



HEED

Humanitarian Engineering and Energy for
Displacement

Energy For Displacement

'Understanding the Challenges'

HEED Briefing Paper No.1



Kigeme Refugee Camp, Rwanda

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Cover Photo

"Living in the Shadow" Kigeme, Rwanda by Jelte Harnmeijer

About HEED

The Humanitarian Engineering and Energy for Displacement (HEED) project is an innovative response to growing recognition of the need to improve access to energy, particularly from renewable sources, for populations displaced by conflict and natural disasters. The focus of HEED is on the lived experiences of Congolese refugees living for protracted periods of time in three refugee camps in Rwanda (Nyabiheke, Gihembe and Kigeme) and internally displaced persons (IDPs) forced to leave their homes as a result of the 2015 earthquake in Nepal. These two countries provide very different environmental, policy and social contexts within which to research energy uses, needs and aspirations. To achieve our aims the project draws upon social science and engineering expertise to better understand energy needs and identify solutions which produce socio-technical systems that encourage community resilience and capacity building.

For more information about the project visit <http://heed-refugee.coventry.ac.uk/>

The HEED Briefing Series

This paper forms part of the Humanitarian Engineering and Energy for Displacement ('HEED') Briefing Series. The Series will consist of three papers, which will integrate country case studies from Rwanda and Nepal. The papers will be released between mid-2018 and mid-2020. Their purpose is to:

- Communicate key findings from the HEED project to policy makers, service providers and other actors;
- Promote recommendations for improvements in policy and practice among a wide audience of stakeholders and influencers; and
- Contribute to the literature around humanitarian energy and displaced populations.

The Briefing Series has been produced with a wide audience in mind, spanning the fields of decentralised energy, off-grid renewables and issues of access to energy for refugees and displaced people. The intended audience includes academics, institutions, technology-focused SMEs, consultants and think tanks.

About the Partners

The HEED project is led by an interdisciplinary team based at Coventry University, in partnership with the international development charity, Practical Action, and Scene Connect, a social enterprise strengthening communities through the development of ICT products.

The Briefing Series is produced by Scene Connect, with support from the project partners and the project's Technical Advisory Board. Visit <http://heed-refugee.coventry.ac.uk/> for more information about the project partners.

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Foreword

Is Energy Different?

In this first issue of the HEED Briefing Series, we explore outstanding challenges facing energy provision for displaced populations. Experts from different backgrounds are in general agreement that energy provision is something of a newcomer to the standard ‘package’ of humanitarian assistance and service provision for displaced populations. Whereas services ranging from mental health, education, water, sanitation and many others are often integrated as a matter of course, and clusters of dedicated NGOs exist to provide these, the idea of providing dedicated energy services in this context is quite new. This is particularly true when looking at low-carbon energy solutions, such as biogas through anaerobic digestion and power through solar PV. Few academic or policy papers have been written, and little data exists.

As interviews and written contributions in this first HEED Briefing Paper make clear, however, there are strong indications that this is beginning to change, with a growing tide of bottom-up and top-down endeavours under way.

A gap in Energy Access and Decarbonisation agendas

As the UN Sustainable Energy 4 All ‘SE4All’ initiative and the ‘COP21’ Paris Climate Agreement signed in December 2015 amply illustrate, energy access and decarbonisation are now prominent policy objectives at international, national, regional and municipal levels. However, as recently pointed out by pioneering work done through the Moving Energy Initiative (‘MEI’) * – a collaborative undertaking that started in early 2015 – few sustainable energy or energy access initiatives explicitly consider refugees and displaced populations. As a recent MEI report put it, “Modern technologies and private-sector approaches offer the chance to improve lives and reduce costs, but the humanitarian sector is not yet taking advantage of the opportunities available.” (Corbyn & Vianello, 2018).

When considering energy access, one natural point of departure is to ask whether (and how) energy for displaced populations is fundamentally different from ‘off-grid energy’. To what extent can the former be treated as a subset of the latter? Which issues, if any, are particular to the refugee context and need to be understood if fit-for-purpose policy and appropriate technology is to be crafted and deployed? How does energy provision for refugees and other displaced populations interface with wider debates around ‘development’ on the one hand and ‘humanitarian assistance’ on the other? What are the policy implications of similarities and differences in energy and other humanitarian services? Are there lessons to be learnt?

Here, we compile responses from several experts spanning fields from engineering to policy. We invite your views on the matter, too, so get in touch (e-mail below) to contribute to the conversation. We will post responses to the editor on our project website.



