision of energy services by refugee communities is a political issue, and may undermine the current 'protect and provide' mentality of the humanitarian sector. Self-provision challenges the self-reliance narrative put forward by UNHCR and other agencies: in terms of energy, refugees are already largely independent and self-reliant, so encouraging them to be more autonomous would be difficult if not redundant.

In conclusion, household access to energy in refugee camps in Kenya and Rwanda is extremely dynamic, led by refugees themselves, and can be understood to have a political nature. If the politics of living plays into the quality of people's lives, we must question who is deciding the types of support available. In many cases, refugee households seemed to have almost no support at all on energy access from humanitarian organisations, which can lead us to question the role of humanitarianism in such contexts. Power levels, both for physical electricity and social dynamics, were unequal in the camps, with many humanitarian organisations perceived as not having a role in access to energy at all. Choices are being made on how people access energy and how much energy support refugees receive. In many cases these choices are selective and result in inequality in access. There is some anger at this inequality from refugee communities, and a range of coping mechanisms such as the self-provision of energy are employed as a result. This chapter has focused specifically on energy at the household level; the following chapters will now explore these themes in relation to energy for enterprises, community facilities, and operations.

Chapter 5. Energy Is Their Livelihood and They Are Very Serious About It: Energy and Enterprises

Introduction

Standing in the middle of the road in one of the main markets in Kakuma, I was overwhelmed by the number of shops and businesses rolling into one another along the street. Restaurants and cafés selling hot meals and snacks cooked over charcoal and firewood stoves, TVs blasting out the news as people eat, fridges whirring to keep drinks cold. Shops selling mobile phones, computer repairs, batteries, lights, solar panels, and charging services sit side by side. Hairdressers use electric clippers, shops selling beauty products use soft lighting, sewing cooperatives and tailors operate electric sewing machines, and satellite dishes poke up from the rooftops of TV shops. Food sellers have freezers and chillers to ensure perishable food lasts for longer, flashing toys and small colourful torches attract small children, and mobile money sales are everywhere. Motorbikes full of fuel weave across the road and the occasional car motors through the market.

Energy is within every shop I visit. Even in smaller businesses selling non-food items such as bowls, cooking equipment, clothes and toys, there is lighting, and electrical appliances to take mobile payments. Shopkeepers show me other goods they can get on their smartphones and connect to me on WhatsApp using Wi-Fi. In larger places selling mattresses, grain and food goods in bulk, computers and tills rack up bills and print out receipts. The whir of machinery and buzz of electricity are constant. There is music jumping from radios and voices emerging distorted from phones on speaker. Within the hum of charging stations and batteries, the gleam of electric lighting, and the soft warm breeze flowing from fans, motors work hard to keep things cool and the power on in the desert heat. The wind brings the smell of the diesel-burning generators which connect most of the market, while smoke from wood stoves wisps out of backrooms and cafés. In trying to research how energy and enterprises are connected, I wonder where to start.

This chapter presents findings on energy uses within the businesses and shops within Kakuma in Kenya and Kigeme, Nyabiheke and Gihembe in Rwanda, describing the value people place on energy for enterprise use, how energy and businesses are connected, the cultures of enterprise found within communities, the role of entrepreneurial independence, and the dynamics of informal energy markets. While the previous chapter analysed the different perceptions on energy use within households, this chapter presents evidence on the role energy plays within the wider economic life of refugee camps. The core argument of the chapter is that energy enterprises are one of the key

constituents within energy communities in the camps, and are the main group supplying energy products and services to refugee communities. This part of the energy community is often not recognised by humanitarian agencies, and, as a result, enterprises within camps are not supported on energy. We can therefore ask the question, what role do refugee-led businesses play in the politics of living in refugee camps? Building on the work of Fassin (2007) and Feldman (2012), I suggest that refugee energy businesses are enhancing quality of life in the camps through enabling access to energy, and are doing this more effectively than humanitarian organisations. The chapter ends by arguing that energy enterprises are informal and independent, and outlining the implications of what a more detailed understanding of energy uses within enterprises in camps may bring.

Energy and Enterprises

Different Contexts: Energy Markets in Kenya and Rwanda Camps

Markets within refugee camps are increasingly being analysed as part of an emerging body of literature on refugee economies (Betts et al., 2014), and some initial work has been undertaken on refugee businesses using energy (Rosenberg-Jansen, 2019). Kakuma in particular has a large system of informal trading and is a vibrant marketplace: home to nearly 160,000 people, it hosts a multi-income community who have been economically dynamic since the camp's creation in 1992 (Betts et al., 2014; International Finance Corporation, 2018). The three camps I visited in Rwanda, however, have less established markets, are much smaller in size, and are relatively newer.

Kakuma camp in Kenya is comprised of four refugee sites (Kakuma I, II, III and IV) and close by lies Kalobeyei village, which is a settlement hosting both refugees and local host populations. All sites have multiple markets and business spaces, including micro-enterprises in homes, small shops, and larger market streets woven throughout the camps. While all types of energy are present within the Kakuma camps, in particular there are many examples of renewable technologies, especially solar: from solar products being sold in the markets, to solar home systems for households and shelters, to training available on solar installation and maintenance, to solar panels producing electricity used to power businesses. The picture below captures the types of technologies and shops within the camps and shows solar panels being sold in one of the shops in Kakuma, alongside electrical products such as solar home systems, torches, speakers, TVs and radios. Alongside solar technologies there are also a range of additional objects which support solar panels and lanterns – including batteries, light bulbs, wires, connectors and electrical scissors.



Photos: Solar panels for sale in Kakuma refugee camp, Kenya.

Solar panels sold in shops are often quite expensive for camp residents, and require upfront investment, but once purchased they can offer numerous income opportunities. For example, the pictures below show two entrepreneurial activities powered by solar: a cinema and a tailoring shop. Both of these examples have provided the owners of the panels with the opportunity to power their livelihood. In the case of the solar cinema, electricity is used to power a TV, fan and lighting for the cinema. The business owner then charges customers a small amount to watch a film or show (usually around £0.50). There are also examples of training programmes for refugees in Kakuma on solar energy: for example, a Norwegian Refugee Council programme offering the opportunity for students to learn about solar technologies, including how to carry out electrical repairs and installation of technologies for various purposes (Crown Agents, 2017). The photos below highlight some of these solar energy technologies within Kakuma and Kalobeyei.



Photos: Solar cinema and solar panel out for charging in the sun outside the cinema in Kakuma and Kalobeyei, Kenya.





Photos: Solar panel for tailoring business and solar street light in Kakuma and Kalobeyei, Kenya.

Informal businesses and enterprises like this are sometimes recognised by Kakuma camp authorities and implementing partners, but the role energy plays in businesses is largely unacknowledged by humanitarian organisations within the camp. Despite this, the importance of energy for these enterprises – and the opportunities offered by electricity in particular – was widely recognised by refugees. For example, a refugee who used solar energy openly discussed with us that the camp authorities were not able to support the community in repair or maintenance of solar products, but as he was trained in electrical work he commented, “I have the knowledge to keep the system running" (Interviewee 53, September 2017, Kakuma Kenya).

The situation in Rwanda is somewhat different: many markets are at a nascent stage with a small number of shops spread out throughout homes and small markets. In all the camps I visited there was a small main market street, usually with a cluster of five to ten shops close to the UN and NGO buildings. Many of these spaces had limited energy access, and were often powered informally through connections with NGO offices or in some cases using small solar panels to supplement the energy needed for their businesses. While energy use by enterprises was less prominent in the Rwandan camps, there were still active markets, sellers, and informal trading spaces throughout all the sites I visited. The photo below showcases the main market street in Nyabiheke, with some connections and wires running along the left of the street. Markets were more active in Mahama and Kigeme camps, which are larger in population than Gihembe and Nyabiheke. In Mahama particularly, a large market space in the centre of the camp was a very ‘energy-intensive’ space, with loud music playing from every shop and multiple lights and power sources visible throughout the market place. After some investigation about why this was, it became clear that a newly arrived refugee had managed to procure a diesel generator and was powering the market spaces using that.



Photo: Market street showing connecting wires on left for some businesses, Nyabiheke Rwanda.

Despite limited energy access within businesses in the Rwandan camps, there were examples of mobile charging businesses and shops selling electrical appliances, such as individual solar lanterns and lighting products. For example, the picture below shows a standalone solar charging station being used as a small business to charge phones. Such small-scale businesses were common within households in Rwanda (Practical Action, 2020).

There are also lively charcoal markets, exchange networks for firewood and fuel, and battery charging businesses in and around the Rwandan camps. While the energy life of the Rwandan camps was perhaps smaller than that in Kakuma, it was still considerable: with energy uses ranging from traditional and fossil fuel-based technologies, to innovative PAYG models, and solar energy technologies. The importance of mobile charging – and the range of technologies, shops, and energy sources to do this – was very visible across all three Rwandan camps. In the pictures of solar charging equipment below, the family were running a small business using the technology but were mainly focused on using the electricity for their own charging needs, whilst offering their neighbours the opportunity to use any additional power to charge their own items, for a small fee. This type of micro-enterprise was common, because there was often a noticeable lack of power and energy products that could be used to run a business. While the renewable energy economy in Rwandan refugee camps is small, it is emerging quickly and progressively to meet the electricity needs of the community.



Photos: Solar-powered phone charging technology in Nyabiheke refugee camp, Rwanda.

Energy Nexus: Livelihoods-Enterprises-Economies-Businesses

There are a range of different terms and sectors that represent the intersection of energy for enterprises, businesses, livelihoods, markets and economics. A first set of terms is used by humanitarian providers and within the aid sector, who will often speak of livelihoods and income-generating opportunities, sometimes linking these specifically to energy for humanitarian aid and implementation programmes within the camps. A second set of phrases is used by energy access specialists, who will refer to energy and enterprises and the private sector, meaning both larger companies such as Shell or Schneider Electric and small-medium-sized enterprises such as shops and micro-enterprises selling energy within the camps. A key difference between these two sets of terms is that often when humanitarian sector participants talk of livelihoods, they do not consider the energy needed to power these professions, and often when energy access specialists talk of 'energy enterprises', they refer explicitly to energy suppliers or large-scale users rather than small-scale users (such as tailors who use electric clippers and mobile payments). In both cases, parts of the energy community within the camp are missed. These divisions are reflected in the academic literature on markets and businesses in refugee settings. For example, articles on livelihoods in the humanitarian sector which make no or little reference to energy (Easton-Calabria, 2015; Omata and Kaplan, 2013) or focus explicitly only on fuel or firewood and do not cover electricity usage (Jacobsen, 2002). Similarly, refugee energy publications which focus on the provision and use of energy by large suppliers and consumers (Corbyn and Vianello, 2018; Lahn and Grafham, 2015) and miss other users.

To complicate matters further, a third set of terms is used by academics and researchers on the topic of refugee economics (Betts et al., 2014): these terms often focus on camp economies and market assessments and often exclude energy almost completely. A fourth set of terms used comes from within the refugee and host communities themselves: this research suggests that the most commonly used terms used by refugees centred on 'energy for businesses'. All refugees interviewed commented that they needed more electricity and access to cooking fuels and firewood for their businesses. Therefore, I chose to focus on the specific ways in which energy and enterprises connect for this research. In this chapter, I will detail many of these different elements of energy use and often use the term 'energy for enterprises': which is intended to be a broad definition that encapsulates energy supply and use across end-users. The chapter is focused on small and informal businesses within camps, rather than addressing the limited role larger, formal international companies currently play in the provision of energy for businesses in refugee settings.

The table below provides a broad summary of the range of terms used and their connections to energy. This is not intended to be comprehensive or absolute, and many sector practitioners will use multiple terms interchangeably. Presenting these different terms as separate here may seem limiting given that many people mix their use; however, underpinning this use of language are several key absences and exclusions. For example, research into refugee economics which focuses explicitly on camp markets may miss connections with energy services provided by host communities, alternative firewood supply routes, and the additional energy objects needed to enable a fully functioning energy economy (Rosenberg-Jansen and Okello, 2017). Whereas an analysis of energy and livelihood projects may not be inclusive of independent entrepreneurs in camps who have not been supported through humanitarian implementation programmes. It is also important to include such definitions here, as currently almost no such descriptions exist within the humanitarian sector literature.

Sector	Energy and …	Key Focus Areas within Enterprises	Absences
Humanitarian	Livelihoods, cash and refugee jobs	Energy for humanitarian-supported programmes (e.g. an ICT training programme or solar-power agriculture project), energy for main markets in camps, livelihood activities supported by humanitarian assistance (e.g. a tailor cooperative run by an NGO in a camp).	Energy required for smaller businesses, cash dynamics, independently owned refugee businesses, cash-energy dynamic
Energy Access	Enterprises and productive uses	Enterprises who can directly supply energy products and services within camps: both large international companies and smaller SMEs within camps, large energy users (e.g. agricultural productive users, millers, carpentry workshops).	Energy for non-supplier businesses, smaller-scale energy consumers

Economic Research	Economies and markets	Camp economics and energy needed to power markets and business within the camps, electricity provision for humanitarian agencies, firewood and fuel markers in camps, self-reliance, energy for resilience.	Energy required for smaller businesses, firewood and energy supporter objects
Refugees and Host Communities	Businesses, money and local jobs	Energy for business and energy entrepreneurs within the camps and surrounding towns and villages. National energy policies and local sustainable energy jobs.	Energy for humanitarian intervention projects

Table: Energy and Enterprises: Multiple Connections. Source: Author's own.

A pattern emerges in the absences summarised in the table above: small refugee-owned independent businesses are often missed as a focus area in all sectors. This pattern was reinforced during fieldwork, as many humanitarian programmes analysed had household components and some examined energy for humanitarian operations, but very few programmes addressed energy for small businesses directly. Summarily, energy for refugees is often not included in national energy plans. These different terms are also important as in many cases staff working within the camps are only focused on one sector or approach, and as a result often only had knowledge of one element of energy use. As suggested at the start of this chapter, staff working within the camps rarely recognised the importance of businesses as energy suppliers. This finding was common whether staff members were from a humanitarian background, the energy access sector, or researchers working on energy in the camps: rarely was the role of enterprises considered or discussed. The evidence presented within this chapter showcases a couple of exceptions I was able to find, which often came from those working outside the energy sphere: for example, livelihoods advisers. One such exception was provided by the interviewee cited below, who had a range of experiences working across UN agencies, NGOs, and the private sector and who described the dynamics of energy in enterprises within the camps.

Markets in Camps and Energy Uses for Enterprises

During an international event in Kigali on energy for enterprises, I was able to interview a senior sector practitioner who had worked for multiple partners in the humanitarian sector as a livelihoods expert. He was a middle-aged man who had worked for both NGOS and humanitarian agencies, and he spent considerable time detailing the connections between energy and enterprises. We started by discussing the nature of economies within the camps and how energy was connected to businesses:

"There are markets within the camps, of course; they are selling energy products everywhere – from charcoal to the lanterns. Even home systems and the bigger panels for those who can afford them. The little 'high-street markets' are in the camps from the middle of the morning to the evening. Most people are using these for electricity somehow – for batteries, for phone charging, for buying lanterns. Some go outside the camps – in Kigeme where it [the local town] is close – because the prices are sometimes lower outside the camp than inside".

We continued our conversation to include the range of enterprises that use energy, but do not necessarily produce or sell it. I asked about the informal craft spaces in the camps and how people were using energy there:

"You could call it an artisanal village or creative space, because everything is made locally, but, in some cases, people are selling things that you would consider so basic – like scraps of material or cold water – it is more necessary than craft. Energy is in there, of course, for chillers for water or powering the tools in the metal and repair workshops, but it is not the main thing. If you are asking someone: show me energy and businesses, they will not take you to these small spaces, only to the diesel generators and the solar shops".

During the conversation we started to differentiate between the types of businesses and users of energy in these spaces, and he suggested:

"You can see two types of businesses really: those using energy that is easy to get to – off-the-shelf products and services, and improving their business – to keep the lights on in the night or to offer cool drinks or a fan. And those businesses where really energy is the business – like phone charging. Where people can use solar home systems or other technologies as the business. It is some basic technologies, but they created a resource, a business out of this. It is incredible really, to make money, a job, a livelihood out of nothing, out of just supplying, because you know people need energy so much".

"Then, of course, you have you higher power uses, that's a different class of users, like carpentry and milling business – they need much more power. Sometimes they hook up or 'borrow' power from UNHCR or local generators. Sometimes they pay and sometimes they don't. People often have informal or flexible arrangements – it's like differential pricing for some people who are poorer sometimes and other times can afford to pay. In Rwanda this is much more common. In Kenya, some communities, like the Somalis were very strict and never let people use power for free. In every space, every camp, every shop, every community, energy is different. Different uses, sources of energy but also different thinking about energy, electricity, cooking, fuels, firewood, shops, businesses, people. So much difference, yet the humanitarians think one energy and livelihoods project will fix it all".

Interviewee 31, June 2018, Kigali Rwanda.

This story connects the range of businesses, livelihoods, and informality of markets with energy use and supply in the camps. The interviewee described clearly that the markets needed power for businesses and highlighted that many refugees have created their own energy-based businesses based on supplying power or energy products to other refugees. This was an unusual interview in the sense that the practitioner provided a very useful and holistic overview of the issue, whereas most interviewees focused on the types of energy interactions they had witnessed and often did not talk explicitly about the energy needs of enterprises. The interviewee was critical of the humanitarian programmes in Kenya and Rwanda which focused on livelihoods but did not address the energy needed for these activities. This story represents a brief glimpse into the context of energy for enterprises; however, there is considerable complexity within this area of research.

The Economic Value of Energy

Energy Products and Services

The majority of people living in camps do not necessarily have stable or regular incomes. However, there is substantial evidence that many camps are functioning in a similar way to towns and cities and have large informal economies (De Montclos and Kagwanja, 2000), and that camps act as economic hubs for local economies (Jacobsen, 2005). Despite detailed analysis of the economic lives of refugees, especially related to cash-food dynamics (Alloush et al., 2017), energy is often missed from this story.

Across enterprise spaces in all the camps, there were a large number of appliances and 'productive uses' of electricity, which are usually defined as those that involve "the application of energy derived mainly from renewable resources to create goods and/or services either directly or indirectly for the production of income or value" (White, 2002, p33). This traditionally includes uses of energy such as electricity for ice making, drying of food, grain milling, textile making and weaving, battery charging, power for community centres and workshops, providing communication and internet services, carpentry, handicraft production, welding services, and electrical appliances for some smallholder agriculture (Cabraal et al., 2005). To date, analysis of productive uses of energy has largely been addressed by the urban and rural development literature and the connection between energy and livelihoods in refugee settings has only recently started to be considered as an evidence gap (Rosenberg-Jansen, 2018c). Many of these uses of energy are present within refugee settings, and there were some examples of grain milling and primary and secondary small industries. However, within the camps in Rwanda and Kenya the majority of income-producing enterprises were tertiary 'service' businesses such as mobile phone shops and hairdressers rather than primary or secondary production business involving raw materials, manufacturing or assembly.

Within these service businesses, two types of 'energy for enterprises' can be broadly considered within the camps. Firstly, enterprises that use energy for making things, creating things to sell or to light and power shop spaces – as in the sewing workshop story above and restaurants in the camps. Secondly, business which are run by people who could be termed 'energy entrepreneurs' and are specifically focused on selling energy products and services. Refugee energy entrepreneurs in this context can be defined as refugee individuals or collectives who utilise energy products or services as a source of income and have built a business around the provision and supply of energy (including selling energy products, power or fuel, mobile phone charging, cinemas and television services, and appliance shops selling lanterns, matches, cookstoves, panels, and other energy-related goods). Many businesses presented in this chapter, such as the solar cinema in Kalobeyei and the electrical stores in

Kakuma, are examples of these types of energy-based enterprises, as are the mobile phone charging shops in the Rwandan camps. These shops are often selling electricity as a service, whether by charging for access as in the case of the cinema, or charging for power directly as in the case of phone shops. The distinction between businesses that use energy and those that actively sell it is important because the purpose of energy is different. The first type of business relies on energy to produce or enhance what they are selling, whereas the second set of businesses are more directly focused on energy as a consumable: energy is the good. As a result, the prominence of energy in 'energy entrepreneurial' spaces was often more visible in my research and knowledge (especially about the costs of energy) was more forthcoming. As the pictures below show, there were a large range of energy products and services available within businesses.



Photos: A range of electrical stores selling appliances, phones, solar lanterns and torches, as well as electrical services, Kakuma Kenya.



Photos: The types of electrical services available in the camp shops, Kakuma Kenya.

As well as refugee energy entrepreneurs who were selling energy within the camps, there were also examples of private companies and international private sector suppliers selling energy services. In Kakuma there were a range of suppliers, with companies such as M-Kopa, d.light and BBOX selling their products and services in the camp. The market for such services in Kakuma seems to be relatively well developed, with the average household estimated to spend around $9 a month on lighting, phone charging and cooking in Kakuma I (Corbyn and Vianello, 2018, p5). While this might not seem a very high amount to pay for energy, in some cases this represents around 30% of people's disposable income and is cited as a priority spending area for most families (Corbyn and Vianello, 2018, p5).

In Rwanda, a similar market for solar home systems (SHS) based on pay-as-you-go (PAYG) and leasing models is emerging. Some providers such as Zola, BBOX and Mobisol are already selling products and services to consumers within camps. The products offered by these companies differ slightly – for example, some have bigger solar panels, more lights or additional appliances available (BBOXX, 2018; Mobisol, 2018; OFF Grid Electric, 2018). Most solar home systems are primarily bought through a PAYG system, with a deposit ranging from around £12 to £45, and monthly repayments of £5 to £15, dependent on the type of system, over around 36 months (Practical Action, 2020). This type of model makes solar home systems more affordable, as they can spread the payments for energy over a number of months or years.

This energy is critical, as it provides lighting at night, and most systems come with a small battery which can be used to charge mobile phones at home. With larger systems, people are able to power efficient TVs, radios, and other electrical appliances. Within the Rwandan camps, SHS were used more commonly within businesses and shops rather than purely in households: the name ‘home’ systems denoting the original type of product rather than where they are actually used. This is likely to be because these energy services are initially more expensive in terms of capital outlay than solar lanterns or other forms of lighting, and therefore only richer homes and businesses can afford them. At the time of research, there were relatively few SHS within the Rwanda camps; however, some homes and businesses had them and were actively informed about the options for repayment and energy technologies which underpinned them. There are likely to be more SHS soon with the implementation of a large development project planning an investment into SHS technologies over the next three years within the camps.

Medium and larger private sector companies in the camps do not currently provide the majority of energy needed for refugee communities: most of the electricity for refugees is provided by small and informal refugee-owned businesses who provide both energy services and products. This is in

contradiction to the global narrative on refugee energy needs, which suggests that private sector investment by larger companies is essential to enable access to energy (Rouse, 2019). However, within refugee camps, vibrant small-scale energy economies already exist. There were many examples of shops selling energy products and services within the camps. The story below highlights one example of energy products for sale within Kakuma camp.

Solar Shopping

A South Sudanese refugee in Kakuma asked me to visit the solar shop he worked in. He introduced me to his boss, an older man who had lived in the camp for many years and who received some financial support from relatives overseas. His worker translated for us into English as the shop owner only knew a few phrases. Initially, the shop owner was not very open to us, but then my contact explained I was interested in electrical products and that I wanted to understand the types of products, and then he opened up:

"I am selling all the electricity and energy things: lamps, lanterns, solar panels, batteries, torches, and locks to keep things safe. I also sell these [points to scarf and lipstick] if you like something. They are for the ladies, of course".

I asked about the solar panels which were on display and how many people bought those directly from the shop:

"The panels are expensive; they are displaying to show what is there but few people buy. Maybe people buy the batteries – these small [pulls out AA-type batteries] and these big [points to car battery]. I also have light for the lights [points towards celling light which was used to power the shop]. Mostly they [customers] are buying direct, no loan. But some, they are asking for small payments and then coming back with more. Sometimes I do, and sometimes I do not do. When they do not come back with more, I ask my friend – the Somali who is having all the generators – to go to their home and take back the product. That is working".

That comment lingered with a sense of silent violence, so I asked how long he had been there running a business in the camp:

"I am selling here for some time. It is good business and I make good money to support my family."

At which point the interview was cut short by the arrival of new customers, but the owner invited us to stay and look at the products and take photos. Every so often he would break off from conversation with customers and point out some products in the shop. I have included a brief list and some photos below to show the variety of goods, both energy products and non-energy items:

- *Solar lanterns and solar panels.*
- *Small solar home systems.*
- *Wires and connecting devices.*
- *Batteries, big and small.*
- *Plastic containers and connectors.*
- *Lamps and bulbs.*
- *Matches and lighters.*
- *Torches – solar and battery powered.*
- *Radios, chargers, calculators, locks.*
- *Earphones, knives and wire cutters.*
- *Footballs, bags, ladies' scarves, lipsticks.*
- *And a few other non-electrical items.*



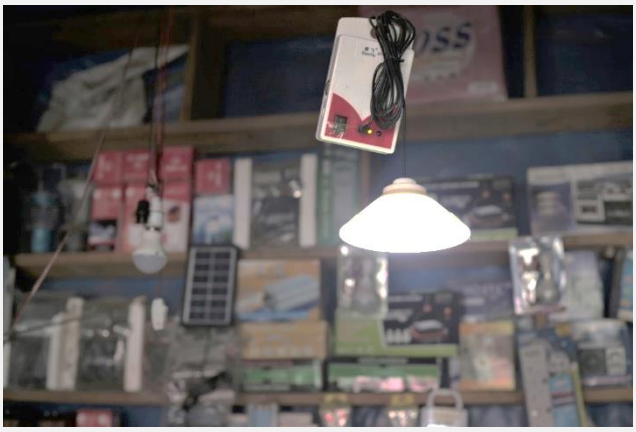


Photos: Products in 'the solar shop', Kakuma Kenya.



Photo: d.light lamps in the 'solar shop', Kakuma Kenya.

Photo: "light for the lights", Kakuma Kenya.



Interviewee 54, September 2017, Kakuma Kenya.

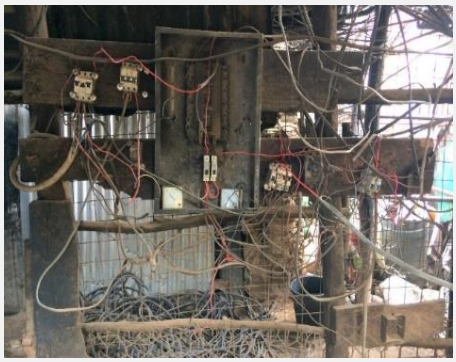
While this interview was very short, I returned to the shop many times during my research and saw the shop owner and the types of trade he was able to conduct. A considerable number of people visited the shop and negotiated sales during these observations: some using bartering or trade to reduce the price of goods, others asking for repayment periods or flexibility in payment. While this story is only one example, many such businesses were visible in the Kakuma markets. Energy products and shops selling them were clearly valued.

As well as the sale of energy products as exemplified in the story above, many energy businesses in the camps also sold electricity services and power. One of the largest examples was within Kakuma camp, where an entrepreneur set up several informal mini-grids using his diesel generators to power homes and businesses in the camp. As the story below highlights, the mini-grid owner expressed thoughtfully what he thought energy was useful for. The interviewee stressed that, although lighting is important to people, electricity is about more than that. We also discussed appliances and uses of electricity, and why it was something they would pay a lot for.

Mini-Grid Movements

After hearing a lot about the 'Somali with all the generators', I followed the wires through little lanes, behind restaurants and shops, and between houses. There, behind one of the Kakuma markets, was a deafening hum of noise, smoke, smell and wiring: the centre of the mini-grid connecting many parts of the market, households and shops. A large space full of parts, wires, jerry cans, and diesel awaited me. At the centre of the space was a deconstructed diesel generator without casing and hooked up to a makeshift water-cooling system. The owner was a middle-aged Somali man who commanded a lot of power (both literal and social) within Kakuma. He was friendly and open with me but I witnessed many examples of people being intimidated by him during our repeat interactions. During our first interview, I asked him about the technologies there:

"I had to make this, taking off the casing [of the generator], to keep it cool. It was always overheating as we were using so much. I made a water-cooling bin, it is very innovative. The water runs like this [gestures wildly over and around the generator], whoosh, over the top and around it, and then cools by dropping the water into this bin here [knocks on the side of the boiling water bin in the right photo below]".


Photos: Private generation space, the main generator and the innovative water-cooling system, Kakuma Kenya.

As all the objects in the space we saw initially were connected to diesel generation, I asked the owner whether he would ever use solar electricity?

