

Energy solutions with both humanitarian and development pay-offs

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The normal approach to energy delivery during refugee crises tends to lock in reliance on dirty, dangerous and expensive fuels. Sustainable energy solutions require a long-term planning framework. There are opportunities to align the energy resilience and access goals of host nations with the greening of humanitarian operations and objectives for refugee self-reliance.

Energy services are essential to the most basic human needs. Whether for eating (fuel to cook), moving (fuel for transportation of people and goods), maintaining a liveable temperature (heating or cooling), education (light to read by) or earning a living (electricity to power homes and businesses), energy underpins almost all daily activities.

But people who have fled their homes due to conflict have special needs and face acute difficulties in obtaining energy services. These include long distances

(from urban centres, public services and utilities), temporary forms of shelter, health problems, insecurity of settlements, lack of legal status, low and insecure incomes, and the need to communicate with relatives.

Recent research undertaken by Chatham House suggests that approximately 90% of displaced people in camps have minimal access to lighting and approximately 80% have only the absolute minimum amount of energy required for cooking.¹ Negative coping strategies such as under-



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In Dadaab's Ifo 2 refugee camp in Kenya, a girl shows her ration card for firewood collection from UNHCR. 98% of households in the camps use firewood as a cooking fuel.

cooking of food or reducing the number of meals are commonplace for almost all displaced people – those living in rural and urban areas as well as those in camps.

Globally, forcibly displaced populations are overwhelmingly reliant on dirty and inefficient fuel sources, with a majority predominantly using firewood or charcoal. Although the per capita fuel use among forcibly displaced populations is small, the relative inefficiency of the fuel they are using means that much more has to be combusted and more emissions released in order to generate the same amount of energy. Deforestation is also a major problem for many regions hosting refugees.

These conditions have huge impacts on health and protection, especially for women and girls who often carry the greatest burden in terms of household cooking (indoor air pollution) and in going out to collect firewood (high risks of gender-based violence). Applying global estimates from the World Health Organization would suggest that some 20,000 displaced people die prematurely each year due to indoor air pollution. Médecins Sans Frontières have reported that 82% of 500 women and girls receiving treatment after sexual violence over one four-and-a-half-month period in South and West Darfur reported that the violence occurred when they left camps in search of firewood, water or animal fodder.²

Improving the way energy needs are met therefore has significant benefits for health, protection and livelihoods. So why has energy not been a greater focus before now?

What's the problem with energy?

A range of factors have contributed to energy's relatively low priority in humanitarian response. The first is underfunding for humanitarian crises in general. But beyond a lack of funds, energy has not been seen as of equal priority with other issues such as food, shelter and protection. This has resulted in a dearth of qualified personnel with the requisite technical skills. As a result, there is a system-wide failure to collect the kind of data that would be essential to implementing systematic energy planning in and around humanitarian crises.

Humanitarian agencies are, moreover, ill-equipped to respond to protracted crises, while energy infrastructure and sustainable financing schemes are likely to require a longer time frame. The approach of humanitarian organisations to energy management has most often followed a short-term emergency approach. Products such as stoves or solar lanterns are distributed (almost always for free), with little attention paid to maintenance arrangements, cultural appropriateness, distribution mechanisms or the effects on local markets.

While a handout strategy of this nature may be the most appropriate response in the immediate aftermath of a crisis, refugee crises tend to be protracted, and many refugee settlements have grown into small cities. If energy planning is not taken into account in the initial humanitarian response, displaced people and the agencies serving them can end up locked into prohibitively expensive and inadequate energy practices.

Za'atari camp in Jordan is a case in point. When the camp was first built, aid operations were connected to the national electricity grid but no provisions were made for energy to households themselves. In order to power their homes and businesses, refugees therefore resorted to informally tapping into the grid through street lights and thus ramping up consumption to the extent that UNHCR (the UN Refugee Agency) was landed with an electricity bill of \$8.7 million for 2014-15. The agency then cut informal connections and in response those running businesses bought in diesel generators,

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In order to support school children in their studies, UNHCR recently distributed over 12,000 solar lamps in 48 schools in the five Dadaab camps. Priority has been given to female students, who have less time to study after school.

increasing reliance on fuel supplies as well as sources of local pollution. While a new system is now being implemented to ensure adequate access to energy for households and businesses at a more reasonable cost to the agency, greater foresight in the initial crisis planning process could have mitigated the financial and human costs.