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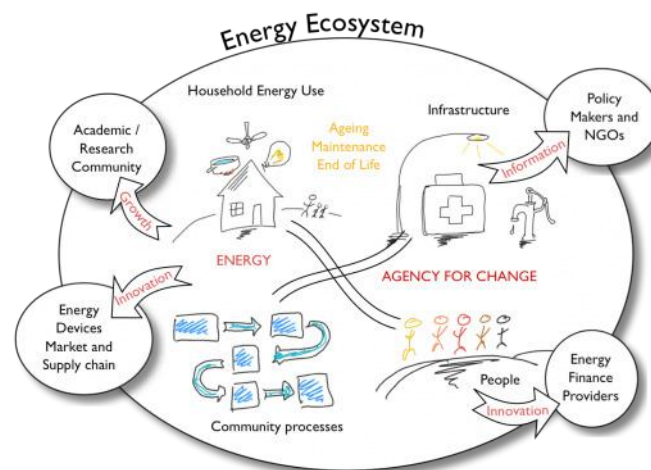
About the Humanitarian Engineering and Energy for Displacement (HEED) Project

Professor Heaven Crawley, Coventry University

Around the world more than a billion people lack access to electricity or other forms of energy for cooking, heating and lighting. For those displaced from their homes, access to energy can be particularly difficult. Since the introduction of the UNCHR global strategy on Safe Access to Fuels and Energy (SAFE) in 2014, humanitarian responses to refugees and internally displaced people (IDPs) have sought to improve access to safe and sustainable energy provision for these populations. Nonetheless there remain significant gaps in provision and a lack of evidence about the energy needs, uses and aspirations of refugees and IDPs especially those living in situations of protracted displacement lasting for more than five years.

What is HEED?

Funded by the UK Engineering and Physical Sciences Research Council (EPSRC), the Humanitarian Engineering and Energy for Displacement (HEED) project has been developed to improve information about the energy needs of displaced populations and to generate innovative socio-technical solutions which can inform existing – and future – policy and practice. The focus of HEED is on the experiences of Congolese refugees living for protracted periods of time in three refugee camps in Rwanda (Nyabiheke, Gihembe and Kigeme) and on IDPs forced to leave their homes as a result of the 2015 earthquake in Nepal. These two countries provide very different environmental, policy and social contexts within which to research energy uses, needs and aspirations. The project draws upon social science and engineering expertise to better understand energy needs and identify solutions which produce socio-technical systems that encourage community resilience and build capacity.



Our aims

HEED aims to better understand the energy needs of displaced people in order to increase access to safe, sustainable and affordable energy services by asking:

- How do refugees and IDPs use energy and what are their energy needs and aspirations?
- In what way do renewable energy systems have the potential to deliver improved energy services that meet displaced populations' energy needs for cooking, lighting and power?
- Can alternative energy models, using intelligent supply and demand systems, be imported to displacement contexts to improve energy efficiency, social cohesion and economic growth?

Our approach

The HEED project consists of several separate but overlapping stages.

During **Phase 1 (September 2017 – June 2018)** we have focused on establishing the evidence base through field visits to the research sites and meetings with displaced people, policy makers and service providers to better understand the interface between engineering and social policy interventions. An energy assessment survey of more than 1,000 households has also been undertaken using quantitative and qualitative research methods developed by our project partner Practical Action on energy use in contexts of forced displacement. The findings of this survey will be presented in Briefing Paper 2.

In **Phase 2 (June – December 2018)** we are undertaking a series of ‘Design for Displacement (D4D)’ and ‘Energy for End-Users’ (E4E) workshops. The D4D workshops bring together policy makers in both Rwanda and Nepal with social entrepreneurs, industry, academics, manufacturers, distributors, maintenance services in the off-grid energy and ICT sector, to develop energy designs informed by the quantitative and qualitative research data gathered from Phase 1 of the HEED project. In addition, end-users will be involved in the design process through twelve E4E workshops which will be conducted in four displacement settings (three in Rwanda and one in Nepal) with a number of key user groups including young people, women, social entrepreneurs, local business members and NGO representatives. Briefing Paper 2 will include a summary of what we learn.