"Yes! There are many options for this and I have considered them. For now, I am all connected here and everything is working well. But the lady down there [gestures to a household nearby], she is saying this is smelling and making noise, so I am telling her I will move to the solar panels. Maybe that is not true yet, but sometime I will move. Because the cost for the fuel [diesel] is going up and there is less of it in Turkana than before. Also, there are many boys working in the camp on solar and they could all be working for me, so that would be nice. I have some money I could spend on it, but enough for 10 panels only. I have looked and I think for here, in this market I would need maybe 20 panels. I keep thinking about how to do it, not just for the cost and the moneys to spend on that, but what to do with these, my lady generators [laughs]. And how to keep for me. If I am putting the panels on all the roofs of the market owners, they will say that is theirs and not mine. Not the market owners, they will not say that because they will still pay me, but the other people. I am still thinking of the options!".

I suggested he could put his name above the panels, like the signs above the shops, or have all the panels in one place – in a garden somewhere or on roofs – and this brought a very animated reply:

"You are a genius. An electricity sales genius, you should be working for me! These are very good ideas. With the signs, I could print my own – I have my own printing shop as one of the businesses here already. That is a very good idea. Everywhere it would be a sign with my name [grinned]. The gardens idea is good too, but I think the roofs are better. The panels will be safer up there and no-one will fall on them. The sun is better

up there [points to the roof] and the wires are already up from my generator connections. So that is better, lots of panels and lots of connections … And … if the panels are in my garden, who will see the signs?!" [winked at me and grins at his assistant].

We came back to talking about generators:

"This is the older technology. It is my second generator, I have three here and six in total. Two with my brother, one with my father, and three here. This one is older, it does not have the innovative water-cooling much – as I was still trying with this one and the water kept falling. It overheats a lot and so I cannot use it much. I give my main one, her [gestures to the other generator that is on], a break when she is tired, from 4pm and 6pm, people are sleeping and do not need much electricity I think, so then I rest her and use this little one. When then it is getting dark, I am switching on the big one, and she is powering through into the night". I asked why his generators are female? "I don't know, maybe because they work harder," he answered, laughing again.



Photo: Private generation space, "the older technology", Kakuma Kenya.

Within the space there are many energy supporter objects (Rosenberg-Jansen and Okello, 2017)*, such as wires, jerry cans, and tools. There is also a dedicated 'payment desk' with a computer and safe. When I asked about this, one of the owner's assistants replied: "This is for paying and recording. When a customer is coming here for paying, I am taking the money, putting it in here [shows us the safe within the chest freezer] and typing that they have paid". We talked about how often the customers come and what they ask, and the assistant answered, "They ask many things; if it is about electricity, I am telling him [the owner] but if it is about how to pay, or when, or whether they can change and pay later, I am knowing all the things and they have to listen to me. This is a very good job – to know things and work with the money! This is my payment desk and I am the check-in clerk, like in a bank".*





Photos: Private generation space, generator supporter objects – jerry cans, electrical wiring, the 'payment desk' at the front of the area where customers can discuss things, Kakuma Kenya.





Photos: Private generation space, energy mixed in – vegetables and cooking equipment in the space next to the generators, Kakuma Kenya.

Interviewee 60, September 2017, Kakuma Kenya.

This story highlights the value of energy services within the camps, which flows beyond the sale of products: while the generator provider was selling products such as light bulbs and connecting TVs, his primary business was the sale and connection of electricity. This suggests that in Kakuma there is a clear market for electricity services as well as products. In fact, consumers may associate more value with the provision of electricity as a service than with individual products. Many of the generator provider's customers were paying upwards of $50 a month for the reliable electricity provided by this technology, as compared to other estimates of households spending only an average of $9 dollars on energy products in Kakuma (Corbyn and Vianello, 2018, p5).

This suggests that refugees associate higher levels of economic value with energy services than individual products. Examples from this section support this idea, as does the large number of phone charging businesses in all the camps I visited. The economic value of energy for enterprises is not just expressed in a monetary figure, but is demonstrated through the creation of energy markets and services within the camps. When there is extreme resource and income scarcity, it is in some ways surprising to find that energy-based service businesses are some of the first to be set up. Importantly, the supply of both energy products *and* services represents items which are being sold to improve the quality of life in the camps. Whether this is from solar lanterns sold for households to be able to use lighting at night, or more considerable connections such as the mini-grid electricity connection described above, refugees were buying energy products directly from within the community to make their lives easier, enjoy social activities, and to be able to be more productive. This finding reinforces

the idea suggested in chapter four: that improving energy access is often about improving quality of life. In this case, the services providing quality of life are being provided by the refugee community (in the form of refugee-owned energy businesses), rather than by humanitarian providers. The dynamics of these energy services, and how cash flow and specialist services are linked to improving quality of life, is developed in the following section.

Energy Markets and Cash

Payment for energy products and services interacts with the cash economies of refugee camps. The concept of energy economies may be useful here: an energy economy of a camp can be understood to include the markets, businesses and households involved in the provision, sale and use of energy products and services within a refugee camp, as well as trade which goes beyond the camp to include exchanges with the host community, local, national and regional businesses. A key element of refugee energy economies are the markets for energy, which are the physical and virtual spaces where goods, resources and currency change hands, exchanging money for energy products and services.

To some extent during data collection, the terms 'markets' and 'economies' were used interchangeably by interviewees. However, in the discussion in this section the term 'market' normally refers to the physical and virtual spaces of exchange, whereas the term 'energy economies' is used as an overarching umbrella phrase, which includes market interactions and the results and impacts of these exchanges. In a traditional sense, economic exchanges on energy are usually centred on income and spending, and, as the interviewee below highlights, the role of cash was often central to how energy markets in the camps were working.

"Money-Movements": Markets, Value Chains, and Energy Use

During one interview in Rwanda, with a local male NGO energy specialist, the interviewee mentioned the relationship between markets, cash and energy in the camps. I asked more about how he viewed this and we discussed this topic at length. During the course of the conversation the interviewee became adamant:

"But you need a cash system to make renewable energy for business work – in Rwanda, in Kenya, you have this! But there needs to be a bit of a money-movement economy in the camp. In most of the Rwandan camps, there are. It is not a lot of money, but people often use cash first to pay for energy. If you have money you have everything. If we have money, then no problem – the refugees can get energy".

"There are so many value chains there in the camps. The markets, the local markets, they are creating value and added value for the people there. In Kakuma, for example, so many people [are] making a lot of money out of diesel generators, and selling electricity from them, selling services, connections, maintenance, and light bulbs. They are selling everything in the electricity chain".

"What is important for energy is the use – not the technical specifications. We have basic stuff or premium kits – we sell functionality not technology. You need 10 hours of power for your home and restaurant a day

– here, have three, four lights, torch, radio, and maybe a TV, and the battery and connector. Maybe that is 50-60 w panel, and over 200 watt hours. But it is the use that matters, the functionality. People will pay a lot for that, even if they have to do it over time".

Interviewee 32, June 2018, Kigali Rwanda.

Markets, and the free movement of cash, were critical in these exchanges. As the quotes above suggest, there is a clear link between energy services and the ability to pay for goods and services: 'money-movement' and the payment for energy was a critical part of the economies of the camps. In the case of Kakuma, it was clear that more money was available and higher spending levels were possible than in the camps in Rwanda. There are likely to be many reasons for these differences in cash flows and disposable incomes, but the impact on electricity within the camps was clear: more money means more energy. Many of the interviewees commented on this and explicitly linked their jobs and incomes to the amount they spent on energy. As the interviewee in the story above highlights, many camp processes were underpinned by both cash flows and energy. For example, one entrepreneur I interviewed spent a considerable amount of time during the interview explaining the dynamics of how he transferred money for his business and the mobile payment systems he used. When I asked how his description was connected to electricity he said: "Without energy I cannot make the cash move, make it flow, transfer it. But without cash I can't buy the energy. Now I have both and I make it go round and round: energy, money, business – they go together" (Interviewee 57, September 2017, Kakuma Kenya).

There is a limited body of literature analysing how energy, cash and livelihoods connect. What policy analysis there is often focuses on the role of electronic transfers (Bailey, 2017), mobile money (GSMA - Global System for Mobile Communications Association, 2017), or the role of technology in general for humanitarian logistics and cash transfers (Tatham and Christopher, 2014). In some cases research has considered the role of electronic transfers in developing financial inclusion and reaching marginalised groups (Willis and Murray, 2016) or the user experiences of cash transfer appliances and technologies (Ground Truth Solutions, 2018). However, this work rarely examines the direct role that access to energy plays in delivering humanitarian cash solutions. The provision of cash by humanitarian providers is only one source of income in the Kenyan and Rwandan refugee camps: informal economies exist in all camps (Rogers and Bloom, 2016), and energy plays a large role in these exchanges. Some entrepreneurs in Kakuma had developed businesses beyond a source of income and were also employing other refugees.

The overarching story of the economic value of energy in refugee camps is full of complexity: involving multi-faceted exchanges of cash, trade and bargaining as well as different technologies and levels of energy access. Specialist and high-quality products are valued more than basic technologies and a number of enterprises offering specialist services were observed in both the Rwandan and Kenyan camps. What is clear is that there is a considerable market for energy in both locations. These markets form part of whole energy economies in and around camps, and highlight that energy markets develop organically and emerge directly from the needs of refugees.

The flows of cash and levels of specialisation within the camps suggest that buying energy products and services is important for this community. The cash flows in refugee camps can tell us a lot about the extent to which people value certain goods. As evidenced throughout the stories in this chapter, considerable money was spent in energy businesses in the camps. In some cases, the markets for energy are thriving and entrepreneurs have been able to specialise their services and products in order to meet the needs of multiple energy customers. These businesses are supplying services and products which enable refugees to improve their quality of living. These themes of energy services, quality goods, and specialisation of energy products demonstrate the diversity of energy uses in enterprises within the camps. Energy both has inherent economic value *and* helps to create both economic and social value through the sale of products and services, facilitating quality of life within the camps. The section below will discuss how conceptions of economic value and energy for enterprises are creating cultures of energy enterprise and are linked explicitly to social, national and cultural dimensions.

Dynamics of Energy Use in Enterprises

Cultures of Energy Entrepreneurship and Energy Communities

The dynamics and cultures of energy within enterprises varied within and between the camps. For example, in Kakuma there were a considerable number of businesses demonstrating innovation and entrepreneurship. As some authors have suggested: "Kakuma camp is a vibrant place, full of life, love, business, solidarity and creativity" (Brankamp, 2018, p1); however, many of the businesses there face hardship and challenges. Cultural and social dynamics are interwoven into entrepreneurship and energy use within reactions to these challenges. While there were fewer businesses within the camps in Rwanda, there was still considerable trade and economic activity within the three camps. As the interview below highlights, people often see starting their own business as a flexible way to earn an income, and energy access is a critical element to having a successful business.

Cultures of Enterprise

Following a technical committee meeting in Kigali, a livelihoods specialist asked to speak to me about energy and businesses in the camps. An older East African man, he was very enthusiastic about the global debates we had been discussing, but was keen to link these to the environment within the Rwandan camps. We conducted a short interview in a café and he outlined his experience in Rwanda and compared it to some of the other environments he had worked in within Kenya and internationally:

"Now, because of the New York agreement on refugees, they, the refugees, can start to work as nationals, they can start a job, they can go to get jobs, have renewable energy, and all types of activities in Rwanda. It is good for them, as their prospects for getting out of the camp are small. They will have less dependency on us and move towards self-reliance as we have been planning. The overall progress and socio-economic process will be good, with more access to energy and more income opportunities. We will integrate refugees, and not exclude them, especially for education and energy needs, it will help them".

"There are so many young people in the camps, especially in Nyabiheke, it's nearly 3,000 people [young, working-age people]. They are all involved in businesses that need energy – they sell the beer, make things and materials, they have machines for hair cutting, some are in agriculture, and some have shops. All need the energy to do this. Some have renewables to help them".

"There is already a thriving economic community there, there is lots of contact with other people who are doing things the same – this means that people are inspired to start their own business. I'm beyond energy, it is exposure to other people doing the same thing – to business ideas and people. Lots of people all in the same space. People are inspired to start their own business. And feeling not just empowered, but that they want to do that".

"In Kakuma, that is seen as one of the most positive things you can do is start your own business within the refugee camp. People see it as a necessity initially, because they need to feed their family and they need some income, and they need to start earning money to do stuff so they start their own business to do that, or get a job. Or people start working in a restaurant and then start their own. It is like a seeing a culture of entrepreneurship, a very real and incredible buzz around markets and businesses. People have joy about having their own things to run and earn money from".

"The individual themselves is quite important, of course. Offering skills development and entrepreneur training helps. But it is really the flair and the uptake within the community. Finding people who are passionate and who can be the best champions for their business, and who know they need more and cheaper energy to do it, is critical. Of course, the business culture exists in Rwanda – people graduate from school, they want to create a business, this spills over into the refugee community. Many refugees want to work in agriculture, in business, in shops, but need more energy to do it".

"There are so many copycat businesses: one guy sets up a little phone shop and then there are suddenly ten more of them. Other people see him using a battery to charge phones, and they copy that – suddenly everyone is charging 100 Francs to charge your phone and the market – a self-regulating market – is there".

Interviewee 30, May 2018, Kigali Rwanda.

Many interviewees spoke of the 'business culture' within certain communities and parts of the camps, 'cultures of energy enterprises' which can be understood to include national, social and political cultural connections to energy, as well as how cultures of energy entrepreneurship and energy service economies are developing within refugee spaces. The interviewee cited above highlighted the need to think 'beyond energy' and support entrepreneurship, training, and skills development: suggesting the cultures of energy economies in refugee camps are interwoven within many complex elements.

Importantly, cultures of energy enterprise were interwoven with improving quality of life for refugee families and businesses.

Community and national characteristics were linked to energy businesses in very diverse ways. For example, many people suggested examples of how they would support their neighbours and communities on energy. Shopkeepers would let people of the same nationality or cultural background buy energy products or services on credit and be paid later or in instalments but would ask customers of different nationalities to pay upfront. Flexibility seemed to be more common in the Rwandan camps, possibly as the communities there were smaller and many people had a shared background after moving from similar areas within DRC. In Kakuma, differences were more pronounced. There was a considerable sense of community support within national groups. So for example, Ethiopians were supportive of Ethiopians, and the same of the Somalis, Congolese, South Sudanese, and other groups within the camps. As I have argued elsewhere, in the case of Kenya, "the cultural background, sense of community, and refugee's own resources, all have influence on levels of energy access" (Rosenberg-Jansen et al., 2018, p6). However, as there are fewer national groups within the Rwandan camps than in Kakuma, national connections appear to be less pronounced in the three Rwandan camps.

A sense of shared culture and national sentiment within the camps was varied and by no means uniform for every household, and this is not to suggest that energy exchanges are only determined by nationality. However, the issue of national connections was often introduced by interviewees, as in the example below, where it was suggested that buying certain solar products from an Ethiopian seller within the camp would be cheaper for people originally from Ethiopia.

"It Is Cheaper for Ethiopians": Solar Phone Charging Shop and National Connections

After a day exploring the connections in some of the Ethiopian households in the camp, I needed to charge my phone to take more WhatsApp numbers to continue follow-up interviews. One of the contacts I had made offered to show me where he paid to charge his phone in a nearby business and he introduced me to the owner. The owner was a middle-aged Ethiopian man who had spent most of his life in the camp. He was welcoming and showed me around his small shop while we talked about energy:

"This is our shop, for all the people who live close, for the Ethiopians. You can charge you phone here [I then did pay to charge my phone there]. I can charge anything, batteries, phones, anything. Come in and see. I charge around 100 phones a day, I think. Here are all the ones now – they are safe, that is why we have the metal outside [the metal grill on the window]: so that no-one can grab a phone or a battery".

"This is also my home [as well as a mobile phone charging business]. On the roof I have a solar panel for the lighting in the home, and for the machines sometimes. But for the business I have the batteries, they are charging the phones. I have many batteries and when I need them to be full, I take them to the shop and the man there adds to them" [another shop also run by Ethiopians within the Ethiopian market].

I asked the follow-up question of why he didn't charge phones using the solar panel directly.

"No, not these phones, these are the business phones, not my phones. The solar energy is only for my home and some lights here. It is not for the charging of these business phones. I used to use other things [shows us outdoors and there are disused generator parts and wires everywhere] but now it is cheaper and better to take the batteries to the shop and charge them there. Then I can talk to my friend who is running that shop and drink some good [Ethiopian] coffee".

I asked about his solar panel and where he got it from:

"The other Ethiopian man, he has many of them, you can buy one [takes me to the 'solar panels warehouse', a room full of charging panels, about five minutes away]. The man is not here, but when you want, you can buy from here. It is cheaper for Ethiopians, but maybe he will sell you one!"





Photos: Inside and outside of an informal mobile phone charging shop, Kakuma Kenya.



Photos: Batteries within the mobile phone charging shop used to charge the business phones, Kakuma Kenya.



Photo: 'Solar panels warehouse' near to the mobile phone charging shop, Kakuma Kenya.

Interviewee 61, September 2017, Kakuma Kenya.

This interviewee demonstrated a considerable depth of technical knowledge about which technologies were most suited to charging and powering which appliances. He also outlined his business model: to use the batteries, which are more costly, only for business use and to keep his home costs down by using the solar panel. Throughout this exchange, the business owner constantly referenced Ethiopia – other shopkeepers from there, Ethiopian coffee, and how his business serves Ethiopians that live in the surrounding section of the camp. This exchange did not feel exclusionary or prejudiced against other nationalities, but rather conveyed a sense of pride and connection to the community within which the shop was embedded.

During my research I found many examples of knowledge-technology-cultural-national dynamics linked to energy within the camps. While many relationships on energy within the business community seemed to be connected to people's sense of national community, there were also many other cultural and economics exchanges taking place. For example, within both Kakuma and the Rwandan camps, it was common for interviewees to offer to introduce me to other successful business people and there was clearly a community of connections based on economic success and wealth within the camps. Experiencing these cultures of energy led me to consider how energy communities were formed around energy businesses, which often seemed to be at the heart of energy exchanges across the camps. Energy businesses underpinned the social life of energy (Hargreaves and Middlemiss, 2020), by connecting the supply of technologies and services with communal and familial needs. To date, most research on the social practices of energy has focused on households as a space of investigation (Shove and Walker, 2014). However, my research has also examined the importance of social exchanges within refugee energy businesses. In this context, cultural connections were very powerful. For example, many interviewees made reference to selling products at a reduced rate or connecting to other businesses (for example, to secure an electricity connection) that was based on social reasoning. The story below highlights this as the interviewee outlined how he specifically chose one shop to charge his batteries as he enjoyed meeting the owner and having a drink in the bar while his battery charged.

Batteries, Bicycles, Friends, and Solar Charging:
Cultural and Economic Exchanges

In one shop in Nyabiheke I met a refugee who owned a couple of businesses: a solar charging shop in his home, a solar cinema in the small building next door, and a battery business where he could lend car batteries to people to charge their appliances. We started the interview in his home, where the solar charging for mobile phones business was based. I asked about the details of his business and the owner replied proudly:

"I have my phone business here, it is for charging using the batteries. I have at least ten phones every day, so need two batteries. This one is here and the other one with my wife in the room [gestures to bedroom], she is listening to music and needs it now. Usually only one is on [the batteries]. Every three days I cycle one of the batteries to the town and charge it there. While it is there charging for the day, I use the other one. They are in a cycle like this, using one and then using the other. It is nice to have two. When I had one, I had to cycle to the town and back with the heavy battery both ways. Now I can cycle there, leave the battery and go back later. It is not so heavy like that. The battery is good for all types of things – phone charging, lighting, giving battery to other things. But mostly I am using it for the phone business".

I asked more about how he charges the batteries and how he pays for that:

"Well, I do not pay exactly …. There is a shop, and it is selling cold drinks and some fried foods. It has a socket on the outside, and I plug the battery in there to charge. Then I go into the shop and buy a cold coka from the man, talk with him, have some brochette and then when I leave I take the battery. He does not really know I am using the socket, he is drinking a lot and laughing with me while we are relaxing. I am relaxing in the shop, and the battery is relaxing too [laughed] we are both getting juice! I like this man [the shop owner] but he is drinking banana juice [beer] a lot and he is not really knowing all the things. I am borrowing power from him, but buying the drinks, so he still gets money".




Photos: Cinema connections, supporting wires, and sound system, Nyabiheke Rwanda.




Photos: Left: Solar home system home and business, batteries used to charge mobile phones. Right: cinema screen and bike used for transport, Nyabiheke Rwanda.

Later that day I returned to the business owner and we went to visit the shop in the local host community town where he charged his batteries. The business owner was keen to show me how it worked, how far he cycled, as the town was about twenty minutes' drive from the camp, and to introduce me to his friend who owned the bar. We continued the interview in the café and the shop owner insisted I try the local banana beer while we talked. I asked him about his business and what sort of customers he has:

"Oh, there are lots, some are my friends, and the friends of my wife … But often the boys [who come for the solar cinema] are coming to leave the phone of their mama here. It is their job from the mama – they have

to find the cheapest place to charge the phone and then they can spend the rest of the money on something for them. Often they come here, because if they are watching in the cinema, I let them charge the phone for free. It helps my friend [who manages the cinema next door] to get business from the boys, and I have enough money for the phones. We are a cooperative, like the milk bars, but with energy, batteries and cinema watching. And I am also telling the boys – you must be good boys for mama, doing their jobs for her and going to school. Education is very good, you can learn English and French and have a business like me. Because many of the boys just want to watch cinema and not go to school, but my friend [the cinema manager] and I are telling them – without school, no phones and no cinema. Soon they will see, the youngest boys, the school is the best thing and they will want to keep going".

Interviewee 75, November 2017, Nyabiheke Rwanda.

This interviewee highlighted his connection with the shop owner in town and how he likes to drink banana beer with him and so chooses this shop over others. He also described the many other uses of his batteries: for example, using the batteries so his wife could listen to music, letting boys in the camp charge for free, and supporting his wife's friends to charge or power their appliances. While some of these interactions stemmed from necessity rather than choice, the interviewee made it clear he was in control of these engagements. As he was sometimes not paid for energy, his business was not earning as much as it could have. However, the interviewee stressed the value of other things, like going to school, supporting the women in the camps, and relaxing with his friends. He explicitly drew attention to the social functions of his energy business, suggesting that his business worked like a cooperative with different people providing different elements of energy sources, uses, and knowledge, while also using his position as a businessman in the camp to encourage children to stay in school and value their education.

As well as the social and cultural meanings behind energy in enterprises, gender differences were also visible within the camps. In both countries many electrical, printing, computing, and phone repair stores were run by men. Women were often running food stalls, vegetable stalls, and some smaller firewood exchange places. Gender differences were very visible across the camps, with men generally more present at the 'higher end' of the technology spectrum and women often using more physical and basic technologies. The story above highlights this with the shop owner's references to the men and boys who would visit his cinema. In general, many of the TV watching and cinema spaces visited in the camps in Kenya and Rwanda were exclusively male spaces. As one interviewee commented: "All the people in the cinema were boys, were male. Females are coming in the day, but not in the night or evening. Because they are doing things in their homes and with their men in the evenings" (Interviewee 74, November 2017, Kigali Rwanda). The gender dimensions of refugee spaces are similar to those in urban and rural development settings, with women largely responsible for cooking and firewood, and men often running energy businesses and being more present in electrified spaces.

As highlighted earlier in this chapter, many of the enterprises using or providing energy in the camps are serviced-based businesses selling energy. In general, charging shops were one of the most common examples of energy use across all the camps in Kenya and Rwanda. Almost every small collection of houses had at least one space selling power for charging, and in the larger camp markets there were many larger shops that offered charging. In particular, solar energy was often used to charge mobile phones. Alongside these phone charging shops, TV watching shops, and cinemas, businesses provided cultural connections such as restaurants selling Ethiopian food, Somali snacks, or Kenya Mandazis. Energy had a clear role to play in enabling these entertainment and restaurant businesses to provide culturally-specific services, whether through playing Somali shows, Ethiopian music, or providing national food. For example, in the 'broadcasting house' story below, an Ethiopian man in Kakuma camp had found a highly innovative way to sell satellite TV to customers.

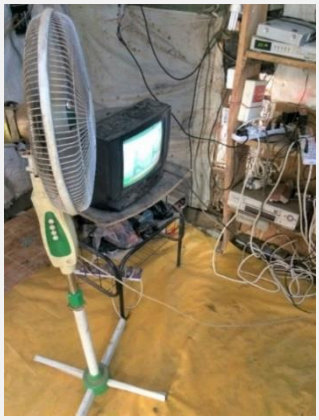
"That Is Customer Service" at Broadcasting House:
Interview with an Ethiopian Man

Walking in the camp, I saw a lot of wires and a collection of satellite dishes, and one day early on in my fieldwork I stopped to speak to a couple of young boys near some of the homes to ask about the satellites: "This is where the TV comes from," they said laughing. After a short conversation, the man who lived in the compound where the dishes were came outside and joined us. An Ethiopian man of about forty, he had lived in the camp since he was a young man. He invited me inside and was happy to be interviewed about his energy business:

"This is my home and my business, I am running the televisions and the satellites for my community [the Ethiopian section of the camp]. I have the dishes outside, and the boxes inside [points to many satellite TV boxes]. I am using the boxes to watch different satellite channels, everything – Al Jazeera, the BBC, Sky, and all the Ethiopian channels. You can get everything here. Some homes and many hotels [restaurants] are connected and they want to show the shows all the time to their customers".



Photo: The outside of broadcasting house with many satellite dishes, Kakuma Kenya.




Photos: The incredible inside of broadcasting house, Kakuma Kenya.

I asked him about how he powers his business:

"I have diesel generators and also a lot of fuel to keep the power on. But mostly I use the power from the Somali [who runs the generators nearby] and he gives me power for less and I give him TV for less. Only in the evenings he takes a break, and the power goes off for one or two hours. Then I must start my own power, because that is the time a lot of people in the restaurants are wanting to watch shows. The power must stay on then. I use my own fuel and money then to keep it on".




Photos: TV, cables, batteries, fuses and meters supporting broadcasting house, Kakuma Kenya.




Photos: Current generators and fuel cans used to power broadcasting house, Kakuma Kenya.

During the interview, I asked whether the business owner had considered using solar energy for his system:

"I asked the Somali about it. He is saying it is a good thing in the day, but I would need a lot of panels. Because I am using a lot [of energy] but also there is a lot of sun. But now I have everything set up, all the connections and the customers and it would be a big change. Maybe one I will make, but the Somali will help me if I want to do it. He is very good at all things, and he has customers and men who help him, so perhaps I will do it if he does it. He is talking often about solar, because the diesel fuel is smelling and the generators are making a lot of noise. Some of the market and houses near here are asking him to stop because of the smell. The women are saying it [likely the diesel fumes] gets into the food and makes it taste bad. With the solar it would not be like that. But it must be reliable [the power]. It must be on all the time. Because my customers they like to watch all the different shows, and I must be able to do that for them".

I then asked how customers can change the channel on their own TV if he was managing everything from his home:

"They call me, I am having this set [TV] and when they want a new show, they call me. That is customer service! I am being very fair to them. If one person is always calling and asking to change, I will say, 'You watched two shows yesterday. Today, it is the turn of another'. It is working very well. Only the news is causing a problem. Sometimes something is happening in Somalia, and we are watching Al Jazeera to know more, as some of the customers are coming from there. Then my Ethiopians will call and ask to change, but it is hard to change then. But I am fair and am saying, 'If this was you, we would watch you [about Ethiopia]'. In the evenings, everyone likes Ethiopian music, so we often watch that."

Interviewee 59, September 2017, Kakuma Kenya.

The story highlights the importance of energy for entertainment – from satellite TV, watching the news, and listening to Ethiopian music in the evenings. He was quite passionate about his customers and did not want to disrupt the service to them, whether through changing energy supply or by another means. The owner highlighted "the power must stay on" in the evenings, showing how he used his "own fuel and money to keep it on" when people want to watch television in the evenings. This interaction also highlights the social dimensions of energy, showing how the owner of the business was 'being very fair' to the different members of the community, whether they were Ethiopian like him or Somali or South Sudanese. The business was powered by connection to a local informal mini-grid, and the business owner also had his own back-up system. This story also suggests the cross-national cultural connections often present in energy exchanges, with the interviewee highlighting that his home and business were powered by a Somali-owned business in the camp market.

Cultural background was also important within enterprises in the camps. Many people within Kigeme, Nyabiheke and Gihembe originally moved from agricultural and farming backgrounds in rural DRC, while a higher number of the different communities in Kakuma (Ethiopians, Somalis, South Sudanese) had come from towns or cities with more developed urban services and businesses. As one

interviewee suggested, this had an impact on the level of initial energy access many people had experienced.