The short-term nature of humanitarian responses is not just a product of the system but a reflection of the fact that governments and donors often remain reluctant to admit that refugee crises are anything but short-term emergencies. Most governments do not allow long-term infrastructural investment in settlements. In addition, communities living side-by-side with large refugee populations are often not much better off, and providing hi-tech facilities exclusively to refugees would be likely to breed resentment.

Budgeting in the humanitarian sector tends to be structured around donor funding time frames of one year or less. This means that agencies cannot justify capital investments in efficiency upgrades or renewable energy equipment that would have a payback period of several years. Where such investments have been funded by specific donations, they

tend to be limited pilots that do not make provision for sustainable scale-up.

Bridging development and humanitarian modes

Key questions with regards to energy provision are thus also central to smoothing the transition from short-term humanitarian responses to national resilience, and ensuring that responses to crises do not hamper longer-term development. Development solutions aimed at improving energy provision have tended to focus on national energy access, neglecting those people who fall outside national strategies, such as displaced people. Energy provision in humanitarian response for the displaced has tended to coalesce around ad hoc distribution of products without provision for local market development and better quality services. Development actors and private sector companies working on energy access, whose expertise is crucial when it comes to designing viable energy systems, have valuable experience to contribute to meeting humanitarian challenges.

Modelling done by Chatham House as part of the Moving Energy Initiative³ suggests that the introduction of simple

technological solutions could save money and lives. For example, even basic changes such as the worldwide introduction of more efficient cooking stoves and solar lanterns could save forcibly displaced people around US\$323 million annually after an upfront capital investment of US\$335 million by humanitarian agencies. Such an intervention would reduce indoor air pollution and reduce the amount of time women and girls spend collecting firewood.

Field surveys in Dadaab (Kenya), Goudoubo (Burkina Faso) and Dollo Ado (Ethiopia) show that most refugee households are already paying for energy. Indeed, forcibly displaced people pay over the odds for the meagre amounts of energy they consume. In the Dadaab refugee camps in Kenya, households spend roughly 24% of their income on energy (firewood and torch batteries for the most part), as opposed to 4% in the UK.⁴

Private sector energy companies have developed technologies and services that address low incomes and the disparate geographical locations of low-income consumers in rural locations. The energy access field is quickly gaining experience from a rapid expansion of small- to medium-sized technology companies taking risks and exploiting mobile money services, pay-as-you-go energy systems, smart-grid technology, and remote sensing (allowing companies to monitor from HQ the performance of their technology). A 2015 UNHCR study in south-east Nepal found that for example some 80% of households in two refugee settlements had photovoltaic solar panels, most of which they had purchased themselves.⁵ The fact that refugee populations are often concentrated in a geographical location, and supported by international donor agencies, also offers private sector companies the opportunity to overcome barriers normally associated with the off-grid energy market. Finding the right financing models and the right distribution of responsibility is key in this situation. The increasing use of cash grants and pre-loaded debit cards by humanitarian agencies is likely to support this momentum.

However, in order to make real structural changes to the way energy is used and supplied, energy systems must be understood holistically. Making real structural changes, such as introducing market-based solutions, genuinely clean cooking solutions and renewable power systems, is not cheap and will involve an increase in capital costs for humanitarian agencies and potentially also an increase in annual energy costs for displaced people. But, if implemented well, these can yield significant health, livelihood and social cohesion benefits for displaced people and the host populations that live alongside them, as well as protecting local environments, which are often both fragile and highly contested. The economic case does exist and valuing these outcomes will be critical to funding the shift in technology and practices.

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1. The model to estimate energy access among displaced people globally simplifies a highly complex system and should be viewed rather as a conservative starting point for understanding the energy conditions that this diverse group faces. For full methodology and findings see Lahn G and Grafham O (2015) *Heat, Light and Power for Refugees: Saving Lives, Reducing Costs*, Chatham House www.chathamhouse.org/sites/files/chathamhouse/publications/research/20151117HeatLightPowerRefugeesMEILLahnGrafham.pdf

2. Energia/DFID (2006) *From the Millennium Development Goals towards a Gender-Sensitive Energy Policy Research and Practice: Empirical Evidence and Case Studies*, p39 <http://tinyurl.com/Energia-DFID-GenderEnergy-2006>

3. A collaboration between UNHCR, the Norwegian Refugee Council, Practical Action, Chatham House and GVEP International www.chathamhouse.org/about/structure/eeer-department/moving-energy-initiative-project

4. The figure for UK spending is based on 2011 data.

5. UNHCR (2015) 'From Street Lights to Micro-Grid', Mission Report, UNHCR Innovation/Engineers Without Borders, unpublished.