Phase 3 (January – December 2019) involves the deployment of energy systems for cooking, lighting and power in both countries. The use of these energy systems will be monitored and evaluated over a 12-month period in order to better understand which innovations are most effective and have the potential to be scaled up and/or replicated elsewhere. Each energy system deployment will be monitored monthly by Practical Action research staff through face-to-face interviews. A summary of the conclusions drawn from these efforts to innovate for displacement will be presented in Briefing Paper 3.

More information about the HEED project, including the context of our work in Rwanda and Nepal, our theory of change, engagement events and outputs can be found online at <http://heed-refugee.coventry.ac.uk/survey/>

Energy for Displacement: Key Issues

Owen Grafham, Chatham House & Mattia Vianello, Practical Action

As an increasing number of actors and practitioners enter the ‘humanitarian energy’ space, this Briefing Paper allows us to reflect on what we know about the key similarities and differences between the provision of energy in humanitarian settings, and the provision of energy in ‘normal’ off-grid projects – with possible lessons for both.

Access to Energy among the Displaced

Although the data is limited, our broad estimates about the state of energy access among displaced people suggest that refugees and internally displaced persons (IDPs) have little access to electricity and clean cooking. Overall, we estimate that over 90% of those in refugee camps do not have access to electricity, and over 80% of displaced people around the world are cooking with the most basic cooking fuels such as wood and charcoal (Lahn and Grafham, 2015; Lehne et al., 2016). This deprivation has disastrous consequences, not least on health and safety. We estimate that around 20,000 people are dying prematurely each year due to indoor air pollution as a result of the air pollution generated through cooking on open fires (Lahn and Grafham, 2015), as well as suffering from a variety of other safety and health impacts. However, although these figures are stark, they don’t necessarily imply that displaced people are always worse-off than the host communities that live alongside them. The Sustainable Energy 4 All (SE4All)’s 2017 annual report shows that, around the world, there are some 3 billion people reliant on solid fuel for cooking and 1 billion without access to electricity (SE4All Global Tracking Framework, 2017).

On the ground, we have seen that the actual differences in energy access between refugees and the surrounding host communities can be relatively small. In Goudoubo refugee camp in the north-eastern Burkina Faso, we found that 99% of households rank either Tier 0 or Tier 1 (on the SE4All’s Tier 0 to 5 index) for cooking and lighting access (Corbyn and Vianello, 2018). But in the context of the wider energy access issues in the country this is unsurprising. Burkina Faso has one of the lowest energy access rates in the world: only 19% of the population has access to electricity, a figure that falls to 3% in rural areas (SE4All Global Tracking Framework, 2017). Only 7% of the population has access to clean cooking technologies (SE4All Global Tracking Framework, 2017).

For both the population of Goudoubo camp, and the surrounding host community villages, most cooking is done with biomass (primarily wood) on basic cookstoves or three-stone fires. Almost none have access to electricity (despite the fact that the town of Dori, 17km away from the camp, is connected to the national grid). Indeed, due to large-scale free distribution of solar lanterns, survey work done in the area suggests that those in the refugee camp can sometimes have greater access to lighting devices than those in the surrounding community (Corbyn and Vianello, 2018).

In many cases in Sub-Saharan Africa, refugees come from situations where the energy access level was similar or even lower than the one found in camps. It is therefore not inaccurate to say that the overall energy access problem for refugees often resembles the energy access problems suffered by the host community.



Photo: Solar street light in disrepair at Gihembe Refugee Camp, Rwanda (Photo: Jelte Harnmeijer).

Paying for Energy Services

Refugees' willingness and ability to pay is a key consideration for the uptake of energy solutions. A number of recent publications have contributed to increasing recognition that refugees are not as helpless and reliant on humanitarian assistance as they are all too commonly portrayed to be, not least in the international media (Betts et al., 2014; Lahn and Grafham, 2015; Betts et al., 2016). This carries profound implications for the provision of energy access services. Consider the case of the Goudoubo camp, where families receive food rations and monthly UNHCR cash transfers of US\$35. Here, supplemental income sources bring the estimated mean monthly household income to around US\$53 (Corbyn and Vianello, 2018).

Table 1 below compares the findings from two significant surveys of spending patterns in humanitarian settings undertaken by the Moving Energy Initiative. Our estimates from Goudoubo and Kakuma suggest that refugees are currently spending around 14–20% of their monthly expenditure on energy services and products, although other recent publications have suggested that refugees can end up spending around 50% of their income on fuel (Rivoal and Haselip 2017).