Options for Entrepreneurship: "It Would be Better Here"

During one interview, a male technical NGO worker reflected on the differences between semi-urban life in the Rwandan camps, which are the size of small towns, with the environment many refugees had come from in the rural Congo. He reported a conversation he had recently had in one of the camps:

"I was talking to one of the men in the cinema about watching shows, and he said he only saw a television for the first time when coming to Rwanda. He said, 'All things are more advanced here; in my mother country, people could not even find or know a television. Even me, I saw it for the first time when I reached here. That is how I knew it would be better here'. For people without electricity, it is so important – not just the power, but the TVs, the things, and it being part of this system. Being in Rwanda means more to them – more options, more energy, more chances – than at home in Congo; whether they are coming from the North Kivu or South Kivu, they have more here".

Interviewee 74, November 2017, Kigali Rwanda.

This interview highlights some of the connections between forced migration and energy use. While displacement due to war, famine or crises is almost always viewed as having negative impacts, in some cases displacement may result in higher levels of energy access for refugees who come from rural communities. Semi-urban refugee camps in Rwanda might "mean more options, more energy" than in rural Congo. Changes in circumstances and different social connections might also mean more exposure to different enterprises and businesses and through necessity mean that refugees start new businesses. The positioning of refugees as entrepreneurs and highlighting the potential positive aspects of displacement has received considerable criticism (Turner, 2019), especially when self-reliance results in a reduction of humanitarian aid for the most vulnerable. This is not to suggest that all refugees are able to start an energy business and become self-sufficient, but within the camps in Kenya and Rwanda there were clear examples of refugee entrepreneurship based on energy.

In particular, many young people within the camps were highly engaged in energy and were actively contributing to the energy life of the camps. Interviewees often highlighted the formal and informal role of young people in the energy enterprises chain: as users, repairers, and sellers of energy. In Kakuma there were also dedicated NGOs providing energy training within school and education programmes, especially livelihoods training programmes to support the development of enterprises within the camps. The story below provides an example of this, detailing a series of exchanges with a student studying solar energy repairs in Kakuma who was keen to become an entrepreneur in the future. Many young people had access to mobile phones, and in some cases internet access, and

energy technologies were highly valued regarding what they could offer in terms of future development, job prospects, and opportunities for income.

Solar Showcasing: Future Energy Entrepreneurs

During a visit to the NRC training centre in Kakuma 4 I had the chance to visit an ICT classroom and talk with some of the students there. All the IT classes were taught in English, and the majority of people in the class I attended were from South Sudan. I talked to many students and they were all keen to start their own IT business in Kenya or back in South Sudan. The students described their ideas for their businesses, including opening up the IT classroom into a cinema to watch TV or football matches in the evening, or starting a restaurant with music and cold drinks, or even an internet café where people could use the internet and eat snacks. The students were very keen to talk with me and did not need an interpreter: all spoke good English and three to five other languages. When asked, they rattled off the lists of languages spoken and most spoke English, Swahili, their home national language and a regional language, as well as Arabic and sometimes French.

Following an open discussion with the wider group, one student was keen to stay and do an interview with me as he wanted to specialise in solar power and electricity services. As we started the interview, the student showed me the electrical classroom when he had learnt to fix solar panels and connect wiring, and showed me how to use circuit breakers. A young man, he had received in-depth training for six months but had not had any training before that on energy. I asked if he had found the classes useful:

"Yes! I want electricity as my career. I also know solar, solar outside and the connections inside. I know it, how it works. There are many types ... polycrystalline is 80 watts, for example, and I can show you how to wire everything. We train 8am to 4pm on Friday and longer on other days. I am having an electrical focus, on repair, maintenance and building connections. On Friday we also have sports in the morning as part of community bonding and being together".

"I did the electricals class first, as I want electricity as my career. I will use [it] to power things and fix things, and make my own business. I am twenty now and I had two years of electricals training and English lessons here, and that was very good. I was almost ready to start my business. But then I realised I could not use the computer for all the administration for the business. For fundraising, for printing business cards, for doing receipts. I will do repairs and work for the UNHCR here, but my business will be independent and I will need receipts to give them. Then I am here in [the] computer class for one more year, and I am learning all the final things I will need for my business".

I asked a follow-up question about what his business would do:

"I will be a solar power installer and maintainer. Then, once that business does well, in four to five years I will also have a micro-finance system and I will make small loans to people, only reliable people who have been saving, and I will help them buy and rent the solar systems from me. I will do all the repairs and maintaining myself at the start, because it is a one-man business and I am that one man. I have the knowledge to keep the system running. But then I will grow the business and I will hire people to work for me, like an entrepreneur. I have a typed business plan, which the electricals teacher helped me make [gets the plan from his bag] and I typed it here in the computer class. Electricity is very important – people need it in their homes and I will be the one supplying it. I have already done it with my home for my mother and my aunt's house close by, they are having solar panels for two years now. No problems, I clean, I fix, I install, I manage and I pay the shop I bought from in the market in small amounts when we can afford [to]. When I started my plan – my business plan, to become an entrepreneur using solar electricals – I went to the market, to the solar shop, and I talked with the man who owns it. I said, 'I can bring you twenty new customers a year easily, but they are needing help knowing about solar electricals, and they must pay in very small pieces. So, I will help them do all that and you will be paid completely and have many new customers' – and not just Somalis as he is Somali, but us South Sudanese as well. He liked that, and I asked him why and he said, 'You

are our taller brothers and I want Sudanese customers'. So that was very good. To start I explained to him that I am needing help, and I have to showcase my business. I talked with him every day for a long time and he agreed to lend me the two panels for my mother's house and aunt, and pay him in small sections. He also sold me a very good phone [produces a high-end smartphone] for a smaller price to start the business. I like that a lot and it connects to the internet, which means I can read a lot of things about being an entrepreneur. I am reading Forbes website often and it is teaching me a lot of new words about being an entrepreneur, like showcasing – I am showcasing my business all the time – at the shop, and on my aunt's home, and even talking to you right now. When you get home, you will say, 'He will be famous, my friend the solar entrepreneur, perhaps not very rich very soon, but he has a plan' [laughs loudly and high fives his friend]. Maybe I will even call my business 'showcasing solar' as it sounds nice!".

We laughed at this together and then he went on to tell me about his job at the moment. The student worked informally for one of the shopkeepers in the camp who sells electrical products:

"When he [the solar shop owner] wants a small holiday in his house, I work at his shop for free and pay him back for the panels like that as well as with money. I earn very little, doing all the small fixing jobs for my neighbours and typing them things on these computers, but it is enough and I am paying the shop owner back slowly. In four months, I will be finished and he will help me start my business. It is a good time, because I am nearly finished computer class as well and then I will have my business, my certificates, and good English to impress all the people who need help with their electricity in their compounds".

I spent most of the day with this student and he also introduced me to the shopkeeper who employed him, as well as his family. While the day was very uplifting and we spent much of it laughing and walking around the camp, when I returned to my accommodation that evening I was overwhelmed by the amount of information that the student had provided and felt a deep sadness that he could not leave the camp and get a job in Nairobi or elsewhere. This student had such incredible plans for his business and had already worked so hard to secure energy for his family. Six months after this interview I was in touch with the student again by WhatsApp and he told me he had finished the computer course successfully and was saving for a computer to be able to start the business. At no point during the interview or afterwards did he ask me for money. During the follow-up texts I asked him how much he still needed for the computer, and he replied by text chirpily:

"Only $30 more dollars! I am saving everyday and working in the solar shop and the market. By 7 months, by the end of year, I will have it [the $30]. [Name of friend] has an old latpt-opp [sic] and he is saving it to sell to me. Then I will be ready and my businesses will be starting".

Interviewee 53, September 2017, Kakuma Kenya.

This story highlights the incredible range of knowledge and skills present in many entrepreneurs in the camps. This student was very dedicated to his potential business and had a clear plan to develop it, using all his connections, the support from the training staff at NRC, his family, the South Sudanese, Sudanese and Somali customers, and the other local entrepreneurs who currently employ him. The entrepreneurial spirt of many people in the camp was uplifting, as was their business awareness. For example, this student reading Forbes business magazine online, and using marketing terms such as 'showcasing' and private sector concepts such as micro-financing.

The definition at the start of this section outlined 'cultures of energy enterprises' as: national, social and political cultural connections to energy, as well as how cultures of energy entrepreneurship and

energy service economies are developing within refugee spaces. The stories in this section draw attention to the second part of that definition, that cultures of entrepreneurship are built inherently on providing services, both in terms of more tangible uses of energy such as mobile charging or TV watching and intangible goods such as advice, access, and experience. While national and cultural connections on energy were not clear-cut in the camps, many concepts of national pride, gender roles, skills of entrepreneurship, and the economic value of energy services emerged from my interviews. The national, social and cultural connections outlined in this chapter underline how important communities of energy enterprises are within refugee settings.

The businesses creating and engaging with cultures of enterprise represent a core constituent of energy communities in refugee camps. Campbell et al. suggest that "households and communities have become spatially and relationally more fluid, more flexible" (2016, p133). This is certainly true of refugee energy communities, as businesses and households connect together in a multitude of ways to supply energy resources within refugee camps. I have outlined the “features of sociocultural difference" of energy and livelihood patterns within refugee energy communities (Campbell et al., 2016, p134), and suggest that enterprises are often missing in the conception of energy users by both academics and practitioners. Energy consumers are often only considered at the household level (Lahn and Grafham, 2015), and little research has been conducted on the role that local and micro-businesses play in supplying energy within communities.

Within refugee enterprise cultures, a political economy was visible, one which is "situated in relation to blockages and flows of agency, capacity, and value; above all, a social energy system cannot accurately be analysed without considering the sociocultural role of power within any energy production regime" (Campbell et al., 2016, p136). Therefore, it is important to question what role energy businesses play within the humanitarian politics of life (Fassin, 2007), as much of the evidence in this chapter suggests that refugee-led businesses are supplying energy resources for refugees rather than humanitarian actors. Therefore, the production and supply of literal power (electrical power) may lie with businesses rather than institutions. As Campbell et al. suggest, the role of "anthropologists and geographers alike is to open up the off-grid realities of energy in social contexts that follow different logics than simple appearances of requiring an 'energy service'" (2016, p142). In the case of refugee camps, I argue that the realities of energy communities centre around energy enterprises in the camps. This speaks to the literature debate identified in chapter one on the multi-faceted nature of energy communities. In refugee camps is it important to acknowledge the role of refugee enterprises within energy communities. Therefore, any future research which examines energy action in refugee settings must consider the informal provision of energy alongside formal

humanitarian mechanisms. The section below will consider these arguments further in relation to the role energy enterprises play in the provision of energy in refugee camps.

Entrepreneurial Independence and Unrecognised Ownership

Energy businesses within the camp were largely owned by refugees themselves and formed part of a complex network of economic trades and exchanges. In the course of a single interaction on energy, several people, payment methods, businesses, locations and sources of energy may be involved. As an example, in the story above on the broadcasting house in Kakuma, energy is supplied from a diesel generator owned by a Somali family, linked across the top of market shops and homes using informal wires and connections, to provide electricity to an Ethiopian business to power satellite signals. This exchange is paid for partly in cash and partly by exchange trade: the TV service provider gets energy at a reduced rate because he provides free TV to the Somali owner's home and shops. The TV is then broadcast out to homes across the camp and paid for using mobile money and online transactions using smartphones, while the energy for charging these phones comes from a number of sources across the camp. All of these energy businesses and exchanges are taking place independently of direct humanitarian aid processes, and all are part of the informal economy of Kakuma camp: creating jobs, value, cash and exchanges centred on homes and businesses.

Of course, the humanitarian system has a role to play in these exchanges: without UNHCR and humanitarian actors the camps would likely not exist and cash provided by humanitarian operators has an important part to play in this system. However, as this cash is often intended only for food items, the energy economy of enterprises in the Kenyan and Rwandan refugee camps can be said to be acting independently of the aid system, especially as the majority of capital and assets (solar panels, wires, generators, mobile phones, appliances, and income produced by businesses) within these energy economies are owned, operated and repaired by refugees themselves. As the interviewee below suggests, within the camps there is "a whole energy economy" which is composed of independent entrepreneurs.

Reflections on Livelihoods-Energy-Businesses: Energy Economies in Nyabiheke

One evening in Kigali I was introduced to a couple of workers from the Congo who had worked in several of the refugee camps as they could engage easily with the communities there as they spoke French, Lingala, Kituba and Swahili: four of the most commonly used languages of the camps alongside English and Kinyarwanda. I was able to spend the evening interviewing one of the workers who had spent some time recently in Nyabiheke working on energy. A young man who had managed to work in many countries, I asked about his experiences and if he saw any links between energy and the economy there:

"Yes, there is a clear energy value chain here, it's much easier to trace in Rwanda than other places because the country is so open and transparent, at least I think so. The productive use element, for example – if you ask people why renewable electricity is important, is it not just about lighting, people have clear ideas on business models and energy businesses. They understand why suppliers are important. It goes much beyond energy for free and is starting to develop a real potential for a system there. It is a whole energy economy, really".

We moved on to discussing energy entrepreneurship as a form of livelihood and the interviewee suggested:

"People are moving away from traditional livelihoods such as farming and agriculture, to the energy services world for income. Phone charging shops, selling batteries, selling time to cycle to places to recharge batteries, selling power – these are now real livelihoods in the camps. They are not normally recognised as energy, because development people class them as 'livelihoods', but what is underpinning them is energy".

"All types of businesses are in the camps – like with the solar systems and the cinemas. Last week I was there [in Nyabiheke] and I went to the cinema there, it was hot and we wanted to rest. So, I went to watch television with the committee member. I asked the man running it why he had set it up and he said, 'I saw people in the town doing it, and earning so much money', so he started one [a cinema]. I laughed and said, 'So you steal their idea'. He was very serious, and replied to me, 'Better to steal the idea than the [solar] panel. This provides for us, it is my job and I am not a thief'. It was his livelihood and he was very, very serious about it".

A few days later we went to visit Nyabiheke together and the interviewee showed me the solar system and business he had been talking about.





Photos: On the left: a solar panel and wiring to a connecting business. On the right: satellite connection on roof, Nyabiheke Rwanda.





Photos: Appliances including a shaver, lights, and phone charger in the business owner's home, Nyabiheke Rwanda.

Interviewee 74, November 2017, Kigali Rwanda.

This story suggests how important ownership and having a business and income are within refugee communities. The solar owner being "very, very serious" about his business would likely have been true of any business, not just one based on energy, of course. However, it does highlight the inherent value of energy resources (both in terms of capital, equipment and technologies) as well as the potential earning power of such businesses. The title of this chapter, 'Energy is Their Livelihood and They Are Very Serious About It' comes from this story, and represents many of the business owners I interviewed who were thoughtful and dedicated about the functions their business fulfilled. While many businesses within the camps were open and supportive across the community, there were examples of competition and protective businesses owners. Especially in Kakuma camp there were several examples of this, and businesses owners who had been some of the first to secure energy access were somewhat defensive over their ownership and rights to supply electricity to consumers.

Energy ownership did not take the form of 'community ownership' commonly discussed in positive tones in the development literature; rather, it was directly connected to the fact that individuals owned the assets and technologies and were able to run a successful business on the back of this. In this context, energy entrepreneurs in the camps are the main suppliers of energy to refugee communities. For example, in the story below on informal mini-grids in Kakuma, the Somali business owner managing these connections was very protective of his role as the main supplier of energy in his section of the camp. During my research I found that the nature of ownership within energy businesses was at times quite extreme – as the story below highlights.

Ownership and Power: The Case of Mini-Grids

During the interview described above on mini-grid movements, I was drawn into an interesting exchange with the owner of many of the mini-grid connections in Kakuma camp. We met initially at the site where his main generators powering the market were – an inspiring but death-trap location, with live wires, open cans of diesel, suspicious pools of water, and electricity circulating all around. As I walked in, the owner's assistant carefully steered me away from one wall and muttered "Do not touch that" very quietly. The owner of this space, Interviewee 60, a Somalian man, was talking loudly over the noise – gesturing everywhere, and rapidly explained how the system works and what it does.

The space was not an entirely comfortable one to be in. Considerable steam escaped from the generator's cooling system, condensed on the celling, dripped back onto the floor and generator, steamed, and produced little splashes as it rolled over the hot equipment. As water and electricity often do not make good friends, I asked about the safety of this system and if there have been any accidents:

"No accidents, no problems, everything is working well. Once I burnt my arm [shows nasty scar on forearm] but it was a little hurt, not much. And once my assistant was shocked [by the electricity] but he was ok and now he is more careful [glares at one of his assistants, who then leaves]. But no-one has died, nothing bad is happening. The electricity is safe, and the cookers and fires that people are having are more dangerous".



Photo: Private generation space, the "do not touch that" wall, Kakuma Kenya.

As we were talking the generator started spitting and steam escaped violently from one side of the generator. I invited along my friend, who is an engineer working with one of the camp institutions, to see this space and meet its owner. She turned slowly to me and whispered, "I think we will die here". While it did feel like a relatively dangerous space, the owner's enthusiasm and positivity started to win us over. We walked about the space and talked about the benefits of electricity.

"For a long time, people here are living without electricity. I am educating myself, learning good English, Swahili and all the other languages here, so I can make a business. I know about electricity from school and my father [who we later discover was an electrician in Somalia] and I knew I could earn money from this. Electricity is what everyone is wanting, for the homes and the TVs, at night they are boring [bored?] and listening to radio and TVs is good for that. Without electricity you cannot do it. The lights of course, everyone is talking about the lights, but it is more I think, electricity, it brings more than light. Better light, maybe, because the candles and the fire also have light, but electric light, lots of power like my generators bring, that is a really new thing for many people. With all the lights, TV, radio, fan, and a cold drink from the freezer, you can enjoy. It is like living in the city, forgetting you are here living in the camp, drinking a cold beer in the restaurant with me, you are forgetting where you are – you could be in Nairobi. If you come here tonight, drink a beer with me, you will see, this is what electricity is best for".



Photo: Private generation space, "these are my connections", Kakuma Kenya.

As I was writing this story on mini-grid movements, parts of the notes and quotes felt a little threatening and gendered. But in person somehow this was not the case: the owner of the generators was a very friendly person, who was often laughing and joking about energy and many other things. I would see him often in the camp after this interview and he would always greet me with "my electricity friend" and invite me for a cold drink. While there were slight elements of violence to some of his comments about customers who did not pay, this did not feel overly threatening at the time. Within the discussions, however, and when meeting

the owner on other occasions, it was clear that that producing power creates social power as well as electrical power. Ownership of such technologies and the ability to build a large, successful business out of them drew both respect and sometimes fear from within communities.

Almost everyone in the main markets I spoke to knew the owner, and would recommend we spoke with him before talking about their own energy use. Once I had confirmed I had spoken to him, people were generally happy to talk to me in the markets. But in several cases, they asked me to prove I knew him – either by showing his WhatsApp number on my phone, or by the person calling him. In one instance, a shop owner called him directly and asked the generator owner to come by and show me things. At that point, the mini-grid owner suggested we "take a selfie, then when people ask you if you know me, you can prove it with this!" This really helped and, from then on, I could talk to people freely in the markets once they knew I was 'friends' with him.

The community that the owner was part of – I also met his wife, father, friends and employees – all treated him with a sort of confident deference. It was clear the generator owner was respected and admired rather than feared, but he moved through the Kakuma markets with an extra confidence which was hard to pin-point. At some point I asked him about this, about how people view him in the community, and he said, "They like me, I am laughing and speaking their language". Then he smiled and turned towards me conspiratorially and said, "It is the happiness: I am happy because I am rich from the electricity, and they see my happiness".

Interviewee 60, September 2017, Kakuma Kenya.

This story highlights the considerable amount of knowledge on energy by business owners in the camps and the importance of owning energy technologies. During the full interview, the generator owner ranged from talking about the types of generator technology, his adaptation of it to produce more power, the business model and costs of energy production, and the uses of energy to the community. He also was open about discussing the potential for solar energy for his business – as long as it did not interfere with his reputation and standing within the community. The power of having electrical power and energy access was palpable (and business owners in the camps clearly had more social and economic capital than others). It was clear from many of the interviews conducted for this research that refugees valued ownership of energy assets both for the economic value that they provided and as a form of independence from humanitarian aid.

The story above on a mini-grid business, and the others presented in this chapter on sewing businesses, mobile phone shops, and solar cinemas, suggest that energy independence is inherent in the businesses in the camps. There are an incredible number of businesses in the camps using energy. This section has only provided a few examples but energy is being used by enterprises for entertainment (cinemas, restaurants, TV watching shops), as well as other shop services (hairdressing, tailoring, barbers). The range of energy businesses and energy entrepreneurs across the camps in Rwanda and Kenya suggest that entrepreneurs are very active and independent in the energy space. However, many of these businesses were not really understood by humanitarian providers to be an

important part of the life of the camp and, as a result, businesses were largely acting independently of humanitarian systems to secure, pay for, and maintain energy access. The story below on Aladdin's cave demonstrates how independent many of these businesses are and contrasts this to the experience of humanitarian aid workers in the camps – who often seemed unconcerned with the existence of refugee businesses or how they accessed energy.

Aladdin's Cave and the Italian Deli

During my time in Kakuma camp I visited the main markets often and was able to conduct short, informal interviews with some of the business owners and sellers there. One of my first interactions was with a Somali shop owner who ran a phone sales and internet connections business in the market. After a few general questions I asked about electricity:

"I am using it for all the lights, the fan, the radio, showing people the phones are working and all the things with the phones that I am selling".

This shop was buzzing with electricity – the photo below does not do it justice at all: the green lights were dancing, flashing on and off, the air from the fan was making everything move slightly, and the music from the radio seemed to draw you into the tiny space even more. I asked the owner about the shop and why he liked working there:

"It is my small space, but I am liking working here. I can sell everything and a lot of people want the phones, smartphones and high-end electronics as well. I saved for the lights [gestures to the green flashing fairy lights] and they pull the customers in. They say it is like Aladdin's cave, so I will be Aladdin [laughs]".

As well as selling mostly phones, he also had a couple of small solar panels for sale. I asked him about those:

"No-one is really buying them from me, there are other shops selling other ones and they are buying there. I am a phones shop really, not for panels or batteries". We talk about consumer choice for some time, about the many different types of phone and electricals stores in the camp, even just in this one market: "Oh yes, there are so many, we are all specialising and having our communities to sell to. I am very happy because all the people come here, not just Somalis but all the people who want special phones".



Photo: 'Aladdin's cave' solar electrical store, Kakuma Kenya.

During the interview I talked with the owner for some time about the types of services and phones he offered:

"I can fix anything; it is easy to learn from videos on the internet. And I have friends in the camp – I will take a picture if I cannot fix something and they will tell me what the problem is. Then I will look at the videos [online] and learn how to fix it".

The phone shop owner then offered to introduce me to a few other entrepreneurs he knew within the market and we walked around together. I was amazed by the range and types of products available and the shop owner laughed and said, "You can get anything here". He offered to take me to a shop selling "Europe foods, from near England" and we went further into the market.

The business the phone shop owner took me to was managed by a Burundian refugee, who was selling a lot of Italian products – spaghetti, high-quality passata and olive oil. We bought ingredients to make supper and then started talking about why he specialises in Italian products. The phone shop owner interpreted for the manager of the Italian Deli after I asked how he came to sell spaghetti in the camp:

"[laughing] It is my wife! When we were coming here, from the window [of the transport bus] she saw a sign, with tomatoes and spaghetti, and she was very, very large with pregnancy and wanted to eat. I asked, 'What do you want to eat?' and she pointed to the sign and said, 'That, the new spaghetti'. I did not know Italian spaghetti then, only other things. But after she had the baby, I called my cousin in Nairobi and asked about spaghetti. He knew it and bought it for us. He had to send on here with a boy [who was] travelling all the way and he bought it with him. My wife cooked it for us and it was good, and then much later, when I could afford the small shop, I asked my cousin to send more spaghetti to sell here. Now a lot of people are buying that. Especially the Somalis, they eat pasta often when it is special times. And even the muzungu from the camp are coming here all the time and asking for more things. [Gestures within the shop] They asked for passata, 'the good ones', and I bought that and the very good oil. You can eat it without cooking. And all these things [shows us chilled Mozzarella balls]".

I was a little shocked to see Mozzarella in the camp, especially fresh and chilled. I asked how did he chill the Mozzarella, where did his electricity come from?

"I have power here, I am connected by the big generators in the market and I pay a lot, but the power is always on. I need that to keep the things cold so they will keep. I am having power but I am also selling power [points above my head to the solar torches]. They are good for the children and cheap for at night. So sometimes the wives are buying them".

Then a new set of customers arrived and he had to work. The phone shop owner and I watched for some time as new customers arrived and negotiated on the price of Italian goods, and then we walked back to the central market talking about the Italian Deli and what an interesting story the manager told us.

Photos: The 'Italian Deli' store selling electricals and solar torches, Kakuma Kenya.





When I returned to the UNHCR compound that evening I talked with UN and NGO colleagues and told them about the many shops I had seen that day. None of them believed that there was an Italian Deli in the camp, and only after I showed them the above below did they accept that the space existed. The following day I made pasta for my colleagues using only ingredients from the shop, and one of them commented, "I would not have known about it, or believed it, if we had met in Nairobi and you were telling me such stories. Eating pasta in the desert! That man [the Italian Deli manager] is a true entrepreneur, making a whole business, a shop, for that. Incredible! Now when I talk to WFP, I will have to tell them: some people here are starving, but some are eating spaghetti sauce! What to make of that, who knows".

Interviewee 64, September 2017, Kakuma Kenya.

Independence is visible at many points in this story, from the shop owner saving and buying his own products and lights, to self-motivated learning from internet videos, to the idea of the Italian Deli coming from within the owner's family, to securing the supply of pasta and food items from Nairobi, and to independently organising the connection to the generators. While many refugee families are reliant on food provisions and cash assistance from humanitarian organisations, when it comes to energy most refugees are acting independently. Importantly, there are different levels of energy access within refugee camps, and, as this story suggests, some struggle to access even basic levels of energy, while some people run businesses built on considerable energy consumption and have almost western-level equivalents of electricity in their homes. This represents a challenge for humanitarian organisations in responding to energy needs, as needs and current access levels are far from homogenous. Since many parts of the refugee community are already accessing energy independently, the solutions proposed by humanitarian actors will need to be inclusive and appropriately designed in order not to have negative impacts or conflict with refugees who are already supplying their own energy (Rosenberg-Jansen et al., 2019). To understand the impacts of this independence, we must consider what the self-provision of energy means in terms of improving the quality of living in refugee camps.

Energy and Enterprises: Supplying Quality of Life

This chapter has explored how enterprises in refugee camps in Rwanda and Kenya use energy, arguing that energy markets were interwoven in the physical and virtual spaces of the camps, and there is a vibrant energy economy underpinning refugee life. Although varying terminology is used by different sectors and there are some examples of energy projects by humanitarian providers, the role of energy supply by small refugee-owned businesses is often missed. International debate often focuses on the role the large-scale international private sector can play in the future provision of energy for refugees (SCC, 2019) and overlooks the existing supply of energy and informal trade networks within camps, with the majority of current energy for enterprises being supplied by refugee entrepreneurs.

The evidence presented in this section links to the second research question: How is energy accessed and governed in refugee camps? Often energy entrepreneurs are the only people supplying energy for refugee households and businesses, and energy services like this are a core part of refugee economies and the self-reliance of communities. This supply of energy by refugee-owned and operated businesses a part of the ecosystem of self-provision discussed in the previous chapter. For enterprise use, refugees are owning and operating energy technologies independently of humanitarian systems. A maze of informal exchanges, trade, and payment systems underpin energy services in refugee camps, and these are determined by refugees. Independent choices dominate energy markets, communities pay for access to both products and services, and whole cultures of exchange have developed around the core business of *supplying* energy. Importantly, in this context refugees are not just securing their own access to energy (as argued for households in chapter four) but are also supplying energy services. I spoke to dozens of refugee energy entrepreneurs in camps in both Kenya and Rwanda, all of whom had considerable income from selling energy. The examples of phone charging businesses, TV suppliers, and mini-grid electricity providers are clear examples of this. Refugee enterprises can be understood to be supplying not just energy access, but improvements in quality of life. As evidenced in chapter four as well as this chapter, energy is more than just technical wires and kilowatt hours, it has considerable social and cultural dynamics. Having more access to energy often means that households have a higher quality of living as they are able to enjoy social activities and run productive businesses. Enterprises within the camps in Rwanda and Kenya are supplying energy products and services to meet these needs, and therefore, I argue, are supplying one form of quality of life.