Goudoubo refugee camp, Burkina Faso	Kakuma refugee camp, Kenya
100% of households spend money every month	82% of households spend money every month.
The average monthly expenditure for households is \$76 (median)	The average monthly expenditure for households is \$42 (with very large variations)
Average monthly household energy expenditure is \$7.03, over 14% of median income.	Average monthly household energy expenditure is \$9.06, over 17% of median income.

Table 1: Spending patterns among refugees in two refugee camps (Source: Corbyn and Vianello (2018)).

Although there is a low level of economic activity in the camp, there is nonetheless a 'camp economy' which can be compared to informal economies in the non-humanitarian communities around the camp. Indeed, the economic activities between the camp and the host community are often distinctly intertwined. For example, some of the retailers within the camp market in Goudoubo are members of the host community, whilst some refugees living in the camp also sell goods around the local communities. All of this means that the income profiles of refugees and the host communities around them can often be similar. For example, the mean household income for refugee communities in Goudoubo camp, Burkina Faso, was CFA 36,263 (\$63) compared to CFA 45,944 (\$80) for host community households around the same camp¹.

However, these similarities should not disguise the fact that a number of key differences remain which are crucial for understanding how humanitarian energy projects can work successfully.

Mobility and Freedom to Work

One key area of difference for humanitarian energy projects is the extent to which refugees are allowed to work and to move freely around the country.

Most refugee camps impose limitations on refugees' ability to move outside camp settings. In some cases this is weakly enforced and, in practice, refugees have de-facto unrestricted movement. In most cases however, there are checkpoint, monitoring and permitting systems, with the degree of enforcement varying from country to country. These systems constrain refugee movement, by setting and enforcing conditions under which refugees are allowed to leave camps.

¹ Based on a 2015 survey of refugees and host community households, for the Moving Energy Initiative. Further details available on request.

Being unable to move outside of the confines of a camp greatly limits refugees' ability to acquire energy-access services, technologies and products that might otherwise be available. Whilst stories abound of refugees travelling from camps to cities to acquire energy products, these are the exception rather than the rule. In general, refugees are reliant on supply chains extending long distances beyond metropolitan areas into relatively remote parts of the country. This strongly affects the distribution and availability of quality products; transport fees incurred by providers; maintenance and warranty arrangements; after-sales servicing; and other important areas.

Perhaps even more fundamentally, refugees often lack the legal freedom to work, especially outside of the confines of 'camp economies'. Clearly, stringently curtailed employment opportunities pose a major barrier on refugees' ability to earn money, and consequently on their ability to purchase energy products and services.

The energy-access literature places great importance on 'productive-use' – i.e. how new energy sources can and are used for hitherto inaccessible productive purposes (Poor People's Energy Outlook, 2012; PRODUSE, 2011). Theoretically, lacking the freedom to work means that it should be difficult for refugees to use new supplies of energy productively, for example by setting up businesses which make use of improved electricity supply. But in practice we have found that the main barriers to refugees' establishing enterprises in humanitarian settings are not legal but financial – a finding backed up by studies in other countries not specifically focused on energy (Zetter and Ruaudel, 2016). In Goudoubo refugee camp, key enterprises include rearing livestock, leatherwork, food stalls, restaurants and retail shops. The camp also has a mechanic, a tailor and two blacksmiths, but these camp entrepreneurs are limited to using hand tools (Corbyn and Vianello, 2018).



Photo: Small scale solar panels at Nyabiheke refugee camp, Rwanda (Photo: Heaven Crawley).

Working with the Humanitarian Sector

Perhaps most importantly, working in humanitarian settings requires a complex set of interactions, permissions, and knowledge that can often be difficult to acquire.

Unlike most off-grid energy projects, humanitarian settings (and camps in particular) are normally perceived as closed bubbles, managed by UNHCR and other gate keepers, dominated by free distribution and for which data on needs, priorities and expenditure patterns are not accessible. Many energy-access organizations and businesses do not understand how to go about working in humanitarian settings and, given the lack of data and information, there is normally little incentive to move into these locations.

Most agencies working in humanitarian settings are also set up as short-term emergency relief organizations. Unlike water and food which act as an instant form of relief, energy applications often influence and lock-in consumption over many years and require regular maintenance (Lahn and Grafham, 2015). But the budgets of humanitarian agencies are normally short-term (most often one year) and are often unable to adapt to new solutions which might require greater capital investments. Overcoming these barriers and creating genuine change in humanitarian agencies will require a cleverly deployed mix of innovative financial solutions which structure incentives in a way that creates long-term sustainable energy solutions.



Photos: Charcoal and firewood fuel sources at Nyabiheke (left) and Kigeme (right) refugee camps, Rwanda (Photo: Jelte Harnmeijer / Heaven Crawley).

Towards Solutions

Experience to date suggests that the most durable solutions for improving access to energy in humanitarian settings are normally ‘tried and tested’ in the broader off-grid space. Today, there are a number of exciting projects involving mini-grids, solar-home-systems, and alternative cooking fuels. The solar farm at Azraq refugee camp in Jordan which has dramatically improved access to electricity for over 20,000 residents of the camp is the first solar farm in a refugee camp. However, in these cases it is not the technology that is innovative – rather, the novelty lies in the application of this technology, and the new way of structuring financial risks between philanthropic, humanitarian, and private sector actors. It is this complicated set of issues and relationships that needs to be untangled to create genuine momentum on the humanitarian energy agenda.

About the Moving Energy Initiative

The Moving Energy Initiative (MEI) is working to achieve access to clean, affordable and reliable energy among displaced populations by working with humanitarian agencies and donors to change policies and practices based on evidence from practical projects; working with the private sector to design and implement innovative market-based solutions; improving the evidence base through original research and the demonstration of new approaches tried and tested in camps and host communities; and cooperating with host governments and national NGOs to improve energy security among both local and refugee communities. The MEI is a collaboration between Energy 4 Impact, Chatham House, Practical Action, the Norwegian Refugee Council (NRC), the Office of the United Nations High Commissioner for Refugees (UNHCR) and is supported by the UK Department for International Development (DFID).

Sustainable Energy for Displaced Populations

Sarah Rosenberg-Jansen, Refugee Studies Centre, University of Oxford

Sustainable energy within humanitarian settings is a new and emerging phenomenon, one on which relatively little data or evidence has been available for to date. What place does energy have within humanitarian aid, and is this relationship changing?

The Status Quo – Reliance on Carbon Intensive Energy

Energy needs in humanitarian settings to date have usually been met with petroleum-based fuels for power and transport, and wood fuel for cooking. Diesel and petrol remain the mainstay fuels for generators to power humanitarian operations, road transportation, flights to remote operations, and to run a variety of systems for immediate response. In some cases, humanitarian operations and offices are also connected to the national grid of a country or use power from other host community sources. Energy for institutions in refugee and IDP camps cost humanitarian agencies millions of dollars a year. For example, the UN estimates they spend as much as half a million US dollars on energy per month in the Za'atari camp in Jordan alone (Williams, 2014). At the household level, in almost all humanitarian responses, firewood and cooking stoves are provided so that households can cook food and boil water. However, the provision of renewable energy for refugees and humanitarian operations is very much a new set of priorities, as is the inclusion of electrical appliances such as lighting and phone charging equipment.

Humanitarian principles of protection have historically focused on minimum standards for shelter, food security, water supply, sanitation, and health (Red Cross and Red Crescent, 2011). Within this context, energy is often a missing pillar in humanitarian response, and the quickest or 'easiest' energy solution is applied without substantial planning (Bellanca, 2014). Sustainable energy provision, products and services which provide higher levels of power and energy access remain exceptions rather than the rule in humanitarian settings. It could be argued that the lack of a cluster for energy within the UN OCHA cluster system (2018) is one reason for this. The UN clusters are groups of humanitarian organizations, both UN and non-UN, in each of the main sectors of humanitarian action, e.g. water, health and logistics, which are selected by the Inter-Agency Standing Committee (IASC) to have clear responsibilities for coordination during humanitarian emergencies for response programming. The aim of the cluster approach is "to strengthen system-wide preparedness and technical capacity to respond to humanitarian emergencies and provide clear leadership and accountability in the main areas of humanitarian response. At country level, it aims to strengthen partnerships, and the predictability and accountability of international humanitarian action, by improving prioritization and clearly defining the roles and responsibilities of humanitarian organizations" (Humanitarian Response, 2018). Energy is not currently incorporated at the cluster level, even though core services such as logistics, WASH, early recovery, camp coordination and management, and emergency telecommunications are underpinned by energy needs. The lack of a cluster for energy means that to date organisations working on energy in displacement settings have struggled to coordinate, find funding, or even make the case for why energy matters in emergency response. This is seen by many in the sector as an important reason why energy is has only recently come to be recognised as an important issue in humanitarian contexts.