Here a politics of self-reliance is visible. While we can recognise the entrepreneurial independence of refugee businesses, who are providing a set of energy services independently for refugee communities, to a large extent, these actions are not recognised by humanitarian organisations in the camps. This suggests that, in humanitarian contexts, energy provision is happening in a similar set of conditions to the private energy markets found in western countries: we do not expect the government to directly supply energy for us; rather, the majority of households pay a private-sector energy supplier for electricity and gas to our homes. We can consider the politics of living here (Feldman, 2012), as refugees may therefore be seen as supplying energy largely independently of humanitarian organisations. If it is not the role of humanitarians to provide these services, then we can question the role of humanitarian organisations, who seem to be acting neither as socialist governments that provide energy services directly, nor as liberal governments who enable the private sector to supply energy. For energy for refugee communities, humanitarian organisations currently

deliver neither a supplier nor a regulator function. Therefore, we can ask whether they have a role on energy at all, as many energy enterprises within the camps seem to be fulfilling this role already. This question is political in nature as humanitarian organisations claim to be raising money and spending resources on providing the necessary services for refugee communities. If refugees are already largely self-reliant for energy, we can question what energy budgets are being spent on within humanitarian organisations and whether this is any use to refugee communities. Chapters six and seven will develop this argument further.

Conclusion: Energy and Essential Enterprises

Energy in enterprises can be seen as flowing across spaces, mixed-in usage connecting households and businesses. As many interviews in this chapter highlighted, the usefulness of energy products and services is valued above the technology itself. Various cultures of energy enterprise exist within refugee spaces. Value was expressed not just as cost and the monetary value of energy, but was inherent in the creation and existence of energy exchanges in the camps. The role that cash and income plays in energy exchanges was complex, with many businesses preferring to specialise in the provision of one set of technologies or services rather than competing with fellow refugees for income. The overarching story of energy economies in refugee camps is an intricate one, involving multiple parties, businesses, cash and trade exchanges, as well as various technologies, business models and connections.

We can now return to the question posed at the beginning of this chapter: what role do businesses play in the politics of living in refugee camps? Refugee enterprises are the key suppliers of energy products and services for refugees. Energy markets and the development of livelihoods are inter-dependent, and the cultures of entrepreneurship witnessed within the camps are underwritten by energy. The experience of collecting data and analysing the energy life of refugee businesses was characterised by one of seriousness and independence, with many refugees willing to talk for hours about the energy uses of their business and how they secured electricity themselves. Here, the politics of self-provision matters. For families and enterprises who can afford energy services (such as a connection to a refugee owned mini-grid), energy transformed their quality of their home lives and enabled considerable entrepreneurial options. Supplying energy can be seen as supplying quality of life directly from and to refugee communities. The title of this chapter is ‘Energy is Their Livelihood and They Are Very Serious About It’, which emerged as a statement from one the of interviewees. If energy access really is about quality of life, it is easy to see why so many people in the camps are so

passionate about it. However, these opinions and perceptions were not often held by humanitarian staff, many of whom viewed energy for refugees as an unjustifiable luxury.

This chapter has argued that energy enterprises are a key constituent of energy communities, and in the majority of cases are at the heart of both social and physical exchanges on energy. Enterprise communities know the markets they are working within and supply the majority of products and services to households. While humanitarian organisations do have a small role to play, for example, through distributing firewood and occasionally lighting products such as solar lanterns, their involvement in the energy economies of the camps is minimal. This point speaks to the title of this thesis: Voices in the Dark. Refugee enterprises are not considered as part of the system providing energy in camps; therefore, their contribution sits in darkness, unacknowledged and undervalued by the humanitarian system. As a result of this, there is a high possibility of humanitarian interventions negatively disrupting refugee livelihoods and the ways in which refugees currently access energy for their businesses. Despite these challenges, this does not mean that there should not be any humanitarian support to access energy for refugees. Rather, more research is needed to fully understand how refugee businesses and humanitarian actors can work together to improve quality of life in refugee camps (Rosenberg-Jansen, 2018a). In this chapter, I have presented a positive account of the types of energy business within the camps. However, it should be noted that energy access is still limited in these spaces and many families and enterprises face a daily struggle to access energy. To ensure a high-energy future for all, a mix of solutions and support for energy access will be required (Mutiso, 2019). The final empirical chapter, chapter six, will now consider what role humanitarian institutions have to play in delivering such solutions.

Chapter 6. An Absence of Energy and An Absence of Ownership: Energy Use in Humanitarian Operations and Energy Provision by Institutions

Introduction

On my way to interview a representative of one of the main humanitarian agencies in Kakuma, I walked through their office compound and observed the vast amounts of electricity available: lights on in the middle of the day, air conditioning bellowing out cold air, chilled water from coolers, computers, printers, desk phones, TVs, cameras, DVD players, speakers, all using electricity within offices. Outside the office door fairy lights were hung around the compound gardens, there was street lighting and the hum of a nearby generator, electricity was used to pump water to irrigate the gardens of the compound, and mobile phones were charging in many sockets. Electricity was everywhere. Despite this, during our discussion the interviewee commented:

*"The energy for refugees is not our concern, they are using cookstoves and fires to cook the food. We are just providing the food. If they don't make a fire, they will go hungry, I suppose, but that is not for us to be responsible for. We only do the food … **We don't use energy** [for ourselves in the operations]. We have some lights and that is it …. That energy [in the surrounding office as in the picture to the right] is all provided by someone else, we don't do anything about it. It is not ours and we are only switching on the lights and the computers". Interviewee 56, Sept 2017, Kakuma Kenya.*



Photo: Energy appliances in an office, Kakuma Kenya.

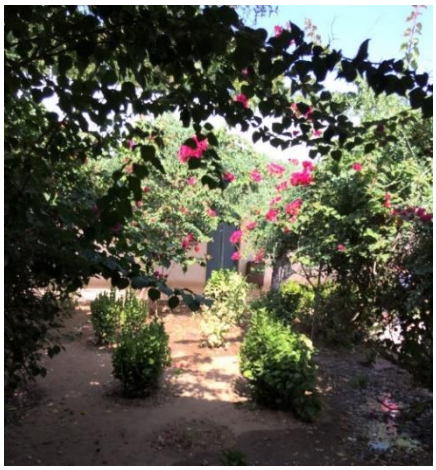


Photo: Public and space lighting [fairy lights outside offices and pathway lighting] and pumped water for gardens at operational offices, Kakuma Kenya.

This quotation shows a clear difference between views on 'energy for us' (operational users) and for 'energy for them' (refugee users). Similar opinions were repeated in many interviews conducted with

practitioners; in general, very few humanitarians I spoke to understood the basics of energy or knew how their offices were powered. Part of the reason for this may be that until recently energy for operational users in refugee camps was not readily considered by the humanitarian or development communities. The majority of field operations use diesel generators or in some cases are connected to the national grid, and have considerable levels of power available within office and living quarters. This is usually sourced by an operational specialist and procured from a private sector supplier or national energy grid, and therefore requires very little engagement by the end-users of the electricity – the humanitarians themselves.

This chapter covers two different types of energy in refugee settings. Firstly, it presents the energy used in refugee camps in Kenya and Rwanda by humanitarian operations. This includes energy used by office facilities, staff living quarters, spaces for refugee registration and administration, and food and distribution centres, as well as energy for community facilities, schools, hospitals and clinics. These users include UNHCR, the WFP, implementing partners in the camps, and local and international NGOs, as well as medical and educational service providers. Within these descriptions, forms of institutional darkness are discussed to highlight the lack of knowledge of humanitarian staff about energy, and to critique the literal darkness and lack of power this creates. Secondly, this chapter contrasts community and operational uses of energy with the responsibilities of humanitarian institutions in providing energy for refugees. This includes presenting the views of global practitioners, and outlining types of ownership by UN agencies, as well as reflecting on the role of refugees themselves in accessing energy. This chapters uses evidence from key informant interviews with global practitioners working in the humanitarian energy sector to understand the nature of energy provision in terms of formal humanitarian interventions and informal refugee-led access to energy. Throughout the chapter I draw on the politics of life (Fassin, 2007) literature to present the value of energy as viewed by humanitarians and the roles and responsibilities within organisations for the provision of energy, to outline the current disconnects in the humanitarian energy system.

A clear picture emerges from these two angles: use of energy *by* institutions is very different to the institutional remit of these institutions to provide energy *for* refugees. The chapter hinges on the question of who energy is for, and who delivers energy access in refugee camps. Through contrasting these two aspects, I present a series of fundamental disconnects and absences within both refugee camps and global narratives on humanitarian energy. Essentially, there is an incongruity at the heart of humanitarian energy: energy for humanitarians is not perceived or valued in the same way as energy for refugees.

Energy Use in Humanitarian Operations and Community Facilities

Energy Users and Definitions

There are several key users of energy in operational and community facility spaces. The table below highlights some examples of this and the common technologies observed in camps in Kenya and Rwanda. Two key definitional differences are used:

Energy for humanitarian operations can be defined as the energy needed to provide humanitarian services, covering energy use in humanitarian offices, living spaces, NGO offices and implementing partner spaces, as well as electricity use at food and water distribution points, and in refugee registration or administration spaces.

Energy for humanitarian community facilities, however, can be defined as the energy needed to meet the community needs of refugees and host communities, including power for health clinics, schools, playgrounds, public spaces, refugee community halls, churches and buildings.

In both cases energy is mostly electrical rather than cooking energy, and this chapter will focus exclusively on electricity needs and provision. Another brief clarification on terminology is that, while within the humanitarian sector often the phrase 'institutional energy' is used in place of energy for operations and community facilities, I try to avoid the use of this term. This is both to separate the users where possible, and to enable critical examination of the role of energy provision *by* institutions as well as *for* institutions (operations and community facilities). Therefore, the term institutional energy is avoided as it could convey mixed meanings. Instead, the terms energy for operations, energy for community facilities, and institutional provision of energy are used.

Often interviewees in the field used multiple terms interchangeably, and often incorrectly. For clarity the definitions above have been provided; however, it is important to note that, in terms of the practicalities of use in these spaces, energy flows between and across users. In practice, this division also leads to the energy needs of community facilities being neglected and playing second fiddle to operational users. This is reflected in the evidence presented in this chapter as many community facilities were unelectrified, while operational users were always connected to some form of electricity, even when access was intermittent or technologies were in need of repair. The table below summarises uses of energy in an operational context, who provides it, and the common technologies observed in refugee camps in Rwanda and Kenya. Critically, the table highlights that humanitarian organisations are responsible for securing their own energy, and in many cases also provide access to

NGOs and community facility users. Energy access for community facilities and operations is often paid for and administrated by the same set of organisations. For example, UNHCR often own, operate and pay for most of the diesel generators in the camps. This is a key difference to the surrounding urban and rural national contexts, where a wide range of national, private sector, and community organisations are involved in energy supply. In refugee contexts there are a limited number of energy actors compared to national and development contexts, which may go some way to explaining why the users and providers of energy are the same in camps.

Energy User	Examples of Spaces	Typical Energy Options for Provision	Common Technologies
Humanitarian Agency and Operations	UNHCR offices and living spaces NGO or implementing partner office spaces Registration or refugee administration spaces Food and water distribution points	• Humanitarian organisation buys diesel generator. • Humanitarian organisation pays energy bill for grid energy. • Development or humanitarian programme installs new solar or sustainable energy, and often provides energy for free or at a subsidised rate.	• Diesel power and generators. • Occasional solar panels for building lighting or power. • Some new solar or hybrid mini-grids proposed in Rwanda and Kenya. • Some examples of technologies not working or temporarily out of fuel.
Community Facilities	Health clinics and centres Playgrounds and nurseries Educational spaces and schools Public spaces – streets, open spaces, walkways Refugee community spaces – halls, churches, buildings Market high streets	• NGO or humanitarian organisation buys diesel generator. • NGO pays humanitarian organisation energy bill for diesel or electricity. • Development or humanitarian programme installs solar or sustainable energy, and often provides energy for free or at a subsidised rate. • Informal acquisition or connection to humanitarian agency power sources. • Refugee community or committees buy independent technology for power. • No energy provided.	• Diesel power and generators. • Occasional solar panels for building lighting or power. • Solar or hybrid mini-grids for some clinics and public spaces. • Solar home systems or battery-powered systems for refugee-operated spaces. • No energy technology present, or technologies broken or damaged.
Mixed Users	Water pumping NGO office Public space used by refugee committees	• Sometimes generator owned by humanitarian agency but fuel paid for by NGO. • Sometimes classed as operational energy but paid for from community facilities, for example refugee committee spaces. • Often not clear who owns, pays for, or maintains.	• Diesel power. • Occasional solar panels for building lighting or power. • No energy technology present.

Table: Energy users and provision mechanisms commonly observed in refugee camps in Kenya and Rwanda. Source: Author's own.

Energy in Operations and Community Facilities

By and large all operational institutional spaces in the camps visited in Rwanda and Kenya had access to electricity. This included power for the offices for agencies, NGOs and implementing partners, as well as food and water distribution points, registration and administration spaces, and staff living quarters. A couple of examples are presented below to provide a snapshot of operational energy sources in the camps. Energy for operations is one of the key needs of humanitarian response. As one of the interviewees suggested, power is needed for:

> "Mission-critical situations, so key support people within the camp – the community leaders, the staff from Save the Children, or the staff from [the] Red Cross, whoever are out there, who really need to have energy and mobile communications and to be able to keep systems going, that's kind of the target that we are looking at … when you have this mission-critical concept" (Interviewee 16, March 2018, Oxford UK phone interview).

Energy technologies and appliances within operations were prominent in the camps. For example, the photos below show UNHCR's sub-office and residential compound in Kakuma camp in Kenya, which was highly electrified – using TVs, radios, sound systems, air conditioning, computers, charging points and lighting. Similar spaces were found in WFP compounds and the office spaces of NGOs and implementing partners working in the camps. As Kakuma is far from other national supply routes, much of the power for these sites was supplied by diesel generation with a few examples of small-scale solar panels observed on individual buildings. The Kenyan national authorities were planning to connect Kakuma town, the humanitarian operations, and the institutions within the camps, to the national grid via a locally placed, nationally-owned mini-grid. However, despite connecting wires being placed all over the camp before the national election, it appeared these were not connected to an electricity supply. Many cables and electricity poles lay dormant in the streets, waiting for these connections to become live. Even with these promised connections, the national electricity network was not intended to power households: grid-equivalent power was planned only for the camp operations, some market spaces, hospitals and clinics. While refugees living in the camps may in the future be able to benefit from the electricity by using the electrified services in the schools, hospitals, and camp administration facilities, they would not receive direct connection in their homes and so would still be reliant on smaller and independently owned energy technologies.





Photos: Operational spaces of UNHCR in Kakuma Kenya.

In Rwanda, the situation in the three camps was different. Kigeme camp, in the south of the country, was connected to the national grid. This power was only used by humanitarian operations, healthcare providers, and a few NGOs within the camp. Gihembe in the north, close to the town of Gicumbi, was partially connected to the grid for some host community services, but the majority of humanitarian users had diesel generators for their operations. Nyabiheke is the most remote camp, being over an hour's drive from the local host town and field office, located up a particularly steep hill, and in difficult terrain. While the Rwandan national offices at the bottom of this hill were connected to the national grid, the camp operations relied on two diesel generators for their power needs. As the story below demonstrates, humanitarian staff working within the camps were often not aware of these connections.

Wires Overhead

Despite having considerable electricity access, including Kigeme being connected to the national grid, many humanitarian staff within the camps referred to the camps as 'unelectrified'. During an interview while walking through the camp, one of the male lead operational coordinators commented that:

"No, we cannot have good energy here, it [the national grid] is too far away".

The picture below highlights the national grid wires running over our heads and the view from the top of the camp during this conversation. When I suggested the grid was close by, and that the camp was connected to the grid, the interviewee said, "Are you sure? I don't think so". I then pointed overhead to this view and explained that this was the grid connection. He responded:

"Oh. I never looked up and saw that before".



Photo: Electricity connections overhead in Kigeme camp Rwanda.

Interviewee 84, November 2017, Kigeme Rwanda.

In all three camps, many operational spaces had access to electricity. However, as Rwanda is a smaller country than Kenya, the local towns and cities were not far away and often offered close and reliable connections. The structure of UNHCR and humanitarian operations was also different in Rwanda to Kenya: in Rwanda the majority of administration and staff accommodation is not within the camps, but in a local town which is close by. For example, in the case of Kigeme camp, the local UNHCR sub-office is in Huye and many of the camp staff live and work from the main field office there. This is some distance from the camp and this has implications for operational staff's level of engagement with camp residents in terms of electricity use, as many humanitarian staff are able to access electricity easily in the field offices which are in towns connected to the national grid – in Gicumbi and Huye. In the case of Nyabiheke, the contrast between energy access for refugees and humanitarians was particularly stark, as the camp was quite remote and many field staff reported not wanting to travel there as it was so remote and it was hard to access services there.

While the situations in Kenya and Rwanda were different, similar patterns of operational energy use were observed in both countries. Both sets of camps were reliant on diesel power for operations, few humanitarian staff were aware of the types of connections or sources of power, and many operational spaces were fully electrified. Despite this, it was particularly challenging to collect data on energy use in community facilities and operations for a number of reasons, as the examples below show.

During fieldwork it was extremely difficult to establish how energy was paid for by operations. Initial questioning, such as conducted in the story above, revealed a series of mis-information and interviewees were generally unsure about payment modes or how technologies were purchased. This became a pattern and I could rarely establish actual payment levels. There seemed to be a number of truths but few facts regarding the operational installation and payment for energy within refugee settings. Importing expensive diesel to remote locations in Rwanda and Kenya is expensive. To highlight the scale and costs of operational energy, a recent report suggested that: "around 5 per cent of humanitarian agencies' expenditure goes on diesel, petrol and associated costs such as fixing generators. That would mean that the sector spent some $1.2 billion on polluting fuel in 2017", and that using renewable and energy efficiency measures "could mean operational savings of over $517 million a year for the humanitarian sector, roughly equal to 5 per cent of UNHCR's funding gap for 2017" (Grafham and Lahn, 2018, p4). This is obviously an incredible rate of spending, suggesting that the costs of power for operations in humanitarian settings are similar or even above that required in other developing country or even European contexts.

Another challenge with conducting fieldwork within operational and community spaces was that it was often unclear who to talk to and institutional action on energy was intermittent. Intermittent access to electricity in these cases was not caused by the technologies themselves. One of the often-cited disadvantages of solar power is that it produces 'intermittent' power because it is not always sunny. However, in these cases intermittency is not caused by technological limitations, but institutional failings. Diesel generators and solar systems do of course break down and need repairing or replacing, but this is true of almost all technologies. A lack of electricity in many spaces was caused by humanitarian operations failing to repair or replace technologies, and in many cases failing to provide any electricity connections in the first place. In this way, problems with energy for community facilities can be said to face institutional intermittency, rather than technical intermittency, as it is a lack of responsibility or ownership which often causes a lack of power to be available for communal services. The water-pumping example below was characteristic of energy sources in community facility spaces, and how challenging it was to find people to talk to about this topic in detail.

Water Pumping for Refugee Communities: Who to Talk to?

On arriving in Kigeme camp in Rwanda, one of the first sites I tried to visit and interview people at was a water-pumping station. The collection of photos below shows the water-pumping infrastructure, the diesel generators supplying the power, and a number of disused manual technologies for water pumping. This space was interesting for a number of reasons: it spanned across large areas of the camp, with the pumping station at the bottom of one hill, running up to the water storage tank pictured in the second set of photos. There were also several water collection sites across the camp supplied by this water. Despite water distribution

being one of the core humanitarian life-preserving activities of the camp, I was unable to find anyone within the camp to have detailed conversations about the water pumping with. Many of the people I asked shrugged when I asked who to talk to, and said that maybe UNHCR would know.




Photos: Water-pumping station and generator inside, at the bottom of the hill, Kigeme Rwanda.





Photos: Water storage containers at the top of the hill, centralised water collection sites, Kigeme Rwanda.

I informally interviewed as many people as possible within the camp on the water-pumping facilities but there did not appear to be one core organisation or individual to discusses the technology or process with. While having informal conversations with people using water distribution points and the people managing the water-pumping system, it became clear that few people understood energy had anything to do with the way water or energy was being used across the space.

In the end, the people who seemed to know most about the system behind the water pumping were the refugee security guards who were guarding the diesel generators. Two young, strong men in their thirties, they guarded the space and ensured that no-one interfered with the equipment and that children did not play next to the generators. The men had limited English but were able to talk with me in broken English and French. They thought that UNHCR paid for the diesel and the generators, but did not know how much this cost or the options for switching to solar or other solutions. I was not able to conduct a full interview with the guards as they were in the process of a shift change and were not keen to stay around and talk about the pumping.

Interestingly, the only topic the guards were keen to talk about was the 'broken' water pumps. The bottom photo below shows manual foot-powered water pumps which can be used once water has been pumped to a particular site to extract water from larger containers. These foot pumps are not electrical, but can be useful to move water into smaller, hand-held jerry-cans or containers for household use. When I asked about these pumps, the security guards laughed and said:

"They are never working: children play on them, break them; the rich people keep giving them, and we keep all the broken ones hiding here behind the power house, where no-one goes".

When I arrived back at the regional field office I continued my questions, but even the camp managers who ran the system were uncertain of how the diesel bills were paid. While at the household level we have seen how informed communities are about energy and its sources, for community energy the picture was quite different – very few people were engaged with or informed on the topic of energy for community facilities.



Photo: Disused foot-powered water pumps, Kigeme Rwanda.

Interviewee 69, August 2017, Kigeme Rwanda.

The story above highlights one of the key problems in researching energy for community facilities in the camps: it was very rarely clear who to speak to about energy or which institution was responsible for power in communal spaces. The photos from this story also highlight that many technologies – such as diesel generators and foot-pumped water pumps – are often "hidden" out of sight behind operations, in buildings "where no-one goes". The fact that entrance to this space was restricted by security guards, and that I, as a white international woman, could easily gain entrance but that the refugee children and mothers I had been speaking to outside the space could not, also demonstrates how many energy spaces within the camps were controlled but not necessarily owned by one particular group.

In summary, for community facilities there was limited and intermittent access to energy technologies and energy services in general. Many schools and community spaces were often unelectrified completely, and power in health clinics and for water pumping was intermittent. For operations, however, many spaces were electrified. While some interviewees were able to talk about energy, there was a general feeling of lack of engagement. There was a grey area on whose responsibility it is to power community facilities and some NGO operations, which is part of the problem underpinning reliable energy access in the camps, and, as is discussed in the sections below, was contributing to an absence of energy and of energy ownership in these spaces.

An Absence of Energy and of Ownership

Underserved Communities and a Gap in Responsibilities

The stories in this section highlight some examples of community facilities being underserved in terms of energy, illustrating how many spaces were unelectrified. While many of these spaces needed electricity to function fully, this did not seem important to humanitarians in the camps. For example, community centres and churches could not be used after dark, schools had no access to electricity or appliances, and spaces of productive uses could not be used due to a lack of power. This pattern was more common in the Rwandan camps than in Kakuma, perhaps due to the higher levels of NGO and agency investment in Kakuma. The story below highlights a typical experience: a lack of energy within a community hall, which hosted a carpentry workshop and a women's cooperative.

Unlit Spaces and Unused Appliances: A Carpentry Workshop and Women's Cooperative

During one of my visits to Nyabiheke in Rwanda, I met with a carpenter who had heard I was interested in energy. An older Congolese man, who had been in the camp since it was created, we talked partly in English and partly through translation provided by a younger Congolese boy who was working on energy in the camp. He took me to see his workshop, which was in part of the public buildings and facilities set aside for community activities. Initially I had understood that his workshop and the hall was electrified as he talked a lot about solar panels and how useful they were. But on arriving it became clear that the carpenter wanted panels, rather than had them, and was keen to tell me about all the things he would make once he had power back.

He started by giving me a tour of the space, showing me his workshop, the wood and sanding tools, and then we began to discuss the importance of power for his trade:

"I need it, the power, always. It must be on. Else this does not work [points to the sanding machine in the picture below] or this [the drill]".

The carpenter then took me into the building next door where the women's cooperative and meeting space was. He discussed with the women there, who happened to be having a finance meeting about the funds available in the cooperative, and asked them if they would pay for energy. They responded positively and the carpenter told me:

"They will pay, of course; they are having the finance meeting now so they share money and they have money. Energy is important for all of us. She [he gestured to the lady convening the meeting] said to show the torches and the light".

He then led me to a small table which contained electric torches and showed me the light switches next to it, which were not working due to the lack of power, and confirmed that they used to get electricity from an informal connection with the UNHCR generators. But now the generators were not working most of the time and, even when they were, the centre would not get electricity that way.

The community centre and carpentry workshop were connected to power in theory, but had had no access to electricity for some time. This was because the space used to be connected to UNHCR generators, but more recently the workshop had not been allowed access to this power. In any case, the generators were not working during the visit. As the carpenter interviewed for this story suggests, the community was annoyed about this as, if they had control over their own power uses, they would be able to secure electricity and pay for it. However, they were not even given this option by the camp authorities. He remarked that the

community would find power themselves and pay for it, if the NGOs and agencies in the camp would help them contact some energy suppliers.

Before leaving I explained again that I was not able to provide power, or solar panels, for his workshop. The carpenter and the women in the cooperative already knew this, and the carpenter remarked:

"We know [that you cannot provide energy]. We will find it ourselves. But if you know how to get the panels here, you can tell me and it will help us".



Photos: Unlit spaces, Carpentry Workshop, Nyabiheke Rwanda.



Photos: Unlit spaces, Women's Cooperative, Nyabiheke Rwanda.



Photos: Unused Appliances, Women's Cooperative, Nyabiheke Rwanda.

Interviewee 83, November 2017, Nyabiheke Rwanda.

This story highlights an important point: that many refugees in community spaces seemed willing and able to pay for energy access, but in many cases felt restricted in their ability to do so. During a number of interviews, refugees stressed that this was because they felt the humanitarian agencies and NGOs were responsible while they (refugees) were not allowed to install infrastructure or energy

technologies. As this interviewee commented, "We will find it ourselves". He was keen to develop solutions within his community. In this case, the hall was not electrified and this seemed to be due to both a lack of knowledge on how and where to find energy technologies and a lack of permission from the agencies controlling the camp. This was more often the case in the Rwandan camps than in Kakuma, where NGOs especially were more active in installing energy, but was a common pattern across community facilities.

While some humanitarian practitioners within the Rwandan and Kenyan camps were able to talk about the community uses of energy, there was a general feeling of lack of engagement about how this could be done. Many interviewees gave the impression that energy access in community facilities was out of their control and was managed by other people: for example, the institutions in the camps, the refugee committees, the national government agencies, and NGOs working within the camps. However, many agencies and NGOs did not feel responsible for electrifying these spaces. For example, as one interviewee commented: *"*The energy for refugees is not our concern" (Interviewee 56, Sept 2017, Kakuma Kenya). This gap in responsibilities, between refugees who felt they were not allowed to install energy solutions and institutions who felt it was not their responsibility, was common within the camps and is demonstrated by some of the stories below.

As the story below highlights, in some cases a lack of knowledge within the refugee community on energy was not the problem. The interviewee discussed many technical elements including how renewable sources of power might be useful, the problems caused by lack of energy, and the knowledge within community members. He highlighted all the "things that don't work" due to a lack of power.

"Things That Don't Work": A Day with the Refugee Committee

One of my first introductions in Nyabiheke was to one of the senior refugee committee members. A man in his thirties, he had lived most of his adult life in the camp and was well respected by the community. He was a friendly man with good English. One morning he invited me to walk around with camp with him to talk about electricity. I asked him about energy and how he thought it was in the camps:

"Nothing here works, there are so many things here that don't work. We will go and I will show you some of them, all around the camp. This is why I am [senior title of this refugee council member] because I am promising to fix these things that don't work".

We spent the day together walked around Nyabiheke with him pointing out things that "don't work", starting at the health centre. There were many things at the health centre that did not work, including phones, computers, lighting, and all the electrical appliances in the biochemistry lab that required power. A strikingly sad example was the chest fridge for vaccines, which had a manual thermometer on it displaying a too high outside temperature. I asked one of the health centre staff about this, and she replied, "Yes, they need to be kept cold. It is ok for them to be warm for three days, but not more". I asked how long the power had been off

her and she confirmed, "Three weeks, maybe more, so yes they are not good anymore" but added, "We will give them [the vaccines] anyway because we won't get more and maybe they will work a little bit and help the people".

I asked the centre staff and the committee member whether the "things that don't work" are broken or is it because of lack of electricity and he answered:

"It is the power [very irritated tone], it is supposed to be on and they [the camp institutions and managers] are saying they have no money for other things like firewood because they have to pay for this. If they are paying for it, why is it not working?!"