However, sustainable energy is now emerging as a part of humanitarian response, and the lack of a cluster could be seen as more of a symptom of the 'newness' of the sector than as a result of humanitarian agencies not wanting to prioritise energy. There is some recognition of the importance of energy within crises from within the humanitarian sector, but this is often linked to specific objectives such as security, climate change or oil crises (for example UN OCHA, 2010). There are many reasons for the lack of inclusion of sustainable energy in programme responses. One of the reasons often given by humanitarian service providers is the emergency nature of response: when disaster or conflict creates displacement, the rapid movement of people in need of urgent assistance within a country or across international borders means that there is very limited time to consider or plan for energy needs. A similar rationale is provided regarding the shortage of funds and money available to the humanitarian system: many organisations suggest that there is just not sufficient funding available to cover wider energy needs beyond firewood for households and diesel generators for selected operations (SE4ALL, 2018).

Additionally, refugees are typically afforded temporary status by national governments. This can make it challenging to provide energy infrastructure to refugee camps and displaced people, where such interventions may be seen as permanent installations by host and wider communities. The situation for displaced people within their own country is quite often different. Following the April 2015 Nepal earthquake, for example, the Nepalese government strove to repair supply energy as soon as possible for internally displaced communities. However, for some countries it can be very challenging to supply energy following emergencies and IDP encampment (Birikadde et al., 2009), for instance for unstable governments in South Sudan and Yemen today.

As refugee and IDP camps are often only considered as transient places – which are mostly designed and constructed with the view that they are non-permanent structures – energy is not really viewed as essential for temporary needs. In some cases, the issue of whether refugees have better access to resources than the host populations in rural, poor communities has been raised (Grindheim, 2013). Many humanitarian organisations have not felt able to address energy in a comprehensive way for displaced people, as provision of energy is often seen as in the domain of national governments. However, it appears there has been a recent shift in perceptions amongst both humanitarian organisations and national governments on this issue, with some taking a different approach to hosting refugees – for example by using long-term and settlement planning models to integrate host and refugee communities (ReHoPE Initiative, 2015).

The Shifting Role of Sustainable Energy

The nature of energy, particularly sustainable and renewable energy, appears to be changing in humanitarian contexts. This is reflected in recent policy documents such as the Comprehensive Refugee Response Framework and the Global Compact on Refugees (UNHCR, 2017), which calls for a longer-term approach to health and education services as well as livelihood opportunities for both displaced people and host communities. Sustainable energy provision is now increasingly seen as one of the key pillars necessary to power this change (UNITAR, 2018).

Part of this shift may be driven by tacit acknowledgment that many refugee populations have been displaced for so long that the possibility of ‘returning home’ is now almost negligible. Examples include Palestinian refugees in Jordan who have resided in Irbid and Zarqa camps since 1947, residents who have been in Kenya’s Kakuma and Dadaab camps for over 26 years, the Rohingya people in Bangladesh who have been stateless since 1982, and Congolese refugees who have been in Rwanda since 1996. Even in ‘recent’ cases, such as the Syria crisis which has just entered its seventh year, the possibility of returning home to a country with minimal operating utilities and services appears slim. There is an increasing recognition that predictable and high-quality energy is an essential requirement as recognised by the Sustainable Development Goal 7 (SDG 7, 2018) and a basic need for populations to both “thrive and survive” (UNHCR, 2017).

Further Considerations

This section has provided an outline of sustainable energy uses within humanitarian settings, what place energy has within humanitarian aid, and how this is changing. As will be discussed in a forthcoming paper in this series, there exist key evidence gaps in the humanitarian energy sector – especially in terms of quantified information. Going forward it will be critical to understand what evidence is needed and the value of quantitative and physical sensing data.

We close with two considerations. Firstly, how will the humanitarian sector respond to market-based approaches to privatise energy supply? One implication is that the humanitarian energy sector stands to benefit from the involvement of the private-sector in supplying sustainable energy: “private-sector actors that operate with the intention of generating profits could play a role in alleviating challenges associated with scaling up or optimizing energy access in refugee and internally displaced person (IDP) settings. Given their experience providing market-tested energy products and services – often in high conflict, base-of-the-pyramid communities – private-sector actors could add significant value in humanitarian settings” (Van Landeghem, 2016, p. 3). While this may be true, it will be important for academics and researchers to provide evidence on this issue: to critique the value of private-supply of energy in humanitarian settings and where possible to do so from a relatively neutral perspective to understand the true value of market-based approaches for energy in humanitarian settings.

Secondly, academics and practitioners both have a responsibility to recognise the importance of inclusive practices within the humanitarian sector. Especially as the humanitarian energy sector changes to new modes of delivery, involving populations of concern fairly and openly will be critical to avoid doing harm and unintended consequences. Research suggests that energy service programmes in camps can be more successful if organisations implement participatory, bottom-up, and market-based approaches which consider energy technologies over the long term, and which include refugees, IDPs and local communities directly as agents of change (Rosenberg-Jansen et al., 2018). In conclusion, more evidence of all kinds is clearly needed to understand humanitarian energy in detail.

Is Energy Different? – Some Concluding Reflections

Jelte Harnmeijer, Scene Connect, UK

Energy Enables

Comparing energy provision to the provision of water, sanitation and health only makes sense up to a point. However, camp residents don't care about energy for energy's sake – it's energy services like cooking, lighting, radio, television, fans, refrigeration, phone charging and printing that they're after. So energy is best thought of as a 'necessary but by itself insufficient enabler' – rather than being an end in itself, energy enables access to communication, education, health, ... and delivery of the SDGs (see also Practical Action 2013). Humanitarian services for displaced populations, in contrast, have traditionally been structured with end-use in mind.

New Solutions, New Possibilities

The number and diversity of energy options is increasing, though, as is recognition of problems associated with traditional centralised ways of generating and distributing electricity and reliance on wood fuel. Even diesel generation – the mainstay of emergency response – tends to be more centralised in its nature than, say, solar home systems, which lend themselves to deployment at the household level. And in many countries – including Nepal and Rwanda – uptake of these solutions is happening independently of humanitarian agencies, which are arguably less well positioned to innovate and provide fit-for-purpose and context-specific solutions than are local entrepreneurs.

Then there is the well-known challenge of the myopic investment cycle. As a general rule, few of the key stakeholders involved – including host governments – are politically incentivised to treat camps like the long-term challenge they are. As a result, long-term energy investments rarely feature in camp planning and design. Solar panels and solar home systems are eminently redeployable, however, and often make sense in environments where highly uncertain time horizons are the rule. And with many camps based in countries that are already struggling to bring about rural electrification in the first place, the prospects for connecting displaced households to centralised power grids is usually a distant prospect at best.

Beyond Gadgets

The changing nature of solutions – towards lower carbon footprints – thus provides further impetus for granting energy dedicated consideration in humanitarian programmes. But we're not just talking about new technological gadgetry here. For instance, it's clear that the delivery models themselves are changing, away from donation-based 'air drops' towards alternatives that more intimately engage local supply chains and local entrepreneurs. A forthcoming HEED Briefing Paper will take a close look at socio-technical and institutional innovation.

For more information about the HEED initiative or to sign up for our newsletter and further briefing documents, visit the project website or contact us using the details below.



HEED_Energy



<http://heed-refugee.coventry.ac.uk>



Biographies

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Jelte Harnmeijer

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Jelte spent half of his life in sub-Saharan Africa, and lived and worked in Africa, Oceania, Greenland, the Himalayas and Scotland before moving to a small island in the Pacific Northwest. He is a systems thinker and practitioner with a passion for integrating research with implementation and social enterprise. In this spirit, his work focuses on how community energy solutions can help address pressing challenges such as food and fuel poverty, inequality, and global climate destabilisation.

Jelte has about a decade of international experience in the practical delivery, research and policy aspects of distributed energy. He is particularly comfortable in the domains of microgeneration, energy access, shared ownership and local supply. He is a founder at Scene Connect, an international community energy consultancy, and a Director at Connected Energy, a 'Last Mile' information-communication-technology (ICT) product company that focuses on solutions in the micro-biogas and solar PV space. Jelte worked at the behest of two consecutive Scottish Energy Ministers on energy storage policy. His research achievements include papers in Nature, Nature Geoscience and PNAS, as well as fellowships spanning the fields of Carbon Finance, Renewables, and the Economics of Climate Change.

Authors

Heaven Crawley

Coventry University, UK



Professor Heaven Crawley is a political scientist who has undertaken research with refugee and migrants for nearly 25 years working with a wide range of governmental, international and non-governmental organisations to better understand the experiences and the aspirations of those who move within and between countries and to find ways of feeding this evidence into policy making processes.