I apologised for asking a stupid question and for annoying him, and the committee member replied, "It is only a stupid question because of course it is the power. If another part of it was broken, someone here would fix it. We refugees are very good at fixing things. But we cannot fix the power".

Next, we walked across to the camp administration spaces where the UNHCR and NGO offices are. Here the committee member stopped for a long conversation with a UNHCR staff member and explained that he was telling me about the power. When he came back to me, he remarked:

"He doesn't know anything about the power. I asked him about the power here, in the offices, and he tells me the lights are off and his computer will not charge. So he is going home early to charge it in his home. I am asking him, 'Why can you go home?' I cannot get power in my home, or there [gestured to clinic behind us where we have just been], or anywhere, so nothing is working".

At this point the UNHCR staff member walked towards us, but the committee member told him, "You don't know. I will tell her about the power and that nothing is working, then she will know". I reminded him I that I could not fix the power, and he replied: "I know this, but you are knowing and he is not knowing [about electricity] and maybe he will think you are important and try to ask people about the power".





Photos: Health centre, appliances that were not working, Nyabiheke Rwanda.





Photos: Health centre, appliances that were not working, chest fridge for vaccines with temperature monitor to show the range vaccines should be kept at, Nyabiheke Rwanda.

Interviewee 79, November 2017, Nyabiheke Rwanda.

This interviewee highlighted that the humanitarian agencies within the camps were in fact responsible for ensuring power was available in the clinics, and that they acknowledged this during other conversations with the refugee committee by stating they could not afford to increase the firewood rations because they had to pay other costs, such as the electricity bills for the clinics. He also drew attention to the fact that refugees within the camps were not allowed to fix the generators and it was a technology that was inaccessible to him. In this case it was unreachable both in terms of location, as the generators were kept off-site in a guarded space outside the camp, and inaccessible as he was not allowed to fix the power and the distribution connections. The level of knowledge on energy within this community was high, and the interviewee highlighted the difference between this and the knowledge of the UNHCR staff member on the issue: "He doesn't know anything about the power". Here it became evident that, while humanitarian agency staff were perceived to have control over energy resources, they often did not have the knowledge or skills to develop solutions or manage existing resources.

During interviews on energy for community facilities, interviewees often commented on the issue of whether they were allowed to undertake certain activities. This highlighted the issue of control in the camps: many refugees felt that they did not have the authority to develop energy solutions for community facilities and that this authority belonged to UNHCR, the camp managers, or NGOs. In many cases this issue was not about capacity: refugee communities knew a lot about energy and were able to secure and develop solutions themselves, as they often did in their homes and businesses. Rather, it focused on the fact that they did not feel they were allowed to provide energy in public spaces, especially in terms of larger-scale infrastructure such as churches and community halls. There was a key difference here between the communities in Kakuma and the Rwandan camps: in Kakuma this issue was not so prominent and I observed some communities taking the initiative and electrifying their spaces; however, in Rwanda this was not the case. This may have been due to the different institutional arrangements between the two countries, for example, the fact that the Rwandan government are much more involved in the camps and in the past have been quite strict about the construction of physical infrastructure such as buildings. But in both cases, refugees felt it was outside their remit to install substantial electricity solutions on community infrastructure.

Institutions can be said to control access and solutions in camps, but not necessarily take ownership for the provision of energy services. These restrictions are often political, and are determined by institutional remits and perceived roles and responsibilities within the camps. As Feldman suggests, certain “forms of action are enabled by humanitarian materials and practices” (2012, p156). In this

case refugee actions were constrained by institutional inaction: because agencies were not undertaking energy interventions, refugee committees could not be seen to be filling this gap. These restrictions were not just about logistics or the formal process of permissions to build structures within the camps, but rather were dictated by views about who should do what within the camps. These internalised decisions were guided by the perceptions of agency staff about who is able to act in humanitarian settings, and a general feeling I got from many interviewees was that, if big humanitarian agencies could not install energy, then why would refugees be able to do it. This culture of restrictions was often disempowering for refugee communities who were keen to build and install their own energy technologies, but who felt restricted by the humanitarian system designed to support them. I discuss this idea further later in the chapter sections on humanitarian values on energy.

One of the most notable things about this set of interviews was the lack of responsibility for power in community spaces. In the different camps many different agencies and actors were suggested to be responsible for energy in these community areas. For example, UNHCR would often suggest that power for health clinics was managed by the NGO running the clinic, whereas in reality the NGO used electricity from UNHCR generators. For community halls and playgrounds, NGOs expected the refugee communities to provide power in these spaces, and, while refugees were often keen to do so, they were often stopped by national government agencies who claimed they were the only ones allowed to do space and public lighting. This created a feeling of overlapping or competing responsibilities for energy in communities' spaces, which often led to a lack of provision as roles and responsibilities were not clear. This impacts of this were considerable: the majority of community facilities were left unelectrified due to a lack of clear institutional responsibility.

This suggests that institutional intermittency was both an unintentional act (organisations being too disorganised and resource constrained to be able to power all community facilities) and an intentional one (power for operations was prioritised over energy for communities). While this may seem to make sense in a very resource-constrained environment where money is not available, in situations where some needs might be seen as often more pressing than others, there was little evidence of limited budgets to spend on energy. In fact, in one example, several millions of dollars from a donor was made available for solarising play spaces when health clinics in other camps in Rwanda did not have power (UNHCR, 2017a). This raises questions about who is making decisions about energy priorities in the camps and how. In both Rwanda and Kenya, very little serious and concerted effort or planning was observed with regard to energy priorities within humanitarian organisations. As the examples below

highlight, this often resulted in energy programmes and installations which were not tailored to the most pressing needs of refugee communities.

This section has summarised evidence to suggest that community facilities in refugee camps do not have adequate electricity provision, that many refugee spaces remain in the dark. The absence of energy seems to stem from a number of factors, the most prominent being that there were no clear roles and responsibilities for who should be providing energy for community facilities. In some situations in Kenya, refugee communities and NGOs had found space and funding to develop energy projects themselves. In Rwanda, however, access seemed to be much more restricted and many still viewed it as the responsibility of agencies to provide electricity to community facilities. In general, more energy was available in humanitarian operations than community facilities, but there were still a number of difficult connections within these spaces.

There are gaps in responsibilities for energy provision for community facilities, with many interviewees commenting that powering these facilities was the responsibility of another institution. There was a noticeable mismatch between the role of humanitarian agencies for oversight and management of the camps and implementing partners in developing specific programmes, as neither had a clear responsibility for delivering energy access in community facilities and as a result the responsibility for energy often fell between institutions. Gaps are also visible between the role of refugee communities themselves and the institutions in the camps that support them: refugees felt unable to take control of energy for community facilities as they felt this was in the domain of the institutions. However, as no clear remit for communal energy access exists either for NGOs or agencies, facilities remain unelectrified for years as these gaps persist. Many issues are caused by the divide between capacity and authority on energy, with refugees commenting regularly that they would like to do more on energy but they felt they were not allowed to. There was considerable institutional intermittency present within provision of energy for community facilities. It was challenging to find examples of considered, effective, planned action on energy by organisations within the camps. Even for energy provision for humanitarian organisations' own operations, energy action was highly varied: as will be discussed in more detail in the section below.

The evidence presented in this section enables us to partly answer the second research question: How is energy accessed and governed in refugee camps? Within community facilities, there were considerable gaps in energy provision, which means that refugees often do not have access to energy in community buildings, religious spaces, playgrounds, or WASH facilities. The impact of this lack of access was substantial, with many interviewees expressing how they were not able to use these spaces

fully and feeling distressed that they were not able to provide energy for community facilities themselves. Gaps were often created by institutional inaction on energy: with humanitarian providers taking limited responsibility for the electrification of community facilities. This links to the title of my research, Voices in the Dark: in some cases, institutional inaction can result in a literal lack of power. The gaps in provision were often political in nature, resulting from perceived institutional remits and organisational decisions about which spaces deserve energy and which do not. This suggests there is a politics of energy provision within humanitarian organisations, and that value judgements are being made in deciding which parts of refugee camps should be electrified. Clearly, in the case of community facilities, these spaces were not valued and therefore often remained without power. In the case of operational spaces energy was often made a priority, but was still not delivered effectively (as we shall see in the section below).

Energy Provision for Humanitarian Operations: Difficult Connections

As well as challenges with the provision of energy for community facilities, humanitarian organisations also faced problems with energy for their own operations. Agencies and NGOs are responsible for procuring and maintaining energy: at the camp level this is often achieved by organisations procuring a diesel generator and fuel and installing it in the camp. The generator then provides electricity for the core humanitarian services, often UNHCR and WFP as well as some NGOs within the camps. In many cases in Kenya and a couple of the camps in Rwanda, health clinics and some educational spaces also procured their own generators independently: either as a back-up source of energy or in order to acquire energy access in the first place. The cost of the technologies and fuels then sits directly with the humanitarian organisations – who are often not focused on the most efficient mode of electricity provision or knowledgeable about the overall costs of such an approach (Grafham and Lahn, 2018).

This approach is in contrast to many other national development contexts in Kenya and Rwanda, where energy would usually be supplied from the national grid or electricity services would be purchased from an off-grid provider. Development programmes and NGOs rarely buy their own generators or take responsibility for the maintenance and servicing of them directly (unless in an area of extreme power outages or national rolling power cuts, when the generator is used as a back-up supply). In humanitarian contexts, agencies and NGOs have a different way of working and take the responsibility for their own energy provision in-house. However, agencies or NGOs often do not also hire electricity specialists or diesel generator repair experts directly from within the field or national operations. When a generator fails or is in need of maintenance, operations need to fly in specialists (often from Geneva or European countries), hire a private company to fix the problem, or purchase a

new generator. This can take weeks or even months, and in the meantime, energy is not available in the camps. The repair or replacement process seemed to take longer in Rwanda than in Kenya but was still a very prominent problem. The stories below highlight some of the complexity of energy provision for operational use.

While Mahama and Kigeme are grid connected, they also have back-up and supplementary diesel generators. The other camps all rely on off-grid diesel generation for their power. The case of Nyabiheke camp in Rwanda is particularly challenging: the camp is quite remote and, during most of my visits there, no power for the operations was available: the pictures below capture some of the offices and facility buildings without power available.



Photos: UNHCR and NGO offices, operational spaces with no power, Nyabiheke Rwanda.

I was able to spend some time in Nyabiheke, including the day spent with the refugee committee member outlined in the previously cited story on "things that don't work". This day was insightful in many ways and provided insights about both community facility and operational power. During the interview the refugee committee member highlighted how he was more informed about energy than the NGO and UNHCR workers in the camp, and that the committee representative was aware that these were not just technical problems with one generator or source of energy. In the below quotes he explains the range of institutional problems that underpin energy provision in the camps.

Institutional Failings, Operational Darkness

During my day spent with the senior refugee council member in Nyabiheke, we spent some time focusing on operational energy and the problems surrounding UNHCR's role in the camps.

This discussion started as we walked through the market place and met several other committee members, who led us to the firewood distribution point: "This is our firewood, it is energy for cooking for the women,

they are using [it] in the homes and in the restaurants, but it is never enough". We had a long conversation with the committee members about firewood, how much each family size receives, when it arrives, what happens when it is late, and the differences in wood in wet and dry seasons. After maybe an hour, the refugee committee member who is guiding me around, told the other members, "We have been listening, but now we must walk, she is interested in the firewood but is really here about the power". I was surprised by this, as many people in the camps want to talk about cooking energy, firewood and fuels, but few would be happy to talk in detail about electricity.



Photo: Stacks of firewood at the firewood distribution point, Nyabiheke Rwanda.

I told the committee member that I had sometimes been speaking to people who had confused energy and electricity, and that I was interested that he knew that firewood is classed as energy, but that I was researching electricity: "Of course, I am elected to solve these problems – energy, firewood, cooking for the women, power in the clinics and the market. I am finding a lot about this problem and talking to everyone who knows about energy and power in the camp, and visitors like you". Then he asked me who it was who confused energy and electricity and I replied, "People in Geneva". He said quietly, "Idiots". I laughed and we started walking down the hill to the generator site.

Towards the end of the day, we visited the diesel generators supplying power for operations for the camp, which had not been working for three weeks. At this point the refugee committee member became very demoralised: "I have been walking down this hill every day" to check the generators, but "nothing is changing, nothing is working". We looked around the site and talked to the security guard who lived there. He was not keen to talk to us and when the committee member asked him who we could talk to about the generators he did not know. I told the committee member I was sad that I was not an electrical engineer and could not help, but he reassured me, "You are here, talking, listening, it is ok". We saw on the generator maintenance instructions there were actually phone numbers and email addresses of people to contact if the generators did not work. We tried to call them and I left messages in English, and the committee member in Kinyarwanda, as well as sending emails from my phone. We did not receive any replies and one of the phone numbers seemed to be disconnected.

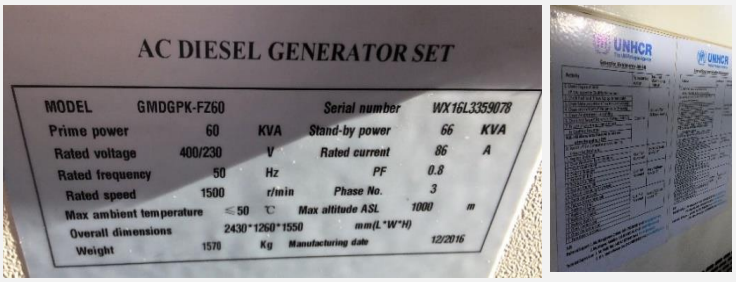
It was getting dark, so I left to take a moto to where I was staying nearby. As we were saying goodbye, I told the committee member I would to be back in a couple of weeks and I hoped the power will be back on by then. "Yes, me too, but here the lights are almost never shining," he replied.



Photo: Generators that were not functioning, Nyabiheke Rwanda.

When I later asked people in Kigali and the regional UNHCR office about the generators in Nyabiheke, they did not know anything about them. And when I pushed for them to find out how long the generators had been off, they admitted they would not know how to find out. I showed them the maintenance instruction photos

with the emails I had sent and the office staff replied that they did not know two of the people and the other two had left the organisation. I suggested we call the clinic administrator or refugee committee and the reply was simply: 'They would not know'. Despite my assurances that the camp committee was very well informed, the office staff refused to take any action.



Photos: Labelling on generators including maintenance information, Nyabiheke Rwanda.



Photos: Generator equipment, Nyabiheke Rwanda.

Interviewee 79, November 2017, Nyabiheke Rwanda.

This story exemplifies problems with repair and maintenance in refugee camps: staff shortages, people leaving, mixed responsibilities between operational and technical teams, and a lack of energy expertise all contributed to these generators not being repaired. Especially in Rwanda, many of the camps are located close to national towns and cities and so, when power is unavailable in the camps, humanitarian providers can still use energy in other offices or their homes in the towns. This often means the repair and maintenance of generators within camps does not seem to be a priority.

Beyond individual site problems, however, lies a systematic neglect of energy for operations within camps. To date, very few humanitarian agencies have had institutional incentives to reduce the costs of their energy usage or to switch to cleaner sources. In many countries, energy provision for operations was not considered part of the remit of 'providing clean energy for refugees' as the energy used was by humanitarian staff and not by the refugees themselves. Similarly, international commitments by the UN to reducing emissions have not been actioned by individual operations. This is despite the fact that "46% of the UN's greenhouse gas impact was from its facilities (headquarter

offices, field offices, warehouses" in 2018 (UNEP, 2019). Global priorities on climate mitigation are yet to filter down into the everyday practice of humanitarian organisations. As an example, when UNHCR was given €30.8 million by the IKEA Foundation to spend on energy in refugee settings, they did not spend any of those funds on decarbonising energy for their own operations. As one interviewee put it:

> "It was not considered – energy for operations. All that money, it could have been spent on anything. UNHCR could have decarbonised ten country operations with that money. Think of the impact it would have had on emissions from diesel alone! It would have been so worth it. But it wasn't even thought about. It was like energy for themselves didn't count. It was invisible to them, the energy they use all day every day. It [operational energy] was not even thought of in all those discussions" (Interviewee 4, March 2017, London UK).

The story below presents a case study of the difficult connections found within humanitarian operations on energy. The start of this chapter presented brief quotes from an interview with an agency representative in Kakuma. While these quotes were typical statements made by humanitarians, both in the field and those working nationally or internationally, in this particular case the interviewee became very open minded about energy over time and was keen to learn more about electricity sources and governance within the camp. The story below summarises her journey during multiple interviews on operational energy in Kakuma camp.

"We Don't Use Energy": Learning by Doing

During my initial meetings in Kakuma camp in Kenya I was introduced to one of the 'energy focal points' for one of the major humanitarian agencies managing the camps. I was initially very excited to meet with her and hoped she would be a useful interviewee to guide me around the energy uses in the camps. However, during the course of our first interview it became clear this might not be the case. A Kenyan woman, about the same age as me, she did not really enjoy being posted in Kakuma and in our first interview did not seem motivated to understand energy further. I asked her about the institutional role of the agency and her role as an administrative manager in terms of the energy uses. Her reply was defensive but to the point:

"The energy for refugees is not our concern, they are using cookstoves and fires to cook the food. We are just providing the food. If they don't make a fire, they will go hungry, I suppose, but that is not for us to be responsible for. We only do the food".

Surprised by this I asked about energy for operations: how did the agency power their own offices and spaces?

"We don't use energy. We have some lights and that is it".

At this point I thought it might be unclear what I was asking about and tried to re-frame the interview. I pointed out the computers and electrical appliances in the pictures below and asked about the energy for these technologies. She replied:

"That energy is all provided by someone else, we don't do anything about it. It is not ours and we are only switching on the lights and the computers".

Photo: Energy in offices in Kakuma Kenya



I then asked about solar energy: did the operation have examples of solar panels or technologies they found particularly useful?

"We could never use solar energy, it is too unreliable. We do not have it for the site and the switches would not work".

During my preliminary trips within the camps I had seen several examples of solar panels lighting buildings within the camps (such as the one in the picture below), so at this point I decided to pause the interview and talk to more people to understand the situation further.



Photo: Operational energy uses at distribution site, solar panels used for building lighting, Kakuma Kenya.



Photo: Solar space lighting and tent lighting at institutional offices, Kakuma Kenya.

After a few weeks in Kakuma I understood that, while this interviewee was officially the energy and environment focal point, she actually coordinated the firewood distribution and the planting centres, but did not have a role in regard to electricity. I was interested whether this was because she personally did not consider it important, or whether the institution did not work on electricity. Therefore, after some personal relationship building with her at social events and dinners, I asked for another interview. This time I took a different approach, and positioned myself as a new researcher who was very excited to have discovered the forms of energy all across the camps. I started by showing her my photos of the energy uses I had seen in operation, such as the photo of the space lighting below. She responded:

"That is not energy, that is just computers and things".

Following this we had a long discussion about what energy is and how electricity works. I talked about all the technologies I had discovered and several times explained that energy is both for cooking (firewood, fuel and cookstoves) and for electricity (diesel generators, solar panels, wires and appliances). At this stage a (figurative) light went on for the interviewee and she became much more open and interested:

"So, electricity is all the things that turn on and off? [I confirmed that it was]. So … all these things are using electricity and it is costing us money?" I confirmed that it was costing someone money and she responded in wonder and shock: "Who does it? How are they paying for it? I don't even know who [the] person would be to ask!".

After this interview I regularly ran into this manager during my fieldwork, and she often asked, "Did you find any new energy today?" and "Is this energy?" and pointed at things. The things she pointed out were always electrical and she was constantly surprised when the answer was yes. At the end of my last trip in Kakuma, I went to show her a final selection of all the photos and spaces I had made.

"This is incredible, all these things, they are all electrical? And they are everywhere in the camp? On the streets, and in the compounds, and in my office! I have been asking and asking, who knows about this in [her institution]? And no-one knows, it is like a mystery – where does it all [the electricity] come from? I am thinking UNHCR, because they are doing a lot of odd things. But who knows, it could be the Kenyans [national government], or anyone. I am looking every day now at the centre [distribution point] and I am seeing people using their phones, and computers, and the scanners, and wondering, 'Why did I not think of this before?'. One day I sat by the generator and I asked the sweeping man, 'Where does this [the generator] come from?' He did not know and he said a man comes sometimes to look at it, but it always works. I was very excited and asked him, 'Which man? Is he wearing blue [UNHCR colour], orange [NRC colour], or another – has he another name?' He said he didn't know and the man was tall, with a hat on. This did not help me solve the mystery of the generator. But at least now I know what is in the box, and that it is a generator" [grinned and hugged me].

The photos below highlight some of the spaces the interviewee talked about and are examples of the photos I shared with her, including energy sources and technologies. Overall, in operational spaces, a huge number of electrical technologies were visible, including: diesel generator sets, lights, computers, sockets, wires, fans, plug sockets, phones, chargers, screens for displaying information, virtual eye scanners, and fingerprinting machines.



Photo: Operational provision of energy at food distribution site, diesel generator, Kakuma Kenya.





Photos: Operational energy uses at distribution site, computer, phones, sockets, chargers, screens for displaying information, virtual eye scanners, Kakuma Kenya.



Photos: Institutional energy uses at distribution site, 'spare electricals', batteries, connectors, phones and charging point, Kakuma Kenya.

Interviewee 56, Sept 2017, Kakuma Kenya.

After some time in Kakuma conducting discussions with humanitarian agencies and NGOs, it became clear that there were often designated people for energy ('energy focal points') within the camps. The fact that it was not easy to find these coordinators and they themselves were often not clear about their role regarding energy was very revealing. The story above highlights this, as even the 'energy and environmental focal point' was not clear about the types of energy she could be responsible for. Overall, within the camps in Kenya and Rwanda there was a considerable amount of ignorance and lack of engagement with energy sources within institutions.

Notions of ownership in humanitarian settings often only refer to building engagement and participation with host government actors, civil society organisations, the private sector, and local communities (Pouligny, 2009), and miss the ownership needed within humanitarian organisations and delivery partners. In the case of energy this gap is particularly evident, with many institutions observed to not be taking full responsibility for developing sustainable energy solutions. Unpicking this within humanitarian agencies was particularly challenging, as agencies are taking some responsibility by providing energy for their own operations but failing to do so for community facilities and other needs within refugee camps. Missing ownership for energy in operations can be understood to have two dimensions: firstly, an absence of responsibility for powering operations and this often being viewed by interviewees as under the remit or responsibility of another agency. Secondly, a lack of ownership and knowledge about agencies' own energy assets. As many quotes from interviewees in this section suggested, very few agency staff were aware which technologies were powering their homes, offices,

and workspaces. How these concepts of ownership are related to institutional responsibilities and delivery of energy within camps will be explored further within the sections below.

Institutional ignorance on energy caused a number of issues and benefits during my fieldwork. Initially, access to camps and to people to talk about energy was easy, as people did not think the issue was important so were happy to let me ask questions and move about the camps. However, as I got further into fieldwork, I realised that there was a structural ignorance on energy present within the camp administration organisations and humanitarian staff, which meant collecting data on this topic was challenging. It was clear that for organisations across all the camps that there was little understanding of sustainable energy access, and that energy access for operations was diesel generation-led. For example, many UNHCR site professionals were unaware that generators powered their offices and homes, and were open about their lack of knowledge on how these systems worked. There was also a disjuncture with many of the interviewees – who often gave the impression that energy was the responsibility and remit of 'someone else', but who that was often never became clear. I have termed this lack of knowledge 'institutional darkness', as it represents systematic inexperience and often complete organisational unwillingness to engage with the topic of energy. Regardless of who was the end-user of energy, often staff within humanitarian organisations refused to comment on energy needs or suggest how things might be improved. The result of a lack of engagement was both literal and institutional darkness: many organisations did not have staff, policies, or control over their energy resources. In some camps this had the impact of generators being off for months at a time (such as Nyabiheke), and in others large spaces of the camp were unelectrified (for example, in Kigeme). Institutional darkness has a number of causes, but two central ones were a lack of knowledge and a lack of ownership. Institutional ignorance and inaction is, in my view, political, as it represents a series of choices about what is important (food, water, shelter, protection needs) and what is not (energy).

The politics of humanitarianism matters here (Fassin, 2007). Operational energy needs are valued and important, as evidenced by the fact that generators are present in the camps and that some uses of energy such as power for health clinics are seen as important. However, there are still institutional failings within the humanitarian system in terms of the provision of energy. Energy may be valued in terms of some users (humanitarians) but, overall, the humanitarian system still does not value energy as a critical resource for these users. As a result, training to maintain and repair technologies is not invested in, and many humanitarian field operations are without power. This suggests a difference within humanitarian users: international and headquarters staff are seen as essential and their power is never off for long, whereas field staff and NGO workers in the camps have to experience long delays and often go without electricity for weeks and months. Therefore, the politics of provision can be

understood to differentiate between humanitarian users, as well as between humanitarian staff and refugees. This chapter has also provided evidence on how different humanitarian providers can take control of their own resources, as in the NRC story, or their own knowledge, as in the story on learning by doing above. In summary it would seem that, for operational power use in the Rwandan and Kenyan camps, knowledge and ownership were limited. There was also a considerable amount of ignorance and lack of engagement with energy sources within institutions, as is evidenced by some of the stories. Many of the interactions on energy with institutions, by both myself as a researcher and with refugees themselves, can be characterised as difficult. Perceptions about how energy should be provided, both for refugee communities and for operations, were mixed and institutional engagement on energy was largely intermittent. Energy choices in this context are political: value judgements are being made about how energy should be provided, and who it should be provided for. This discussion is the focus of the following sections.

Energy Provision by Institutions

In this section, I examine how perceptions differ within the humanitarian sector on how to provide energy for refugees, including the views of the UN agencies, NGOs and private sector organisations, as well as reflecting on the role of refugees themselves in accessing energy. I reflect critically on how organisations view their remits and responsibilities for providing energy, how energy is accessed formally and informally, and the values humanitarians hold on energy.

Roles and Responsibilities for Energy: The Impacts of Remits and Capacity

Many interviewees highlighted the mixed and varying roles on energy of different agencies and implementing partners: confusion rather than coordination often reigned in discussions and within camps. In Kenya and Rwanda, failing to coordinate energy effectively is a constraint of the humanitarian system, as organisational remits are not clear. Evidence from earlier in this chapter, on the lack of clarity of who delivers energy for community facilities, and the previous chapters, on how energy for refugee enterprises should be delivered, highlights how visible this constraint is within the physical environments of the refugee camps in Kenya and Rwanda.

In terms of institutional remit and responsibility there is a mixed picture within the camps. Many agency institutions had strong narratives on whose responsibility energy is, as delivering energy services to households sometimes was attached to additional budget lines or sources of funding. In national offices or headquarters, partners often noted that that energy was a joint responsibility between humanitarian operations and NGOs. Once in the field, this picture altered dramatically, with

local field officers and staff members becoming angry or confused when discussing whether their organisations should be providing energy for refugees. This is demonstrated in the story below, when an interviewee asserted that refugees have to be responsible for electrical appliances such as phones and chargers, and that it was not the 'job' of this NGO to do 'electricals'.

"That Is Not Our Job to Help with These Things"

During engagement with some local NGO workers in Kakuma camp, I asked about the many shops selling charging and computer services in the markets. One of the key people I interviewed was a technical manager for energy provision, a Kenyan man from Nairobi, who had specific opinions about what type of energy should be provided by whom:

"Well, there are those, of course. But refugees have to get that for themselves, we are not providing phones and chargers for free. It would only be the men using those anyway, and the women need these cookstoves. That is why we are making these. I like them, the refugees, but they should not get everything the same as Kenyans".

After further discussion, when back at the implementing partner's office, I asked more about energy and electricity and how the NGO provides these:

"Yes, it is easy to get confused, there are so many programmes and so much activities. We are doing everything and not really doing anything. Mostly we are doing the cooking energy, the firewood and the cookstoves. We did distribute some lanterns, but people were not really liking them and it was over two years ago so I don't remember lots of things. Plus, we do electricity not electrical, so when things break, they are not fixed. People can get other services for electricals in the market – other lanterns and batteries and things repaired there. That is not our job to help with these things".

Interviewee 55, September 2017, Kakuma Kenya.

When I delved into the issue of 'whose job' it was to provide energy with this interviewee, he suggested responsibility for household electricity was with UNHCR as the main coordinating body. The official 'energy' partners in both Kenya and Rwanda were often viewed as only being responsible for cooking solutions and firewood distribution, with many interviewees such as this one stating that electricity was outside of their remit. While this was the view held by implementing partner interviewees, when analysing UNHCR and refugee coordination documents, it became clear that household electricity was actually within the scope of the partner's responsibilities. However, it was not clear where different elements of responsibility on energy provision should sit between camp coordinators and implementing partners. A political play-off seemed to be happening between humanitarian organisations and their partners: with each claiming the provision of energy was the responsibility of the other and that their organisation was politically and economically constrained in what it could do.

This interviewee also became quite defensive about energy provision, and conveyed a strong sense of dissatisfaction with the current situation. These displays of defensiveness from over-worked, under-budgeted local NGOs were also present in the Rwandan context. In both countries there seemed to be mixed responsibilities for delivering energy services in practice, even if on paper remits were theoretically clear: for example, UNHCR coordinates and partners implement. Part of the reason for mixed responsibilities may be because energy is an activity that underpins many other activities, and so many institutions play different roles in different camps. Organisations also have structural and institutional limitations. Of the humanitarian agencies involved in energy in refugee camps, UNHCR looms large in the discussion with many energy specialists turning to UNHCR for access, coordination, and leadership on energy. Despite the launch of a new energy strategy in 2019 (UNHCR, 2019a), to date the organisation has had limited capacity to support or deliver energy activities. As one interviewee put it: "We are still at the stage with UNHCR of having the capacity to understand, not to do [energy]. UNHCR still needs to engage with the language of development. We are just not there yet and are still at the protection, blah, blah, blah. With nothing really being done except encampment" (Interviewee 35, July 2018, New York USA). One interviewee even stated that, "You could consider UNHCR as a socialist government. They should have long-term presence and power, and plenty of money – but do not invest it sustainably – especially on energy" (Interviewee 28, May 2018, Kigali Rwanda), implying that, despite having good intentions on social progress and welfare support, delivering this support directly through governmental and inter-governmental mechanisms is very inefficient. Humanitarian institutions may not be best placed to deliver energy within camp settings, as the environment in which they act is not conducive to supporting long-term solutions. Institutionally, UNHCR and other agencies are not set up to manage or deliver energy programmes: this, combined with a lack of funding and limited resources, means that to date there are relatively few examples of successful energy programmes within refugee camps.

It would seem that the structures of humanitarianism are reflecting political choices about how responses should be structured. For example, the view that UNHCR is 'the agency for refugees' and that assistance can only be achieved through top-down programming. There is a considerable "political economy of energy choices" (Brown and Cloke, 2017, p vii) visible within humanitarian structures: with value judgements and administrative decisions directly impacting on refugee lives. To some extent, these outcomes are created by systems rather than individuals, as often it seems to be the actual boundaries and structural remits of organisations which prevent humanitarians taking action.

Chief among the structural limitations of humanitarianism is the protection mandate of UNHCR. Many interviewees mentioned the challenge of having to link energy explicitly to the core remit of humanitarian organisations. As the quotes below highlight, the protection mandate constrains action within humanitarian agencies to a protect and provide mentality: camps are set up to offer a physically protective space for vulnerable refugees, humanitarian agencies provide products to meet their basic needs for shelter, food, water and safety. Energy and other more life-enhancing services are not deemed essential and so are not provided, although there is increasing recognition that energy access should be a human right and is essential for improving quality of life (Bradbrook and Gardam, 2006; SE4ALL, 2017).

"You Can't Even Fart Without Mentioning Protection"

The below excerpts from interviewees highlight how protection is discussed within humanitarian communities, providing examples of both interviewees who were critical of the protection remit and those who felt it was essential to explain how energy and protection needs connect. The quotes below came up during interviews with people who were all white European humanitarians, who had been working within humanitarian agencies and partner organisations.

"URGGGH! Protection. You can't even fart without mentioning protection. It goes on and on and on as part of [the] discussion about how the energy agenda needs to align with UNHCR's core mandate on protection. Energy is a new consideration for UNHCR, so it needs to be justified in terms of core principles, and high-level political agendas: SGBV, gender, cost reduction, and of course protection. But for god's sake they need to say something more meaningful than just, 'We have to protect these poor people'. Times are a changing".

Interviewee 8, May 2017, Vienna Austria.

"We should mainstream protection into everything we are doing … it should be natural. We could increase the protection dividend by approaching energy. There is a very clear protection impact [of undertaking energy activities]; however, there isn't mainstreaming and there is not actually a correlation between protection and why people need energy access at all. A mythical story told to be able to 'do energy'. There is a link between firewood and violence and people are five times more likely to feel as if they will have a bad experience in unlit areas than in lit areas. In whatever you do, we need you to think about protection impacts. Oh, and we use a cash-integrated approach as we think it might have the most benefits. We need to make programmes SAFE from the start... Mainstreaming would be the way to do it".

Interviewee 11, October 2017, Geneva Switzerland.

"For UNHCR definitely, the protection mandate essentially trumps all others. The biggest barrier we had, struggled to ear-mark at all, and when that funding was re-serviced for a specific project or set of activities. It was always a given that the assumption was the money would be spent on core protection and other activities. We learnt to be very strategic about the types of partnerships and collaborations we [were] working through in order to make sure that, when we do start to get into the details and [are] actually starting to change something, that the organisations you are changing it with see the benefits at the institutional level".

Interviewee 12, March 2018, Oxford by Skype.

While to some extent UNHCR has been singled out here by interviewees as one agency that faces a considerable number of systematic constraints driven by the protection remit, the same arguments can be made about other agencies and implementing partners depending on their core focus of delivering food, water, and humanitarian services. Within these systematic limitations of humanitarianism, one problem is particularly challenging: often agencies and implementing partners do not have energy experts or skilled technical staff within their own operations. This is a systematic constraint as a lack of in-house staff is the result of both limited budgets and organisations not having an organisational remit to act on energy. As this interviewee highlights, the result is often that, while individuals within agencies want to act on energy, they are limited in their technical and operational capacity to do so.

Well Intentioned, But Poorly Skilled: UNHCR in the Humanitarian Energy Sector

Interviewing global-level practitioners on energy within the humanitarian system enabled my research to understand some of the issues facing institutions. In one interview I asked an experienced sector manager, a middle-aged European man, working in an NGO about his view on UNHCR. I asked whether he thought humanitarian institutions were able to prioritise energy needs:

"I see very little overall strategic thinking in UNHCR. I don't think that they really have the time to be very strategic; I think they are struggling constantly with just the enormity of the vast, growing problem they have to deal with, and no fucking money."

"UNHCR are well intentioned, but poorly skilled. The people who work for the UNHCR are some of the most wonderful, motivated, altruistic people on the planet – I mean they are fabulous as individuals. They are just working within a completely dysfunctional organisation that is inadequately funded. There are all sorts of horrible practices – they don't even know what they are doing. They can't even identify in Rwanda how much they spend on wood. They have no idea."

"We asked UNHCR the simplest question: what do you spend on this and that? But they don't know the answers to these things at all. I can ask my staff, 'What [did] we spend last week, last month, or this, that or the other?', and I get an answer. UNHCR don't know what they do, it's amazing. And their procurement and tending process, is just hysterical. When I look at the non-food items stuff they distributed in the past to households, and how much they pay for it. And I'm like: 'Oh my god, I could just go into the market here in Kigali and I can buy every one of these things cheaper'. Just as a one off, much less in bulk. It's just, I don't know if it is just incompetence, but everywhere they go they are foreigners, muzungu who get taken advantage of by the crap people in every country, who are everywhere. They just get taken to the cleaners. It's just staggering that they spend [so] much money and get so little for it, and they don't even know how much they spend".

Interviewee 19, March 2018, Oxford by Skype.

This interviewee highlighted that, while individuals working within humanitarian agencies are usually altruistically motivated, often the constraints of the humanitarian system mean they are unable to develop low-cost and appropriate energy solutions. The systematic nature of this failure is further highlighted by a lack of knowledge within agencies on their current investments. Therefore, even

operations wanting to understand energy problems and spending further are unable to do so as basic information is unavailable. This interviewee focused on the lack of knowledge about costs within agencies; however, the evidence and information gap in humanitarian settings is much larger than this: with many parts of the humanitarian sector facing a blank sheet of paper when asking their institution about energy in general (Grafham and Lahn, 2018; Lahn and Grafham, 2015).

The quotes above highlight a number of challenges of working within existing humanitarian structures, especially the constraints of technical capacity and institutional ability to act on energy. There is considerable nuance within this topic and increasingly humanitarian organisations are now starting to invest in technical capacity. Although humanitarian agencies may not have capacity to deliver, they are often perceived to have the authority to act. In many cases, this prevents other communities (refugees, NGOs, or development specialists) becoming involved in energy provision, as the issue is viewed as UNHCR's responsibility. The roles and responsibilities for energy provision in camps are very mixed, and often intermittent institutional action and stringent remits prevent considered action on energy by humanitarian organisations. This has a number of impacts for those living in the camps: chief among them is limited access to energy and limited provision of services by humanitarian actors.

Providing Energy: Irrelevant, Accidental, Intermittent, Disruptive, and Inadequate

Rogers and Bloom highlight that "infrastructure and public services in the Kakuma refugee camps are provided through a vast range of delivery mechanisms and actors – both formal and informal" (2016, p1). This is true not only of the larger-scale infrastructure in the camps, such as latrines, water systems, hospitals, protection centres and community facilities, but is also true of the smaller-scale energy products and services in the camps. Some agencies and NGOs in both Rwanda and Kenya had run energy programmes: for example, distributing solar lanterns to households, supplying firewood for cooking, and managing projects which produced cookstoves within the camps. Provision of energy, however, looks different depending on what type of energy is considered. 'Basic' needs such as firewood provision are usually met by institutions such as UNHCR and partners, whereas larger electricity needs, such as power for TVs, are usually met by households and refugee enterprises. The sections below consider how institutions are providing energy and briefly outline some of the problems with humanitarian provision of energy services.

The story below on informal connections highlights how the formal provision of energy and informal access can sometimes conflict in camp settings. In this case, the entrepreneur was informally connected to the grid and did not need free solar lanterns from a development project.

Informal Connections: Interview with a Solar Hairdresser

During one visit to Kigeme, I stumbled across a small hairdressing salon with a solar lantern charging on the roof. While the shop was open, the manager was not close by, so one of the young people nearby described how the salon worked A young Congolese boy of only about fifteen, with limited English and some French, he showed me the electricity connections in the shop:

"It stays on, the clippers, because it is plugged in". They were connected to the panel the solar lantern we saw on the roof.

We talked some more about the types of styles of hairdressing offered and the prices the salon charged before returning to the topic of electricity. As a solar lantern of the type charging on the roof could not be used to power the clippers, I was interested in where the power actually came from. After some investigation we discovered that the salon was connected to an electricity cable, which ran across the camp border into the nearby house and pylon, and was in fact connected to the national grid. Talking further with some of the local business owners, it became clear that the shop owner had built the salon in this location to get an electricity location and then later on an energy programme in the camp had distributed free lanterns for electricity. When I asked the boy in the shop about this, he replied:

"They gave the lamp [the solar lantern] and told [him] to use [it] for the clippers. It is here [the lantern] and so is the good connection".

As grid connections within the camp to households and businesses are not strictly allowed by the Rwandan national energy provider, I did not return to interview the shop manager, to avoid drawing attention to his illegal connection. The other business owners explained to me that talking about this topic might make him worried that his connection would be cut and that he would be punished for making it.





Photos: Hairdressing clippers and hair styles in salon, electric clippers plugged into socket, Kigeme Rwanda.

Interviewee 86, November 2017, Kigeme Rwanda.

This story demonstrates some of the informal connections made by entrepreneurs in the camps. In this case, a UNHCR-funded programme had distributed solar lanterns for free to business owners – many of whom could not use the lanterns for their business as they only provided basic lighting and did not include charging or powering technologies. Despite this, the salon was characterised as a 'solar salon' which was held up as a successful example of UNHCR providing energy to the community. While it did seem as if the lantern was being used to light the space in the evenings, the shop also had installed light bulbs connected to the grid and so it was unlikely that the lantern was of much use. There were many examples of such businesses within the camps that were connected to humanitarian projects and systems, but were often acting independently. In this case, the role of humanitarian

intervention projects to this refugee business was largely irrelevant: the owner had secured energy from the grid and had little need for a solar lantern from a humanitarian programme.

The insignificance and inappropriateness of energy projects in the camps were often commented on by interviewees, who when asked directly about the possible benefits of humanitarian-led interventions suggested that they were irrelevant. For example, interviewees would show me disused cookstoves or solar lanterns which had been distributed by UNHCR and highlight how these technologies did not meet their needs. In many cases, energy interventions had simply not reached households and so had very little effect on them, as many families had not been included in the beneficiary populations that received distributed electrical products. Particularly for enterprises in the camps, many humanitarian projects were immaterial. When a business had benefited from humanitarian support, it was often a secondary link to energy (such as businesses being able to participate in cash schemes and then having more income to spend on energy) rather than as the result of direct assistance on energy from humanitarians.

While the story above suggests a negative role for agencies in the camp, there were also positive stories of connections, especially in cases where agencies and NGOs were able to share energy resources. The story below highlights an example of this, where power sharing can also take the form of informal exchange of 'left-over' or surplus energy goods, which have been put to use in another context. While many of the business owners in the camps had specifically purchased technologies to use for their business, other entrepreneurs seemed to have informally come by a technology and built a business around it. For example, in the story example below about a solar cinema in Kalobeyei, the business owner there 'found' a 'free' solar panel and this was the start of his idea to make a TV shop. In the case of this solar cinema, electricity was used to power a TV, fan and lighting for a cinema. The business owner then charged customers a small amount to watch a film or show (usually around £0.50). These types of informal energy entrepreneurs were common within the camps and were often not formally supported by UN or aid systems.

Solar Cinemas: Informal Energy Entrepreneurs

One of the women I met in Kalobeyei recommended I see the local cinema, so I walked with her son across the settlement to a far corner – where there was a solar cinema playing music loudly and screening different shows and films throughout the day. I was able to have a short interview with the man who ran it, but he was very busy with customers and could not spare a lot of time to talk with me. An older man who clearly had a lot of experience running businesses in the camp, I asked him how he got the panels there and why:

"We arrived, there was very little, really nothing. We needed some TV, so I am working with the other men to find the materials [knocks on walls of structure] and we build this. The panels come for free".

I asked how he got panels for free – did someone provide them to him or were they from the community?

"[struggling both with English and the answer to the question] I don't know, a man bought them, gave for free. We thought they were broke but one of the boys was playing [with them] and found they were working. So we use them now. They power the screen, the music, the lights. Soon I will buy another fan to keep us cool".

The manager was then very busy with customers as a new showing was about to start. I asked him what he did for power at night and whether the cinema busy then:

"[rolls his eyes] I have [a] battery – for charging [taps the phones in the box] and for night. Some men are coming at night, but not ones with wives. Those might stay at home".

While the manager of the cinema was busy and did not really have time to talk, he was keen for me to take photos of the cinema and the space: "You take photos, it is good for customers", and invited me inside the space for free to see it and talk with some of the young men waiting and watching the show.

Following this interaction, I asked some UNHCR representatives involved with the development of Kalobeyei whether this was one of the projects they or NGO partners had supported. Surprisingly, most of them had never heard of the cinema, but explained that SNV and one of the other large NGOs building the schools had a surplus of solar panels, so the panels on the cinema might have come from there.




Photos: Outside the solar cinema and panels powering the cinema on the roof, Kalobeyei Kenya.

Interviewee 62, September 2017, Kalobeyei Kenya.

This story highlights a positive example of when UN-funded projects have a surplus of resources and share this surplus with the community – as the panels likely were donated to the community by the local NGO, who already had enough panels for the school's needs, and then the cinema owner was able to make a business out of this. It is unlikely that the panels were stolen as they still had their ID numbers on and were highly visible in the space of the camp. In this case, institutional involvement in the provision of energy to refugees can be said to be accidental: the agencies and NGOs involved were not really aware of the provision of a solar panel to this business.

Accidental provision of electricity by humanitarian organisations was common. For example, many refugees would informally connect to UNHCR generators, and 'borrow' power from operational sources. Many refugees also reported spending extra time in operational and NGO spaces so that they could charge their phones while there. This type of provision can be characterised as accidental, as

the majority of humanitarians were unaware of or unconcerned with such connections. Providing energy in this form was not a conscious decision by humanitarian organisations, and many agencies did not know that people in the camps accessed electricity in this way. Occasionally, access would be provided as an act of kindness by an individual– for example, in the story above with the panel being provided as a gift. In a couple of cases, humanitarian organisations had sold old, broken generators to refugees for parts: they did not realise the value of these technologies, which were repaired and put to work as mini-grid businesses. This type of accidental provision suggests that humanitarian staff did not necessarily know the value of such connections and technologies, or how they were being put to use in the camps.

Absent and intermittent action on energy was common within institutional energy provision: the vast majority of humanitarian programmes did not consider energy needs and very few agencies or NGOs had provided dedicated energy for refugee businesses or households. Evidence is provided throughout this thesis on how underserved communities were in terms of electricity provision, and that many spaces in the camps did not have access to adequate energy resources. However, this did not seem to matter to many humanitarians and they were dismissive about these problems, often implying that providing energy services would not be about keeping people alive, but enabling them to have a better quality of life.

As well as energy provision being absent, irrelevant and accidental, there is emerging evidence that energy interventions within camps have had a potentially disruptive effect on informal businesses and effectively removed their trade and income. Free distribution of energy products such as solar lanterns has led to market spoilage in refugee camps, and, while no organisations have yet published evaluations of these impacts, donors have recognised that free distribution of energy has a disruptive effect on local and existing modes of energy access (Ecorys, 2017). Free energy can be highly disruptive to existing local suppliers and entrepreneurs (Johnstone and Kivimaa, 2018; MacDonald, 2009). Even when innovative and private sector solutions are used to procure energy resources, power is often still given away for free to refugees as end-users. For example, a test mini-grid in Kigeme camp in Rwanda is providing free electricity to a nursery and school playground while being held up as an example of an innovative electrification programme for humanitarian agencies (Coventry University, 2019). As similar situation is emerging in the example below, as the proposed mini-grid in Mahama camp will electrify playgrounds and some market spaces while providing power for free.

Markets in Mahama: Disruption and Dismay

On one visit to Mahama I was shown around by energy specialists who planned to provide electricity to the main market street, solar street lighting for the wood distribution sites and public playgrounds in the camp. I was shown around by a senior energy staff member, who worked for one of the humanitarian agencies running the camp. A middle-aged male with experience in the WASH sector rather than energy directly, he was a particularly difficult and challenging person and often became angry at my questions.

During the trip we visited the main market space and I was surprised to already find a number of electricity technologies powering the market, including a diesel generator powering a café and music shop, and the solar panels pictured below connected to a tailor and couple of other shops. When I asked the staff member about these technologies he replied: "We didn't fund them, they just arrived here. They will all go once we install the solar system".

As we ventured further into the market it became clear that the solar system the humanitarian NGO planned to install would not be large enough in capacity to provide all the energy needed. When I asked about this I was told:

"They [the refugees] will have to do; it will have to be enough. It will still be better than these silly technologies [meaning the informal and distributed mix of solar and diesel surrounding us]".

It seemed to be that the humanitarian staff member wanted to get rid of the local panels to have control over the space and not allow refugees their informally secured solar system, although there was no clear reason why the panels had to be removed.

Photo: Public space for wood distribution, Mahama Rwanda.



As we walked through the market, I could feel a sense of anger and dismay about the proposed project, and in fact during our visit several elders of the community came to talk to the staff member and became very argumentative with him. As the situation dissolved into an open and heated argument I moved away from the discussion and spent the afternoon talking with the business owners in the space within the calm of their shops. One refugee business owner agreed to have a short chat with me, and asked his son to translate from his limited English. We started by talking about the heated discussion we had all witnessed earlier:

"Yes, it is sad. The man [the staff member] is coming here and saying, 'Now, get rid of panels'. But we need them: I am using [the solar panels] and my son is using. My business is using. We must have [them]. I am not fighting with him. Not after the fighting in the war. We come here for peace, to start our business again. We not fighting over panels".

I asked what he would do if the organisation tried to force the removal of the panels, and the he shrugged with dismay and said simply:

"We move again. Leave the camp and go into Rwanda, or another place. My business must use panels and we must have my business".

I raised this issue with the staff member later, once were leaving the camp. He rolled his eyes and said, "Some disruption is necessary". On the way out of the camp we stopped at a shop selling drinks and snacks for the journey back to Kigali. I noted that the shop sold solar home systems and products already, and asked the guide his opinion on why he thought humanitarian interventions to supply energy were needed when the markets were already electrified and there were several shops like this one selling solar products: "Oh, I hadn't thought of that," he replied. "Still, we have to do the project, it's been funded now".





Photos: Diesel generator powering part of the main market of the camp and solar panels providing electricity for hairdressing salon and shop, Mahama Rwanda.





Photos: Shop selling solar home systems, lanterns, food, drinks, and other energy products in Mahama Rwanda.

Interviewee 90, May 2018, Mahama Rwanda.

This type of exchange and rationale that "we have to do the project" and "it's been funded now" was common within many of the NGOs and practitioners spoken to during data collection. Several projects within the Kenyan and Rwandan camps have been funded since fieldwork was conducted and are due to start implementation soon. To my knowledge, no assessment of the impact of these projects on existing enterprises and businesses in the camps has been conducted. Initial results from my research suggest that the role of institutions in providing energy for free within such spaces can be described as disruptive to existing markets and refugees.

This type of disruptive action on energy can be very harmful to businesses within the camps, and start to cause social and cultural conflicts. While such projects are not designed, of course, to be deliberately malicious, the impacts of badly planned programmes can be considerable. During my research I saw very few examples of projects that had been designed directly with communities, and none that considered working with refugee entrepreneurs directly to understand how additional energy could be provided using them as suppliers. Almost all energy projects were designed with the protect and provide mentality: focusing on how energy served protection remits and therefore had to be distributed in a similar way to other non-food items. There was an almost universal lack of knowledge on the existing energy supply options in the camps within humanitarian communities and it was difficult to challenge such opinions and structures.

The four cases presented above highlight that sometimes electricity provision by institutions in the camps can be irrelevant to refugee lives, sometimes power arrives accidentally or not at all, and occasionally the impacts of humanitarian intervention seem to have negative effects on communities. The role of institutions is very mixed across these examples: sometimes interventions were led by agencies, sometimes by NGOs, or sometimes by development partners. Additionally, these stories paint a fairly negative picture of humanitarian energy interventions, and further research might uncover evidence to outline the impacts of such projects. However, the point I would like to make is about intentionality. In all of the examples above, and the earlier evidence in this chapter on how operations provide their own energy, few concerted or considered efforts by agencies or implementing partners on energy could be found. We can therefore question how planned or intentional these programmes are, as much of the evidence seems to point towards intermittent or ill-considered attention paid to energy. This, combined with the humanitarian system constraints on energy outlined in this chapter, suggests that energy within refugee camps is not prioritised or provided comprehensively by agencies, NGOs or humanitarian partners.

A further element, of course, exists in the humanitarian provision of energy: many refugees viewed the humanitarian provision of energy as inadequate. Many interviewees commented that the supply of firewood, for example, was never enough to cook meals. As an example, quantitative research on this topic has suggested that in Rwanda over 60% of households were skipping meals due to fuel shortages, and over 42% were selling their food rations in exchange for fuel (Practical Action, 2020). Similarly, most households I interviewed had not received any support on household electricity, and those who had only received a small solar lantern, which was not sufficient to meet their household power needs. Under-provision of energy services by humanitarian organisations has resulted in the majority of families relying on refugee enterprises and buying their energy products and services in

the markets in the camps. As outlined in chapters four and five, self-provision of energy services was the main form of supply for most refugees. Humanitarian energy projects have been briefly discussed in the above examples to demonstrate how these projects face a number of challenges and are not the main supply of energy in the camps.

However, this section may help us to answer the second research question: How is energy accessed and governed in refugee camps? Clearly, humanitarian organisations currently have a limited role to play in supporting energy access as the majority of their energy interventions appear to be irrelevant, accidental, intermittent, disruptive or inadequate. Many intervention projects are not working to supply useful energy products or services to refugee households or businesses (Grafham, 2020). Within refugee markets and homes, the self-provision of energy is largely self-governing through refugee markets and informal community structures, and is ungoverned by humanitarian actors. In some cases, this self-provision and lack of support from humanitarian organisations was acknowledged by interviewees. As the story below suggests, impossible conditions and restrictions were often created by institutions within the camps as, in some locations, camps remained closed to external market suppliers, while at the same time humanitarian organisations and NGOs refused to provide fuel or electricity.

Impossible Ownership: "They Have To Do It or They Will Starve"

During one interview in Rwanda on the role of different NGOs and humanitarian energy, the topic turned to responsibilities and who should be in charge of energy. In this case, the interviewee was a young man who had a lot of responsibility for his organisation's energy planning. On the topic of self-reliance, he commented:

"We wanted them to own the energy more, so we were encouraging children to draw energy in their homes. They have to find it and get energy and firewood for themselves".

However, when challenged about new government restrictions on firewood he became quite opinionated:

"They have to do it! We start with the children, so they will know for the rest of their lives that they must do it. If they don't find energy they will starve, so I am knowing they will do it. We cannot provide this for them anymore".

I kept questioning how this would happen, given the limited actual access to the local forest area and limited firewood or charcoal markets, but the interviewee became frustrated and did not want to discuss this further.

Interviewee 89, November 2017, Gihembe Rwanda.

In cases like this one, interviewees had very challenging opinions, and were effectively setting an impossible access model by suggesting that refugees would have to find their own energy, while actively preventing suppliers from accessing the markets and effectively limiting the sources of energy

available in the camps. This raises a number of questions regarding energy in the camps: what are the humanitarian systems supporting energy provision in these spaces, who controls access and ownership, and who defines responsibilities relating to energy? A number of value judgements are present regarding these questions, and a number of ideals and principles seem to guide humanitarian action (or inaction on energy). There is a disconnect in terms of which institutions are perceived to be responsible for energy and the ways in which refugee families and businesses currently access energy. The types of humanitarian provision outlined above can be understood to have created a number of inequalities within the camps, and reinforced the refugees' perception that humanitarian agencies are not able to support them in terms of energy. This suggests that structures and systems in humanitarian agencies have considerable power impacts, and raises questions about how agencies develop energy intervention programming and whose values guide such programming.

We can witness the choices being made about the levels of energy that are provided within humanitarian interventions. Fassin (2007) draws upon the work of Giorgio Agamben in distinguishing between human rights and civil rights and how forms of humanitarianism represent the separation of the two. In the context of energy provision, a similar division emerges: the provision of basic firewood and some lanterns meets the notion of energy as a basic, human right. However, the provision of energy as a service or supply of higher levels of power is seen as humanitarians providing 'too much' and may be seen as providing a form of civil rights. This boundary is political in nature, and choices are being made about how much energy refugees 'deserve', and which forms and types of energy they will receive from humanitarian systems.

This section was challenging to write, as it openly suggests the failings of humanitarian organisations to meet the energy needs of refugees and acknowledges the impacts of this on communities. Further work would be needed to fully evaluate the impact of humanitarian programmes, considering both positive and negative results. However, within existing programmes and structures the politics of humanitarianism is clearly visible: institutional inaction on energy provision for refugees is the result of choices in which energy resourcing is not valued. Institutional restrictions, limited budgets, and a lack of organisational capacity all contribute to this, but these occur after political choices have been made about the importance of energy rather than being neutral causes of poor energy planning and delivery. These value judgements and the politics of life in humanitarian settings are considered further in the following section.

The Value of Energy: Humanitarian Judgements

Overwhelmingly, the value and importance of energy to refugee communities was not understood by humanitarian practitioners. While this is particularly true of non-energy people, such as humanitarians working on WASH, shelter, protection, it was also true of staff directly involved in the provision of energy. All the stories below come from interviewees who had a key role in designing and delivering energy products and services to refugee camps: showcasing a shocking set of narratives that reveal a number of prejudices and value judgements about who deserves energy, how much energy people should be allowed, and that humanitarians can be the only people to provide energy in camps. The humanitarian politics of life (Fassin, 2007) comes through strongly in these examples and I was struck during the interviews how different the views of humanitarians were compared to those of refugees.

While many interviewees made such comments, there is one standout example which is typical of the division between the views of refugees on energy and the views of some humanitarians. In the story below the interviewee is convinced that people in the camps are ignorant about energy, suggesting that "they have no energy knowledge". This was a particularly challenging interview, especially as the interviewee was not willing to listen to other pieces of evidence or knowledge from the field. The interviewee also questioned whether refugees even "know what they need". In this case, his opinion was not born out in the direct experience of the camps – as the photos that follow clearly illustrate.