She has a particular interest in understanding how social and spatial inequalities in access to power and resources at the local, national and global levels feed into migratory processes and outcomes. Heaven's role in the HEED project is to ensure that the findings and recommendations of the team's work are informed by the political, economic and social contexts within which the energy interventions will be delivered, and that improved energy services become a vehicle for positive change by addressing systemic barriers to energy access and use in displaced communities.

Mattia Vianello

Practical Action, West Africa



Mattia is the Regional Director with Practical Action in West Africa. He also leads the Global Energy Hub of the organization and manages Practical Action's work for the Moving Energy Initiative.

During the past years his work has been focusing on unlocking markets for energy access in development and humanitarian contexts. He lived and worked in East & West Africa and Central America. Mattia holds an MSc in Science and Technology Policy and Management from Edinburgh University, and a BA in Philosophy from Vita-Salute San Raffaele in Milan, Italy.

Biographies

Owen Grafham

Chatham House, UK



Owen Grafham joined Chatham House in May 2014. During his time in the Energy, Environment and Resources department, he has managed Chatham House's research and outreach on energy for displaced populations and the institute's work on energy-use inside the humanitarian system. He is on the technical advisory board for a qualitative research project funded by Economic and Social Research (ESRC) at Edinburgh University which focuses on the energy use of refugees, and also for HEED.

Prior to joining Chatham House, Owen spent two years at the Institute for Strategic Dialogue (ISD), where he managed a project that sought to establish concrete areas of trilateral cooperation between the United States, Turkey and Europe. From 2008 to 2010, he worked in Hong Kong with the Hong Kong Institute for Education (HKIEd) and in Sudan, primarily with the Sudanese Development Initiative (SUDIA). Owen has a BA in Politics and Literature from the University of York and an MSc in African Politics from the School of Oriental and African Studies, London.

Sarah Rosenberg-Jansen

Refugee Studies Center, University of Oxford, UK



Sarah Rosenberg-Jansen is the Head of Humanitarian Energy at Practical Action and sits on the steering committee for the HEED project. She is currently undertaking a doctorate in renewable energy for refugees and humanitarian energy policy with the Oxford Refugee Studies Centre. With over a decade of experience within energy and climate change policy, she leads technical and research work across the humanitarian energy sector and is the Chair of Working Group V for the Global Plan of Action on Sustainable Energy Solutions for Situations of Displacement on data and evidence.

Sarah has previously worked as a climate change and energy advisor for the UK government, leading international policy on sustainable energy access and renewable energy, and as a researcher with the Grantham Institute for Climate Change at Imperial College London and at the University of Cambridge. She has contributed papers to the Climate Policy journal, as well as authoring reports on regional climate change planning and international energy policy decisions.

**Seeking contributions:
“Energy Innovations for Displaced People”**

Dear colleagues,

We are currently looking for contributions to the ‘HEED Briefing Series’. This series of thematic papers explores the understudied but important interface between energy provision and refugees, and we would welcome your input.

Future issues in the series will cover a selection of socio-technical challenges and solutions in the refugee energy space. ‘Solutions’ will focus very much on innovations, and these need not be explicitly technical in nature – social, business, institutional and policy innovations will also be explicitly covered. These innovations may already exist, may be emerging, or may have been identified by the HEED project team as worthy of exploration, policy support and/or resourcing. They may be small and highly locality-specific. Innovations will be presented as much as possible through individual stories.

Examples of the sorts of challenges and solutions that might be covered:

- Energy Access as a means to reduce tensions between Resident & Displaced Populations
- Energy Access as a way to alleviate Gender Disparity in Refugee settings
- Potential focus on substitution of firewood
- Two Birds with One Stone: Integrated Energy and Data Provision in Refugee Settings
- Tapping into Carbon Markets in Refugee Settings
- The Role of Social Entrepreneurship in Refugee Energy
- Emerging Models of Procurement in Refugee Energy
- Emerging Delivery Models in Refugee Energy

We would ask that your contribution be limited to 1,500 words, excluding any references you choose to use. For reference, this translates to about 3 pages when formatted in the manner of the paper you are currently reading. We would encourage you to use photos and diagrams where appropriate.

Papers will be disseminated on-line, and hopefully in hardcopy as well. All authors and their respective affiliations (and logos) will be appropriately credited.

If interested, please contact me with your ideas at the e-mail address below.

Sincerely,



Dr. Jelte Harnmeijer, Scene Connect
E-mail: Jelte.H@scene.community

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