"If You Leave Them Thirsty, You Can Be Assured They Will Buy"

During my first summer collecting data I conducted a particularly challenging interview with a very senior director within one of the main humanitarian agencies, an established male academic who had been in the humanitarian sector for at least 20 years. His opinions were opposite to my own and at several times during the face-to-face discussion I had to pause the interview under the pretence of getting a cup of tea or using the bathroom, in order not to lose my temper with him. When I asked if I thought we should design projects inclusively, he responded:

"Oh yes, well you can try to be inclusive, of course. But do they know what they need? These refugees, they are just ignorant and from the poorest bits [of society], they have no energy knowledge. Asking refugees about energy is equivalent to asking people, 'If you want to fly, what kind of dream liner do you want?'. You would be asking people who have never flown before and who are ignorant [about] it all. You will not get anywhere that way. You would be better asking me or my wife. At least she is cooking properly".

The interview then moved on to discussing selling energy products to refugees:

"If you leave them thirsty, you can be assured they will buy. If they can afford a Samsung S7 mobile, you can create demand for energy selling. You should not give them things for free, they will buy it for it sure. Just go there and say, 'This is the best thing, the whites are using it, the rich are using it. They will buy it. Even if it means not feeding their children'.

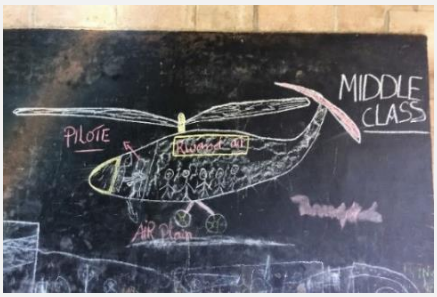
"Energy at the moment is a vision defined by humanitarian operations. The people in the camp know nothing about energy. We need to start changing people's behaviour and tailor-making interventions that suit our

needs. The business concept works better and seems to fix the divides that are missing – private sector involvement is good. They [the private sector] will come here and bring more money, for us and for the people in the camps".

Despite these negative comments, many months later I met the interviewee again and was able to show him photos like this one of a child's drawing in a camp school of an aeroplane: challenging his assumptions at least regarding knowledge on flight technologies within refugee communities.

Photos: Dreamliner and helicopter depicted in children's drawings in refugee camps in Kigeme and Nyabiheke camps in Rwanda.





Interviewee 39, June 2017, Nairobi Kenya.

This story raises the issue of who has decision-making power knowledge about energy within refugee camps, and how this knowledge is used. In this example, the comment came from a very senior member of the humanitarian sector: someone with considerable power and influence over programmatic and budgeting decisions. His opinions were fed by mis-information and prejudice, and yet have been informing international policy on humanitarian action for decades. This interviewee left me feeling both angry and demoralised about the possibilities for change, which was a common experience when interviewing global policy-makers on energy: often their opinions did not align with what I and many others had witnessed in the camps, and it was frequent for global interviewee comments to contain smatterings of racism. Ignorance on energy knowledge in these contexts was hard to challenge, even from my privileged position as a western researcher, and conflicted with the informed and open-minded opinions I heard from refugees.

This story is included here to demonstrate the role of inequality currently present within the humanitarian energy sector: energy for refugees is not valued in the same way as energy for humanitarians. This inequality was particularly clear with interviewees who contrasted the use of energy for refugees with the role of energy in staff offices and homes. The tone of the interviewee above was very negative and he acknowledged that "energy at the moment is a vision defined by humanitarian operations". Currently this statement would seem to be true of large parts of the sector, even with new commitments to follow inclusive modes of engagement (UNITAR, 2019).

The theme of inequality on energy in refugee camps is one that runs within many interviewees' comments. Many interviewees within the camps highlighted how unfair they found energy access

within the camps, as power for operations and humanitarian staff was considerable and refugees were able to access less power. A double standard of energy for refugees versus operational uses was common within interviewees who were far from the field. Some interviewees demonstrated a conceptual idealism of refugee communities and humanitarian projects, portraying projects as necessary for the social good, and displaying a hierarchical way of thinking in which western and global humanitarian organisations should provide energy for refugees.

Many interviewees followed the lines of 'we' (often western, white, male, older engineers) should decide on the solutions and technologies and 'give' them to refugees. In the provision of energy for refugees, humanitarian practitioners often decide what is needed without really engaging with refugee communities at all. Interviewees questioned why refugees should be involved with the design of programmes, suggesting that solutions could just be given to them as they were located within refugee camps. Imposing aid is not a new concept within refugee studies (Harrell-Bond and Chambers, 1986), and some energy for development literature focuses on inclusion and working with communities to develop solutions (Campbell et al., 2016). However, this literature has often focused on how refugees can be involved with existing programmes and structures and does not examine alternative routes to access, such as independently securing energy. The nature of self-provision in these spaces has political implications, and the choices made by humanitarian organisations on energy access have considerable consequences for the long-term quality of life for refuges. As the interviewee below highlights, the rationale behind humanitarian action in this space is often guided by the perception that humanitarians are best placed to solve energy problems.

"What I Am Is a Humanitarian: We Are Here To Help"

Many global interviewees mentioned protection and traditional humanitarian narratives during discussions and spoke openly about the need to ensure energy was provided in order that refugees can survive. One event was held in a Radisson Blue hotel, with attendees in formal dress-wear as the event was followed by an evening champagne reception. I was able to interview a female high-level NGO representative who was a senior decision-maker in the field of humanitarian energy. I asked her what she thought about the event and how we should engage with refugees in the camps:

"What I am is a humanitarian. Today I heard a lot of energy experts talk like humanitarians. Once you have been to one refugee camp, you have been to them all. We just need to go there and install some renewable energy, it shouldn't be so difficult and I think working together we can do it. Energy is just not there in the camps, no-one uses it, they just survive and don't care about it or look to the future. When I think about the implementation of renewables, I think they, the refugees, need it and we will give it to them. We can walk straight out of this door [at the Radisson Blu] and straight into the camps to give it to them. We are here to help."

Interviewee 29, May 2018, Kigali Rwanda.

As the story highlights, many humanitarian decision-makers have a specific view of refugee energy: renewables can solve everything and policy-makers "are here to help". The narrative presented in this quote is problematic for a number of reasons. Firstly, it centres on the idea of 'our refugees': a phased used often by UNHCR staff members, which swirls through discussions on energy for refugees, churning the imperative for 'protection' into a desire to control camps and the people in them. This is obviously problematic, and, to a large extent in the camps in Kenya and Rwanda, irrelevant, as many people have already created their solutions to their energy needs. Secondly, this narrative links to issues of participation through the clearly expressed commitment to the idea that we "just need to go there and install some renewable energy", suggesting that renewable technologies (and in particular solar lanterns) can solve energy problems in refugee settings. These statements imply a considerable lack of participation of refugees in programme design or implementation: "I think they, the refugees, need it and we will give it to them". This idea is concretely reflected in the number of free distribution programmes in the Kenyan and Rwandan camps, which use delivery models that have picked a solar lantern or product, and ship in thousands of bulk items to be given away for free to households.

The third, highly problematic element of this narrative, was the interviewee's lack of awareness of the positionality. This interview was conducted in the Radisson Blu, an extremely privileged space of wealth in Kigali, and many of the people around were wearing designer suits and expensive watches and drinking imported alcohol. The interviewee suggested that we could "just walk straight out of this door and straight into the camps and give it [renewable energy] to them [the refugees]", without seeming to be aware of the positionality and biases of our situation. Statements such as "once you have been to one refugee camp, you have been to them all" were not uncommon in the interviews conducted. And a considerable number of the global experts interviewed for this research had not actually ever been to a refugee camp or visited the camps in Kenya or Rwanda.

This highlights a number of questionable elements on inclusion and equality in refugee energy: critically, the majority of decision-makers and programme designers are western or internationally-based and have not spent considerable time in the refugee camps or working on energy. This may create a considerable bias towards international narratives and priorities on energy being embedded in projects in the camps. It also highlights that it would be challenging to include many of the refugee perspectives outlined in the earlier sections into policies and programmes on energy in the camps, due to the lack of knowledge and experience relating to refugee household energy of the people involved in designing and running these programmes. There were a great many examples of this type of paternalistic narrative within other interviews, such as one interviewee, who said simply: "My refugees, I am completed immersed in what they need. We decide on that [the types of technologies],

of course. There are only a few types of technologies and solutions that refugees need. It's easy to decide" (Interviewee 5, March 2017, Oxford UK).

The examples provided in these stories and quotes can be seen to be about the politics of living (Feldman, 2012), in that they reveal how some humanitarians view the lives of refugees. In some cases, these views were actively negative and interviewees suggested that refugees were ignorant and could not be expected to provide energy for themselves. However, in others humanitarians were making what they thought were neutral assumptions about the types of energy needed for communities or that only humanitarians could be the ones to provide energy ("we are here to help"). This demonstrates how humanitarian action can restrain refugee lives and limit their choices, by reducing "the people it seeks to help to 'mere' victims—objects of compassion, but restricted in their capacity to act as full subjects in their own right" (Feldman 2012, p155). In such examples we can see that the opinions of humanitarians help to construct the political systems of aid which dictates elements of refugee life.

Conclusion: Institutional Darkness and the Provision of Humanitarian Energy

Several disconnects can be observed in the energy use in and provision by institutions: physical gaps are visible in connections in community facilities, knowledge gaps remain between refugee and operational knowledge on energy, and institutional intermittency creates gaps in responsibilities for energy provision. Where energy access for community facilities is reported to be reliable and useful, often this is due to NGOs and local actors taking control of energy resources rather than considered provision by agencies. In particular this chapter has highlighted patterns of incomplete control, where agencies are in theory responsible for energy access, but with limited ownership or leadership.

The issue of institutional intermittency hangs over the provision of energy in refugee camps: often humanitarian agencies and implementing partners are suggested to have some responsibility or have provided a short-term solution, but are sporadic in their engagement with and knowledge of these assets and roles. This intermittency is characterised by an absence of ownership, both for providing the energy needed and for understanding the importance of energy in the daily lives of refugees and humanitarian workers. There are also gaps between who has the capacity to act on energy and who has the authority or remit to act. A range of organisational responsibilities and the self-provision of energy by refugees themselves also cloud the picture of who really is providing energy. One form of darkness present throughout this thesis is institutional darkness, caused by systematic inexperience and organisational unwillingness to engage with the topic of energy. This institutional ignorance is

political, as it represents a series of choices about what is important (food, water, shelter, protection needs) and what is not (energy).

Further academic work would be needed to fully evaluate the impacts of the neglect of energy needs in refugee camps. However, this chapter has aimed to provide sufficient evidence to make the case that, compared to refugees' own knowledge of and engagement in energy (as presented in chapters four and five), humanitarian organisations have demonstrated limited responsibility for energy in camps in Rwanda and Kenya. This chapter has criticised the formal ways in which energy is accessed in camps, suggesting that the role of humanitarian institutions in providing energy can be characterised as being inadequate, absent, irrelevant, accidental, and potentially disruptive to refugee communities.

The opinions of humanitarians have been selectively produced in this chapter, and it should be noted that many humanitarian energy specialists do not share these views. However, the types of comments expressed were common within my interviews and exchanges. Such statements often reveal whose lives are valued in terms of energy: refugees or humanitarians. Fassin suggests we can understand such values by investigating "the political disorder of the world: the inequality of lives" (Fassin, 2007, p512). Fassin contrasts "sacred lives" versus "sacrificed lives" (2007, p502 and p508). However, the case of energy is not so binary: with differences in opinions being less black and white, and less about life and death. For energy access, lives are assessed in terms of who is valued (which people are deemed relevant, respected, worthwhile and deserving of energy) and who is not (people who are deemed unimportant, unessential, inconsequential and undeserving of energy). Value judgements are being made on who deserves energy and who does not. A clear pattern emerged in this research that people deemed 'beneficiaries' were classed as the latter category of those undeserving of modern levels of energy access, while other communities (local workers and international staff) were classed as needing energy.

A series of fundamental disconnects and absences have been presented within refugee camps and global narratives on energy. The energy that institutions use lies in contrast to the energy needs agencies are responsible for. This suggests an incongruity at the heart of humanitarian energy: energy for humanitarians is not the same as energy for refugees. There are a number of constraints within the humanitarian system which contribute to these disconnects: notably the way that funding flows from donors, the restrictions in the remits and resources of agencies, a lack of technical expertise and knowledge within institutions, and that focusing on short-term projects and providing limited interventions is not providing the solutions needed by refugee communities. Such constraints

represent a humanitarian system that seems to be fundamentally at odds with the provision of energy in refugee settings. Despite good intentions from many individuals involved and newly emerging programmes to provide sustainable energy solutions in camps, few successful initiatives have yet emerged. Systematic failures within humanitarianism have led to the de-prioritisation of energy for refugees, especially compared to the provision of energy for operations.

Within refugee camps inequality is extremely visible in energy access: there are large differences between energy provided for operations and community facilities, there are variations between energy used by refugees and agencies, and there are clear inequalities on who is able to take responsibility for these issues. Behind these challenges lie systematic limitations which to some extent dictate the role humanitarian agencies and partners can play in providing energy. This raises substantial questions regarding the role of the humanitarian system: who are humanitarian services for? And how can institutions be enabled to provide long-term, quality services to refugee populations? In the case of energy, it appears that humanitarian systems are not currently institutionally able to provide dedicated resources to consider or deliver energy access in a meaningful way to refugee populations.

This should not be taken as an argument that humanitarian organisations should not implement energy programmes. Rather, a more focused analysis of new solutions and modes of working is needed to meet the energy needs of refugees. Humanitarian institutions may need to reflect critically on what is possible within existing organisational structures, and where working with non-humanitarian partners and refugee communities directly may offer better results. The following, final, chapter considers the implications of challenges outlined in these sections, considering what these issues mean for the politics of living in refugee camps.

Chapter 7. Voices in the Dark: The Politics of Energy in Refugee Camps

Introduction

I began this thesis, perhaps provocatively, by remarking on the levels of energy available in western homes and offices: asking the reader to examine their own environment and recognise the energy sources and appliances which surround them, and then to consider the differences between this level of access and that available for refugees. Underneath this comparison lies the disheartening issue of why some communities have more access to energy than others. Is this an accident of fate? Or the result of choices about who deserves higher levels of energy and who does not? This final chapter focuses on the inherently political nature of this discussion while answering the research questions outlined at the start of the thesis.

Understanding Energy in Refugee Camps

Returning to the Research Questions

Understanding energy in refugee camps requires investigating multiple sites of enquiry, listening to many voices and perceptions, and recognising the multifaceted nature of both energy provision and use. It involves hearing many opinions about energy, while developing critical analysis of the role it plays in camps and spaces where energy is missing. The voices of refugees, field-level staff, and global practitioners all need to be considered in the dynamics of energy. The research questions for this study were centred on understanding the dynamic nature of energy within refugee camps. The sections below bring together the evidence presented throughout the chapters to answer my research questions: to suggest how energy is valued and perceived, as well as considering how energy is accessed and governed.

Values and Perceptions

My first research question asked how energy is valued and perceived by refugees and humanitarian practitioners. From the evidence presented in the previous chapters, it is clear that energy is generally understood to be an important resource, valued for its practical benefits as well as being seen as a symbol of social connection. Families, businesses, community facilities and operational users all need energy as a basic requirement to fulfil daily tasks, have productive jobs, use public spaces, and live their lives. However, there are two key actors in this research question: refugees and humanitarian practitioners, and these two communities valued energy quite differently.

Firstly, refugee communities, who viewed energy as a critical part of their lives. The evidence presented in chapter four outlined how households valued energy, suggesting that perceptions on energy were considerable and varied. Energy clearly had a practical significance and was valued for reducing costs and for supporting economic development. But energy was also socially and culturally valued, with historical connections made by refugees that linked energy to their past and home countries. Energy represented more than access for many people; it was an important signifier of status and social standing. Many refugees also spoke about the emotional significance of energy, especially in terms of feeling optimistic and for improving quality of life. In particular, it was noticeable that the importance of energy went beyond physical equipment and included social and emotional values. Power was not just about electricity or cooking; it was the results of this access that were important: being able to keep warm or cool, share time in the evening with friends and family, cook food and host social engagements, as well as meet basic needs such as lighting in homes and fuel for cooking. In this way, energy was 'non-technical' in its importance: value was not expressed in kilowatt hours but in terms of usefulness and happiness.

This supports the ideas of Elizabeth Shove and others, outlined in the first key literature debate identified in chapter one (Hargreaves and Middlemiss, 2020; Shove et al., 2015). In support of Shove's work, my findings suggest that social patterns of life are fundamentally linked to energy, and that the cultural and national dimensions of living are interwoven with energy use. In the case of refugee camps, social uses of energy may be even more extreme than in other circumstances, as there are generally fewer opportunities for productive uses of energy (such as running a high-power business or using electricity to power machinery in factories). Building on debates about the social nature of energy demand, I have argued that energy supply is often indirectly connected to the benefits of access. For example, when asked about energy many of the interviewees appeared to segue into discussions of family life, their business, or other topics about relaxation or income generation. In doing so they wove the importance of energy throughout their descriptions of their lived experience. These non-linear connections were a vital part of the value of energy, and highlighted how energy lies 'underneath' many of the activities which we value every day. This finding suggests that in order to reveal the true value of energy we need to investigate access qualitatively and ethnographically, rather than just quantitatively, spending time with people and understanding the range of ways in which energy is useful in the material and social aspects of life.

Critically, I found that energy was valued in terms of improvements to the quality of life for refugees. Higher levels of access, especially access to electricity, meant that families could use TVs, radios, and power for social events. Quality of life, of course, is a moving scale, for which there is no universally

accepted level or final benchmark. However, it became clear during my research that *improving* quality of life requires a higher level of energy access than is currently provided by humanitarian agencies. Particularly for electricity access, higher levels of energy became very important for the social and economic ambitions of households. Many families commented that more energy would improve their lives, that having electricity would made them feel happier, and that having access to more electricity would make life much easier. Qualitative research into the link between energy and quality of life is rare, although some research on the quantitative links does exist (for example, Pasten and Santamarina, 2012). My findings illuminate how this connection exists in refugee settings, perhaps even suggesting that access to energy is one of the key determinants of improving quality of life (in the same way that education, access to social and healthcare services, and income levels are linked to improving living standards).

My research also identified refugee-owned energy enterprises as a core community of users and suppliers of energy. I considered their values and perceptions in chapter five. In almost all businesses I encountered, there was some form of electricity access, and in many cases these businesses were providing energy services to the refugee community. The value of energy for enterprises was not just financial or economic, but offered opportunities for business development and specialisation. Many business interviewees highlighted cultures of enterprise (in terms of the national and cultural value attached to having an energy business and being able to provide for their community). The views of both families and businesses within the camps demonstrated considerable engagement with energy, including knowledge about the services and products available, the costs of energy, and alternative methods of trade and informal exchange to gain access. Value was expressed not just as cost and the monetary value of energy, but was inherent in the creation and existence of energy exchanges in the camps.

As a result of this, we can see how refugee enterprises are distinct constituents within the humanitarian energy system, users who are often missed in discussions about how to provide energy. This finding adds to the work of Campbell et al. (2016), which suggests that energy communities can be comprised of many actors, and that it is important to consider livelihood patterns within energy communities. In this way, my research addresses the second key literature debate identified in chapter one: that energy communities are diverse in nature and not simply comprised of users and suppliers. Indeed, the views and perceptions of refugee businesses about energy are critically important in this context, as they are the main small-scale suppliers of energy in refugee camps in Kenya and Rwanda (as well as being one of the main user groups). The impact of this finding is outlined further in the

discussion on the second research question, examining how energy is provided in refugee camps and which parts of the humanitarian energy community are involved in the provision of services.

Secondly, the views of humanitarian practitioners were also discussed in this thesis. In chapter six I examined the use of energy for community facilities and humanitarian operations. I showed that there was a stark difference between the values of the people who used energy in these spaces, and people in households and businesses. Overwhelmingly, energy was undervalued by operational users and many interviewees were unaware of the energy they used, or who paid for access. Many humanitarians demonstrated a considerable lack of awareness about energy sources and some were even hostile to the topic in light of what they viewed as more pressing needs. Remits and responsibilities for providing energy varied greatly and some humanitarians held negative opinions about how much energy refugees really needed. In particular, humanitarian views on energy seemed to be ill informed and detached from the everyday value of electricity. A number of value judgements and double standards were present.

While refugees engaged with the value of energy, many humanitarians did not seem to view energy as an important part of refugee life. However, for their own operations and life, energy was clearly essential. This suggested an inherent inequality in who had access to higher levels of access to energy – perceptions that were directly linked to value judgements about quality of life, suggesting that refugees do not deserve energy and therefore do not deserve as high a quality of life. These types of judgements are often the result of political choices about energy (Brown and Cloke, 2017; Fassin, 2007; Feldman, 2012). In the view of many humanitarians, energy was not a basic need, either because they thought energy did not play an important role within refugee life, or that it was not the role of humanitarian organisations to provide energy. It is important to critically challenge these statements, as energy was clearly a vital part of refugee life and many communities were underserved.

During fieldwork I was sometimes able to question the opinions of humanitarians, but it became clear that energy was not a priority issue within humanitarian response, despite recent strategic and policy commitments. In fact, at an operational level, often it seemed as if decisions about energy had already been made and there was little room for discussion. In these cases, I found that refugees' views on energy were not reflected in decision-making on how much energy should be provided for families and households. As a result, there was a divide between humanitarians and refugees on the issue of energy. This resulted in higher levels of energy provision for humanitarian staff and less for refugees. Such findings are relevant for the third key debate identified in the literature review in chapter one,

suggesting that there is a politics of living underpinning the operations of humanitarianism in these sites.

In summary, we can see that the views of refuges and humanitarians differed greatly. For refugee families and businesses, having access to more energy was inherently connected to improving their quality of life. For humanitarians, however, energy as a resource was often taken for granted or undervalued. These differences in opinions had many impacts, and the perception that energy was not an important resource resulted in humanitarians providing less energy. Especially within community facilities such as schools, playground, and public spaces, this had the effect of creating literal darkness where power was not available.

Access and Governance

My second research question asked how energy is accessed and governed in refugee camps. While all chapters in the thesis address this question in some way, chapter four presented the core empirical evidence on how households accessed energy. Considerable gaps in access were visible, with many families reporting how they would like more energy, and remarking how expensive it was to buy even small energy products and services. Importantly, refugees seemed to be accessing the energy by themselves – that is, without the involvement of aid agencies. While families reported that humanitarian agencies provided some firewood for cooking needs, they stated that it was never enough to cook their meals and so they had to buy or secure their own cooking fuel. In the case of electricity, the situation was even more extreme. A few families received a solar lantern or torch when they arrived in the camps, but a single lantern did not nearly meet the electricity needs of households. As a result, all the refugee interviewees I spoke to reported having bought their own electricity products or services from refugee suppliers.

I found that energy enterprises were the main suppliers of energy for homes and businesses. Markets were interwoven in the physical and virtual spaces of the camps, and there was a vibrant energy economy underpinning refugee life in both Kenya and Rwanda. The purpose of energy differed between businesses that used energy to enhance their space, such as tailors and hairdressers, and those that used energy as their business. The overarching story of energy economies in providing access to energy in refugee camps was intricate, involving multiple parties, businesses, cash and trade exchanges, as well as various technologies, business models and connections. Energy for enterprises was generally supplied by refugee entrepreneurs themselves, and energy clearly played an essential role within the functioning of refugee economies (Rosenberg-Jansen, 2019).

Meanwhile, energy access for community facilities (such as power for refugee meeting halls, lighting for public spaces, energy for schools and clinics) was found to be very limited. Physical access gaps were visible in community facilities, knowledge gaps were present between refugee and operational knowledge on energy, and institutional intermittency created gaps in responsibility for energy provision. Where energy access for community facilities was reported to be reliable and useful, this was often due to NGOs and local actors taking control of energy resources rather than due to considered provision by agencies. This suggested patterns of incomplete control within institutions, where agencies were in theory responsible for energy access, but had limited ownership or demonstrated partial leadership. Finally, energy access was also important for operational users, for the offices and compounds of humanitarian agencies and their implementing partners. High levels of electricity access were needed and supply was almost always provided by diesel generators. Energy for operational uses was always provided, even if in some cases generators were broken or not in use. There was limited knowledge about how energy was supplied within humanitarian organisations, and in some cases even the energy experts within operations were unable to answer basic questions such as 'what do you use energy for?' and 'how much do you pay for energy?'

In terms of who was providing access to energy, this depended on the end-user. Energy provision for refugee households and enterprises can be characterised as an independent form of self-provision: refugees often access, pay for, and secure energy technologies and services with limited or no support from humanitarian agencies. I found very little substantial provision for refugees by humanitarian agencies, although there were some examples of programmes offering limited amounts of firewood for cooking and solar street lighting for public spaces. In chapter six, I characterised agency provision of energy for refugee communities as inadequate, irrelevant, intermittent, accidental and in some cases disruptive, which suggests a fairly negative picture of aid agencies. Overall, it is possible to suggest that, although some agency support for firewood and cooking resources was provided, support for electricity in homes and businesses was almost non-existent. Similarly, for community facilities, often no-one seemed to be taking responsibility for energy provision. Operational energy access to some extent was provided by humanitarian agencies, but knowledge about these assets was limited.

The issue of institutional intermittency hung over the provision of energy in refugee camps. Often humanitarian agencies and implementing partners provided a short-term solution, but they were sporadic in their engagement and knowledge. This intermittency led to an absence of ownership, both for providing the energy needed and for understanding the importance of energy in the daily lives of refugees and humanitarian workers. Within this context, the humanitarian politics of life (Fassin, 2007)

becomes a politics of provision. Although my work does not explicitly focus on food, John Bohstedt's work on food provision (2013) is relevant here, as the politics of provision of energy access still contains many elements of physical struggle and political contestation, and represents collective and individual actions to access resources which are not being supplied by the governing political body – in this case, humanitarian agencies and their partners. Political choices are being made about the types of energy that should be provided for refugees (for example, limited cooking facilities, not electricity; only some households, not refugee enterprises). This demonstrates a selective approach to energy provision, which prioritises some types of needs over others. This decision-making is encased within the black-box of humanitarian action (Brabant, 1999). While my research was not able to delve deeply into the mechanisms behind these choices, the impacts were clear: humanitarian agencies do not currently meet the energy needs of refugees in camps in Kenya and Rwanda. I found a harsh narrative on who was involved in the development of refugee energy programmes: many humanitarians were not willing to engage refugees in the design or development of programmes, and only considered refugees as beneficiaries. The self-provision of energy by refugee communities brings to light that energy access is always political: there is a selective element to who deserves energy and how much energy certain communities are allowed. These choices were often made by humanitarian organisations and have considerable consequences for the long-term quality of life for refugees.

The second part of this question concerns governance of energy in refugee settings, which has a number of components. Chapter two provided an overview of the types of institutions acting globally and locally within the camps, whereas chapter six presented empirical material on how institutions can be said to govern energy by providing energy access. Governance of energy in the camps largely appeared to be sporadic or ad-hoc, with many different agencies and organisations playing different roles in different spaces. While I spoke to many NGOs and development actors who were keen to become more involved in the provision of energy services, they felt only UNHCR and other humanitarian organisations had the authority to authorise and coordinate such work. The reality of energy provision in humanitarian settings, however, is that UN agencies do not seem to have the capacity to take on such provision, or even to coordinate energy interventions. These gaps seemed to result in a disconnection, with able communities and partners feeling that they cannot take action, and UN agencies unable to provide energy due to resourcing and system constraints. When humanitarian action on energy did take place it often seemed to be implemented with limited planning or engagement with communities. Institutional darkness, in this way, can be seen to be creating literal darkness: a lack of knowledge and capacity within institutions has meant refugees with limited access to electricity.

Energy often appeared at the end of a long list of other needs in the humanitarian system, needs that were viewed as more essential. Agencies were overwhelmed and under-resourced, and NGOs and implementing partners often did not have the remit to provide solutions. Importantly, humanitarian institutions were not set up to manage or implement energy within camps. This opens up a set of challenging issues on who then should be responsible for the provision of energy, and how energy can be provided within a system that has other priorities. Compared to refugees' own knowledge of and engagement with energy (as presented in chapters four and five), humanitarian organisations demonstrated limited responsibility for energy in camps in Rwanda and Kenya. The recognition that many refugees secure energy through self-provision enables us to critically question how energy is provided within camps. We can also question who knows about energy, who makes decisions on energy, who is able to access energy, and who decides on energy projects or the types of technologies and services that will be made available. Ideas on how to answer these questions are outlined in the section at the end of this chapter on the political nature of refugee energy.

In summary, although both self-provision and (to a lesser extent) humanitarian delivery mechanisms enable access to energy in refugee camps, humanitarian governance and implementation are still insubstantial in meeting energy needs. The context surrounding these findings is changing and the humanitarian energy sector is evolving rapidly, with global initiatives and innovating programming emerging (UNHCR, 2019a; UNITAR, 2019). However, these changes have been slow to be realised at the local and camp levels. There is an incongruity at the heart of humanitarian energy: energy for humanitarians is not the same as energy for refugees. Neither views and values, nor provision of services, are equal. A number of constraints within the humanitarian system contribute to this, such as the way funding flows from donors, the restrictions in the remits and resources of agencies, a lack of technical expertise and knowledge within institutions, and the focus on short-term projects and providing limited interventions. Such constraints mean that the humanitarian system is seemingly at odds with the provision of energy in refugee settings. Despite good intentions from many individuals involved, and newly emerging programmes to provide sustainable energy solutions in camps, few successful initiatives have yet emerged. Systematic failures within the humanitarian system have led to a failure of provision of energy for refugees, especially compared to the supply of energy for humanitarian operations. In conclusion, energy provision by humanitarian agencies can be said to be intermittent, whereas self-provision of energy by refugee communities is considerable.

Areas for Future Research

There are a significant number of areas of further research, which could build on the analysis produced by my research. A couple of notable areas for exploration are outlined below, although as the humanitarian energy sector is still emerging, considerable academic work is needed on a whole range of topics. Overwhelmingly, there is much more to be done on researching the social life of energy in refugee camps. Using qualitative and lived experience methods would enable a new set of data to be produced on this topic and evidence some of the arguments outlined in my thesis further. For example, research on humanitarian systems of energy provision in refugee camps could be conducted by undertaking a critical analysis of narratives in humanitarian energy and an investigation into who is making decisions on energy and how. The examples and qualitative findings of this study may be relevant to other sub-Saharan African countries, and are likely to be applicable in the Middle East and South Asia. However, further research would be needed to establish whether this is the case. Future research could adapt the methodology I have used to other contexts to understand the range of nationally and locally specific energy needs in other spaces of displacement, such as working with self-settled communities, urban refugees, or internally displaced people.

Additionally, there is more work to be done to detail cultures of refugee energy enterprise. The cultures of service-based entrepreneurship are not widely recognised within academic or policy circles. This research did not set out to specifically analyse the dynamics of energy use in enterprises, but fieldwork immediately revealed that this was a core area of energy use in camp settings. Further research is needed to fully understand cultures of energy enterprise in different displacement and refugee settings, and chapter five only provides an initial sketch of the types of evidence it may be possible to collect on this topic. The role of energy as a mechanism for developing a tertiary economy, one which is focused on serving customers rather than producing physical goods, has so far received little attention. Energy provision in refugee camps could be analysed as a service economy (for example, by building on the work of Buera and Kaboski, 2012). Future analysis addressing this issue could critically examine the role that energy plays within refugee economies, rather than seeking a quick technological fix or focusing on new 'innovative' ideas such as refugee enterprise zones (Crawley, 2017). Linked to this, a key area for new primary research and academic analysis could be to understand energy-cash dynamics further: seeking to analyse the role that cash from humanitarian sources, livelihoods and informal businesses has within energy exchanges in refugee settings.

Finally, further analysis should also evaluate the role of humanitarian energy projects and programmes in providing access to energy and services. Currently, very little research has been

conducted to evaluate new and ongoing energy projects. Refugee participation and inclusion in humanitarian programming must be considered in more detail, and evidence is needed to understand the participation of refugees in humanitarian energy programming and the impacts of refugee voices speaking into darkness. Are refugee needs being listened to? Where is decision-making happening and how? And who is involved in making these choices? My research was able to suggest some answers to these questions, but further work would be needed to empirically analyse humanitarian systems in a range of displacement contexts.

The Politics of Living: Energy and Humanitarianism

The Political Nature of Refugee Energy

Energy is often portrayed as a non-political, technical subject focused on technologies that only require correct installation, optimised systems, regular maintenance and good financial management to be effective. Within refugee camps this is far from the case. Who is provided with energy, the amount and type of energy supplied, and whose values on energy are represented within humanitarian system, are political choices. It seems that only some voices are important in these discussions. Value judgements and biases within humanitarian energy programmes play into the politics of living, which surrounds refugee life. There is a politics of energy in refugee camps: power produces power. But so too does having the right knowledge. Forms of inequality raise questions about who is allowed to speak about energy, benefit from energy access, and be involved with the provision of energy. There is also a politics involved in the wider decisions involved in the provision of energy. Which populations and camps are supported by humanitarian agencies? And how does energy access differ across refugee spaces?

There are different dimensions to the politics of living in refugee camps. Chapter four demonstrated there is a politics involved in levels of access, focusing on *what* technologies and resources are available for households. Chapter five, on the other hand, revealed *where* access is important, with enterprises supplying their own energy just as humanitarian organisations neglected these spaces. Finally, chapter six started to illuminate *who* is important in the politics of living. Provision of energy for humanitarian services seems to be seen as critical, whereas households and enterprises are not. The sections below consider the implications of the humanitarian politics of living for energy access, including how energy and living standards are connected in refugee camps, as well as discussing the politics of provision and how the humanitarian supply of energy is shaped by political decisions.

The Politics of Energy Access and Quality of Life

Within refugee camps, some communities have more access to energy than others. Richer households use more energy than poorer ones, enterprises use more energy than homes, and overall operational spaces use more energy than households. While initially this may seem to be a neutral function of demand (some users need more energy than others), once we start to examine the problem in more detail it is possible to see that levels of access are determined by *ability* to access energy rather than the demand of the end-user. For example, on average households can access and afford less energy, so they use less of it (proportionally) than enterprises or operations. Yet this does not mean that they need or want less energy. Restrictions in use are created by limited (or expensive) supply of energy products and services in refugee camps. These limitations are both economic (determined by people's income levels and ability to afford energy) and political (as neither humanitarian nor national government structures support refugee access to energy). To some extent in the camps in Rwanda and Kenya, the economic barrier to accessing energy was addressed by refugee enterprises, who were supplying services that at least some refugees could afford. However, political barriers to energy remain.

As suggested by the discussion in chapter four on the UNHCR energy strategy, the level of energy available for refugees has been pre-determined by political decisions (as 200 Wh per household per day). In this way, levels of energy access reveal the politics of life. This amount of energy has been determined to be enough to meet household needs. However, as chapters four and five clearly show, this is not enough. Refugee communities continue to pay for additional resources. Moreover, for users of community facilities (such as WASH stations, playgrounds, and public spaces), a lack of ability to access energy resulted in very few examples of working or reliable electricity in community spaces in the camps – and this created literal darkness and absence of energy use in these spaces. For humanitarian users a lack of access meant having to use energy resources elsewhere (in their homes or regional offices). These different users of energy are viewed and valued differently. Energy for refugees was important because it improved their quality of living – and they know what it is like to live without. For humanitarians, however, energy is not valued because they do not have to live without it for very long, and as a result cannot see the direct link between energy and living standards.

In this thesis I have argued that one of the key factors influencing quality of life is access to energy, especially access to electricity. For refugee users, a lack of access has resulted in a lower quality of life. Energy is needed for many social and cultural functions in the camps. Without it, refugees could not practise social norms such as inviting family members over to their home in the evening, having leisure

time at night, or keeping their business open past sunset. Similarly, many refugees were unable to use public spaces or community facilities at night due to a lack of electricity. Quality of life was impacted by a lack of energy access.

This lack of access is political, as refugees were constrained in terms of which activities they could undertake to secure the level of energy required to improve their quality of life. This issue is not just economic, as regardless of the level of income only a certain set of energy activities are possible. Informal energy activities can and do happen, but formal long-term provision of electricity is not developed by humanitarian agencies or national host country governments. This is proved by the fact that it is not possible for refugees in either Rwanda or Kenya to currently connect to the national grid. In some cases, this is because a political decision has been made that the national grid does not reach the camp (as is the case in Kakuma, Gihembe, and Nyabiheke). In others it is because a political decision was taken that refugee households and businesses are not allowed to connect to the grid, even when the camp is connected (the case for Kigeme and Mahama). Formal access to electricity (through connection to the national grid or by provision of a mini-grid) was discussed with a number of humanitarians who suggested a variety of explanations, but the underlying reason is essentially the same: it has been decided that refugees do not need or deserve the same level of energy access as host communities or humanitarians. Formal grid-level access to energy is not currently possible for refugees.

While my research provided many examples of refugee businesses supplying energy services and products, all these activities were informal and not supported by the formal processes of humanitarianism or national governments. Similarly, formal national government policies on the right to work and move freely impacted on refugees' ability to change their living situation and access to energy. Previous policies of encampment in both Rwanda and Kenya have restricted refugee economies (although this is changing), and by extension have also restricted the ability of energy suppliers (both small and large) to formally provide energy access. Therefore, we can see how refugee energy access is constrained by both national policy and the political system of humanitarianism. This also limits refugees' quality of life.

These decisions on types of access are political because grid-level access would enable refugees to access energy in a similar way to host communities, suggesting that refugees have similar political or civil rights to national citizens. Fassin (2007) suggests that humanitarian provision of aid separates human rights (for humanitarian subjects like refugees) from civil rights (for national and international citizens). This political separation is present for energy in camps. The provision of basic firewood and

some lanterns meets the notion of energy as a basic human right, but refugees are not allowed to formally access higher levels of power as this may provide a form of civil rights and raise expectations about living standards. Quality of life is limited by access to resources, and energy is just one example. Indeed, similar cases could be made for access to education, health services, or shelter. However, national governments are more likely to relegate energy for refugees to the sphere of emergency aid, and in so doing they enable humanitarian systems to constrain refugee life. In this way, humanitarianism "enacts a politics of living and shapes life experience over time and across space" (Feldman, 2012, p165). For energy this is largely about access to resources, which institutions can (or cannot) provide. There is considerably more work to be done on the "the bureaucratic categories that give differential access to services, the material artifacts of assistance that shape daily life" (Feldman, 2012, p165). However, the political choice that refugees have limited access to higher levels of energy, and that access will need to be informal, has been made.

The Politics of Provision and Energy Inequalities

As well as political decisions on how refugees are allowed to access higher levels of energy, choices have also been made about the ways in which the humanitarian system provides energy for refugees. Indeed, the politics of energy provision has three core dimensions. Firstly, there are the choices made within humanitarian systems, which demonstrate elements of institutional darkness on the issue of energy provision. Secondly, there is the inequality in provision that these systems produce and create. And, finally, there are the impacts of these systems and inequalities in terms of the power of power.

A. Humanitarian Systems and Institutional Darkness

In the case of energy, it appears that humanitarian systems are not institutionally able to provide dedicated resources to deliver energy access in a meaningful way to refugee populations. The humanitarian energy sector seems to be creating top-down, imposed processes where the needs and wants of refugees are decided by international organisations rather than direct users. This is not primarily a normative criticism, but rather a practical one. Is it working? Are refugees being supported by the humanitarian system to access electricity? Much of the evidence presented in this thesis points towards the answer no. Refugees are to some extent improving their own access to energy, but this is largely done though their own financing and decisions rather than through an institutional aid system designed to protect them. Here, a politics of self-reliance is visible, which centres on the idea that humanitarian systems are not providing energy access for refugee communities, who are instead independently accessing energy. This is an intensely political issue, as it challenges the accepted orthodoxy that humanitarians must be the ones to provide aid, and that communities are largely

reliant on them. Humanitarianism is based on the idea that well-meaning aid workers can support the lives of more vulnerable populations; however, if refugees are self-reliant on energy (and perhaps many other things) then this starts to call into question the role of humanitarian actors entirely. Ilana Feldman's work on the politics of living is particularly salient here as she considers the "dynamics of being (surviving claiming, acting)" within areas of humanitarian intervention (Feldman, 2012, p157):

> "Each decision about how to live (in displacement, in community) is an articulation of the value of certain ways of living, and often the devaluation of others. Such contestations clearly occur not simply as considered judgements about strategy or identity but also as responses to institutional, material, and discursive opportunities and constraints" (Feldman, 2012, p169).

Humanitarian interventions have a considerable impact in refugee camps. In the case of energy access, they often result in highly restricted access to resources. For example, in Rwanda an energy programme was designed to roll-out biofuel pellets and clean cookstoves, but the programme was abandoned due to rising costs and left many people without support for cooking (Patel and Gross, 2019). Feldman argues that under systems of humanitarianism we need to understand how "the humanitarian apparatus — the mechanisms of an aid regime… influence life possibilities, the bureaucratic categories that give differential access to services, the material artifacts of assistance that shape daily life" (Feldman, 2012, p169). In the case of energy there are very limited energy resources available for refugees at the moment of displacement and often no further support provided once the situation becomes protracted. There are many possible reasons why energy is neglected within humanitarian systems, including a lack of awareness of the issue, operational failings, budget limitations, structural and procurement challenges, and a lack of capacity. However, a culture of inaction has been created, whereby energy needs are not recognised *or* identified as a problem for humanitarians to fix.

Importantly, institutional ignorance and darkness are driving such inaction. Within humanitarian organisations there is a repeated lack of knowledge by humanitarian staff about energy. Both institutional constraints and the perceived restricted remits of organisations to address energy in certain ways contribute to this darkness. However, a more serious problem is organisational unwillingness to engage with the topic of energy. Despite recent global commitments to provide sustainable energy (UNHCR, 2019a; UNITAR, 2019), humanitarian organisations have not invested in technical or staff capacity. Very few considered energy interventions have been developed, and action on energy has been overwhelmingly ad-hoc and intermittent. There is politics involved in this institutional darkness, because energy is not prioritised compared to other humanitarian issues. It is

often not viewed as a basic need and is seen as a second-order priority (Rosenberg-Jansen, 2018b). We can now ask ourselves, what are the impacts of limited institutional action?

B. Inequality in Provision

Inequality in energy provision is one of the consequences of humanitarian inaction and institutional ignorance. Some refugee communities in the camps in Kenya and Rwanda have more access to energy than others, with certain households receiving free solar products and others not. Inequalities also exist between camps within countries. For example, more energy programmes have taken place in Kigeme camp than Gihembe and Nyabijeke, and many more programmes have happened in Kakuma than in Dadaab. While it is sometimes claimed by agencies that these choices are based on the needs of beneficiaries or logistical challenges, often this does not seem to be the case and energy projects address needs in an intermittent way. This thinking builds on that of Didier Fassin and the concept of the politics of life, under which humanitarianism assigns different values to some lives over others (Fassin, 2009, 2007). In the case of energy, these values are often demonstrated through material support. In short, some communities receive energy products while others do not.

Within refugee settings, this means that there is horizontal politics of aid, in the sense that "humanitarian agencies create inequalities within a recipient population" generating "winners and losers by deciding whom to assist" (Scott-Smith, 2019, p516). In my research this was quite visible in terms of the beneficiaries who were able to access additional material support or sometimes cash resources due to their status – for example, single-female headed households with young children, who were often identified by energy programmes as highly vulnerable. The politics of energy is problematic within these contexts because some refugees have more access to energy than others, even within the same camps. Within countries this pattern is also present: as an example, refugees in Kigeme and Mahama seem to have higher levels of energy access than those in Gihembe and Nyabiheke camps in Rwanda. As Scott-Smith has suggested, such inequality in access does not sit easily alongside basic humanitarian principles:

> "The horizontal politics of life, which is about inequality between recipient groups, is particularly fraught for humanitarians. Hierarchies up and down the aid chain can be justified on grounds of efficiency or bracketed off as a structural feature of global politics that aid agencies cannot resolve, but inequity between recipient groups, in contract, violates the most basic humanitarian principle of all: impartiality" (Scott-Smith, 2019, p517).

While sometimes political choices are made on the basis of needs, for example, energy support for single-female headed households and the elderly, often decisions about beneficiaries seem to be

biased and not applying the principle of impartiality. Nowhere is a horizontal politics of life for energy more starkly visible than in the different levels of energy access present between different relief responses. For example, Zaatari and Azraq camps in Jordan have almost European levels of power, and have received hundreds of millions of dollars of investment in electricity services from international development donors and the private sector (UNHCR, 2017b). In contrast, as my research has shown, many people in the camps in Kenya and Rwanda receive minimal assistance to access electricity and are forced to independently secure energy. Does this suggest the humanitarian system values the quality of life of Syrian refugees in Jordan more highly than Congolese and Sudanese lives in Rwanda and Kenya? The structural racism of humanitarianism has often been criticised for valuing white lives over brown, black, and African ones (Benton, 2016; Turner, 2019). There is clearly inequality present on energy access that has a geographical bias, and the "functional ignorance" of humanitarianism is visible (Duffield, 1996, p173). As Duffield et al. suggest, "humanitarian assistance has always been a highly political activity, but the relationship between humanitarian aid and politics is changing" (2001, p269). There is a drive for coherence to align humanitarian action with cohesive political strategy and international development aims, often driven by national governments or donors, “by subordinating humanitarian objectives to political and strategic ones, some victims are seen as more deserving than others, and impartiality is forgone (Duffield et al., 2001, p273). In the case of energy, examining the horizontal politics of life suggests that some refugee communities are seen as deserving more energy than others, and that as a result the humanitarian provision of energy differs across field locations and operational responses.

Inequality in access to energy also has a vertical dimension. Vertical inequality, focusing on “the differential in value between the lives of recipients and aid workers” (Scott-Smith, 2019, p516), is visible in the different energy access levels for refugee communities and humanitarian operational users. In short, my research found that humanitarians had considerably more access to energy than refugees. While one could argue that these differences were the result of global structural inequalities, the lived realities of such inequality were extremely visible within the camps. Those with access to higher levels of power, particularly the humanitarian staff living in or near to the camps, had a higher quality of life than those without.

The politics of energy provision, in this way, has a number of aspects. Primarily, the supply of energy products and services is not impartial, but selective. Such selectiveness challenges humanitarian principles such as neutrality and impartiality. Why would some communities require more access to energy, or be perceived as having higher levels of need? Why would some communities receive more support than others? Is it individuals or institutions making such decisions? How do such inequalities

develop? And what systems are supporting selective choices? What is clear from this research is that some refugee communities receive higher levels of support than others, some institutions have a more comprehensive approach to energy than others, and energy responses between humanitarian operations differ.

These findings challenge the nature of humanitarian action on energy in refugee camps. If whole groups of users have been excluded or unintentionally omitted, what does this say about the role of humanitarian organisations in the provision of energy? It could suggest that, in future, agencies may have less to do with the energy provision in refugee camps, or that radical humanitarian reform is needed to re-shape energy responses for refugees. The 'protect and provide' mentality of many humanitarian organisations often ignores independent action by communities, such as the self-provision of energy. Entrepreneurial independence, and the self-provision of energy access by communities, can challenge this mentality and enable us to ask whether the motto of humanitarian agencies should be 'supply and serve' instead. A new humanitarianism, which places refugees truly at the heart of response, could use bottom-up and market-based approaches to change the way that resources are provided in and to refugee communities. In the case of energy this should reflect the existing energy supply and exchange dynamics within camps. These political dimensions have a number of severe impacts on life in refugee camps: progress is stalling, communities are stagnating for decades without access to resources or support, and whole generations are wasting away waiting for a better life to come along.

C. The Power of Power

Chief among the problems of humanitarian energy is the gap between the needs, desires and values of people living in the camps, and the humanitarian systems that are there to support them. Having power, control of resources, and access to energy in these spaces is not equitable. There are divides of perception and divides of value when it comes to energy; there are also differences in knowledge and participation, misinformation about ownership and responsibility, and unequal power relations between community members and staff. Certain value judgements are embedded within humanitarian response. In the case of energy, those values are constructed around how much energy refugees 'deserve' and how it should be provided for them. This is political because it relates to the way that power is achieved and used within a society, how resources are shared.

The power of power has two dimensions. First, there is the physical dimension of power, which largely appears in the way that refugee communities secure and pay for the majority of their own energy access. Overwhelmingly, I found that the energy life of refugee businesses was characterised by

seriousness and independence, with many refugees willing to talk for hours about the energy uses in their homes and business, describing how they secured electricity themselves. In unpicking these power dynamics, we can understand the different roles of participants. Humanitarians are not undertaking the majority of activities on energy access and, as a result, they are not making decisions for or within this community and are not intimately involved in the governance of energy for refugee businesses. This seems to imply that refugee communities hold a significant amount of political power within the humanitarian system, as they are supplying their own energy and humanitarian agencies seem to have little to do with it. However, this could not be further from the truth. In fact, it is humanitarian organisations who wield the vast majority of political power, demonstrating a disconnect between actual power (in this case physical access to electricity) and political power (the perceived remit of humanitarian agencies to provide energy access).

Second, there is the issue of who has institutional and political power and who does not. Refugees repeatedly demonstrated considerable knowledge about energy and valued it as a way of improving quality of life, yet many global practitioners did not recognise either the existence or value of energy in these spaces. Unfortunately, it is the humanitarian practitioners whose views and values on energy matter in institutional decisions about levels of access to services: the voices of refugees are not considered to be valuable in determining energy needs. In many cases, refugees are not even able to participate within decision-making or access the global systems which support energy access. The value judgements that matter in terms of the humanitarian provision of energy are therefore almost exclusively those of humanitarians rather than refugees. Repeated biases within humanitarian programmes about the types of energy that could be provided were present in the interviews conducted for this research, and there was very little space for refugees to express their energy needs or desires as part of programming. In this context, refugees were not able to inform programming design on energy, or become directly involved with the provision of energy. Despite already undertaking many energy activities and demonstrating considerable knowledge on energy products and services, this knowledge seemed to be irrelevant to the humanitarian system. This is important because certain forms of knowledge lead to certain decisions being made about how much energy should be provided. If perceptions on energy are not accurate or do not reflect the lived reality of energy, then decisions are not likely to be the right ones for refugee communities.

In this way institutional power is limiting physical access to power, which opens up questions of whose voices and perceptions matter in refugee contexts. I argue that in refugee camps institutional action on energy is restricting energy activities in the camps to the realm of the informal. The impact of formal political structures on energy governance is limited, but also restrictive. Refugees can only

access energy informally, often through private means, and do so without the knowledge or permission of humanitarian systems. This regulates refugee-led action on energy and excludes it from formal political and humanitarian engagement channels. It should be noted that these findings are slightly more relevant for electricity than for cooking (as humanitarian organisations do provide some firewood and fuel access within the camps); however, in general all energy access is limited by the political and institutional structures surrounding camp life. As we can see, power and energy access is part of a political calculation, and understanding this can help us to understand the political economy of energy communities (Brown and Cloke, 2017).

Living versus Surviving: Energy and Living Standards

Energy runs through every aspect of our lives and can be framed as a basic human right, similar to access to water, shelter, food and protection (UNITAR, 2019). However, within current humanitarian systems, this is not commonly the view. Is energy really essential in humanitarian settings? It can easily be argued that some elements of energy access are indispensable for survival and basic needs: fuel to cook with, energy to pump water, electricity for health centres, fuel for trucks to transport people and shelters, power to enable humanitarian offices and registration centres to function. Other aspects of energy access are still vital for camp life, but do not usually result in a direct risk to life without them: energy for schools, public lighting, and basic electricity for households, for example, are needed for subsistence levels of living. A further category of energy access could be considered aspirational: higher levels of power for homes, businesses, and community spaces within the camps. To be clear, these are not my opinions or classifications: I would categorise all such energy needs as essential in refugee camps (just as they are essential in my own life). However, during data collection for this research it became clear than a division of energy needs was central to the views held by most humanitarian actors.

The differences in these levels of access may be the difference between surviving and living. Basic energy provision is about survival: ensuring power at health clinics so that people do not die from lack of treatment, or providing firewood to cook on so that refugees do not starve. Subsistence levels enable life just above survival: it is about making ends meet and having just beyond the essentials, such as energy to light your home, power for basic appliances, the ability to see in the street or to study at night, and the presence of heating or cooling in schools. Prosperous levels of energy enable productive lives of refugees, as well as energy for economic and cultural growth and a high energy future for refugee homes and businesses. As many interviewees in chapter four highlighted, higher

levels of energy access suggest the promise of a better life. Indeed, as one of the interviewees stated: "when we talk about energy, we talk about life" (Interviewee 91, May 2018, Mahama Rwanda).

However, the position of humanitarian agencies seems to be that they only will provide enough energy for survival, not for life beyond that. The 200 Wh a day figure acts as a signifier of this dimension: enough to survive, but not to thrive. Within the camps in Rwanda and Kenya, many refugee families face subsistence levels of energy access. Humanitarian organisations provide the very basics needed for survival, and families are reliant on their own resources to supplement energy needed beyond this. When it comes to energy for refugees a politics of subsistence is emerging, where humanitarian agencies provide limited energy resources and individuals are responsible for the rest. Perhaps this is the true nature of the self-reliance agenda that we see emerging within UNHCR and other agencies (UNHCR, 2005), as it means that agencies will only be responsible for so much, and refugees must be reliant on themselves for the rest. This politics of subsistence may well be about persisting, enduring, and the continuing drive of refugee communities to slowly develop independent resources in long-term protracted situations. Subsistence-level existence is often all that is possible for those who remain in camps for many years, always struggling to access the level of energy they need for their quality of life to be bearable. A subtle politics of life therefore operates in the humanitarian energy sphere. It is clear that humanitarian organisations are "apportioning sympathy according to social markers and offering different levels of assistance" to communities (Scott-Smith, 2019, p516). In evaluating the differences between the energy services provided in countries such as Jordan, for example, with energy access levels in camps in Rwanda and Kenya, it is clear political choices on who deserves more are being made.

Conclusion: Voices in the Dark

Some views and values on energy matter more in refugee settings than others, and organisational modes of governance and the role of institutions are critical in determining energy access. The governance of humanitarian energy programming is political, and power (in both senses) has a real impact in refugee settings. The title of this thesis, 'Voices in the Dark,' lends itself to several meanings. First the more literal: many refugees living within the camps struggle without lighting or power in the night, and they have their lives limited by the darkness this brings. Refugees therefore have to slowly improve their own quality of life by securing access to energy themselves. Their voices and opinions are vitally important within their communities, and individual action by families and businesses is the key determinant as to whether refugees live in darkness or not.

Secondly, in the figurative sense, institutions and global policy-makers often have limited knowledge and experience of energy within the camps. For them, darkness comes in the form of not seeing the realities of energy. Political choices about energy are unrecognised and value judgements are made perhaps unconsciously or unintentionally by humanitarian systems. This too is a form of darkness, created by the often-impenetrable maze of humanitarian action. Institutional darkness often creates literal darkness, restricting the ability of refugees to act formally within the humanitarian system. Refugees are not supported by formal political mechanisms within aid agencies or national governments.

Refugee voices, meanwhile, speak into darkness, which is demonstrated through a lack of knowledge on the part of humanitarians about how refugees use electricity, why it matters to them, and how they came to access it. Refugee voices exist in isolation and, despite their knowledge and existing experience in supplying energy, they are not involved in humanitarian responses on energy except simplistically as beneficiaries. The role of refugee families in organising their own energy is rarely acknowledged, and refugee enterprises are not considered as part of the system providing energy in camps. The contribution of refugees therefore sits in darkness, unacknowledged and undervalued by the humanitarian system. The importance of refugee actions is invisible to humanitarian providers and the success of their endeavours dissipates into the darkness and impenetrability of the humanitarian system.

One could argue about which of these forms of darkness matters more: people being without energy, or humanitarian interventions that are not informed by the needs of refugees. However, it is likely they are two aspects of the same problem. Humanitarian systems and actors are not yet equipped to hear, or meet, the energy needs of refugees; policy-makers and practitioners have limited experience and knowledge on energy, and do not have systems which can support them to deliver. Households are not involved in these systems, or the design of energy programmes, which leaves refugees in the dark or in a position where they have to find their own solutions. When refugee households and businesses do have access to energy, it is often because they have been able to secure and pay for it themselves. Darkness in a refugee energy context has a political dimension: value judgements are embedded within the humanitarian system that creates and prolongs a lack of access to power.

Throughout this thesis, I have made many claims about the importance of energy, including suggesting that electricity access is inherently linked to quality of life. In refugee camps, energy and the politics of living are as interwoven as a complex tapestry, which is framed by both humanitarianism and the lived experiences of refugees. I believe that, without considerably more access to energy than is

currently available in refugee camps, many improvements in standards of living will not be possible. As a result, refugee communities will continue to struggle with the physical and emotional demands created by a life without access to electricity and energy appliances. I hope the material presented throughout this thesis provides a compelling argument as to why this might the case, as well as underlining the importance of energy in all our lives.

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