

The humanitarian aid model needs to be more carbon efficient

Mukesh Kapila

Cutting energy waste in humanitarian work is not just a matter of economics.

Recent images of shivering [Turkish and Syrian earthquake](#) survivors are seared into our consciousness, as is the sight of Afghan children rummaging through snow, seeking something to burn to keep warm. There are also the images of fire ripping through a [Rohingya refugee](#) camp or the displaced Darfuri woman assaulted while collecting firewood as her infant wheezes in their smoky shelter.

These are some of the millions of people compelled to move by crises but left behind while the world works on goal 7 of the 2015 Sustainable Development Goals. This promised affordable and clean energy for all. But the energy crunch caused by the Russia-Ukraine war and mitigation requirements for climate change worsens their plight.

Life support for populations of humanitarian concern is energy intensive. There are currently more than 105 million refugees and displaced due to conflict and persecution. A further 25 million have been displaced by disasters. According to the UN Refugee Agency, a quarter of them live in camps while the rest are scattered among stressed host communities.



Rohingya refugee children collect firewood on top of a hill at Balukhali refugee camp near Cox's Bazar, Bangladesh. Reuters

Access to the basics of food, water, sanitation, shelter and health care are constant pre-occupations for them. Such access is unachievable without consistent and safe energy for lighting, cooking, heating, phone-charging or scratching a living.

Humanitarian agencies provide relief but that includes only 10-20 per cent of the energy needed to utilise the given aid effectively, say researchers. So people who are suffering grievously eat under-cooked food or barter precious rations for fuel. Displaced South Sudanese miss several meals a week when they have food but nothing to cook with. A quarter of the income of residents in Dadaab, Kenya's massive refugee settlement, goes towards sourcing energy.

Desperate people adopt desperate coping strategies. These are inefficient because market failure in humanitarian contexts means that sourcing energy – be it firewood, candles or paraffin – is exorbitantly costly. Needy people are easily exploited by profiteers.

According to the UN's Food and Agriculture Organisation, 80 per cent of vulnerable people depend on firewood and charcoal as their main energy source with an average per capita daily requirement of about 1.7 kilograms. That translates into an outlay of around \$15 a month for a family of five in Dodoma camp in Tanzania, for example.

Large camps in Bangladesh have been known to consume tonnes of firewood a month, all obtained from the same area. As the surrounding environment is degraded, people travel farther, on average between 8 and 15km a day, according to UN Women.

The task usually falls to women and children who may walk six hours to gather a family-size load of dry wood. That can yield 2,800 kcals of heat, which works out at 560 kcals for the forager's share who expends 1,000 kcals in the collection process.

As a woman requires about 2,000 calories a day to keep going, this is literally a body-wasting endeavour for those with marginal nutritional status at the best of times. It is also extremely inefficient to cook on an open fire or an inefficient traditional three-stone stove.

Associated costs must be factored in. Children on firewood duty miss school. Women risk gender violence when venturing out. And they live in the dark – according to France-based *Electriciens sans Frontières*, 94 per cent of camp dwellers don't have access to electricity. Resource competition with equally poor host communities creates tensions.



A Madeshi family collects firewood along the Kosi riverbank in the terai region of Nepal.

People combine firewood with whatever rubbish they find, including plastic and rubber, producing toxic fumes. Air quality in crowded settings is appalling, with high particulate concentration. A study in Nepal revealed that refugees there have between 10 and 17-fold higher respiratory infections than normal, and the WHO estimates that an additional 20,000 displaced people are killed globally by indoor pollution.

Accessible and affordable energy is not a new challenge for populations of humanitarian concern. In reaction, aid agencies are innovating solutions from non-humanitarian contexts. That includes more efficient stoves, alternative fuels, solar generation and energy storage using old batteries.

But these are small-scale, poorly resourced efforts. An enduring myth retarding humanitarian energy investment is that crises are short-term and camps are supposedly temporary. However, the reality is that they persist for decades. Thus, with few exceptions, such as the giant Zaatari camp in Jordan, connection to electricity grids is rare because it is politically sensitive.



The Zaatari refugee camp, some 80 kilometres north of the Jordanian capital, Amman. AFP

And yet, improving energy access could transform vulnerable lives. It would enable greater productivity and self-reliance through expanded education, livelihood generation and improved health. According to the Moving Energy Initiative, every dollar spent on energy access adds value of \$1.4 – \$1.7, including additional environmental benefits from replacing the most common polluting alternative: diesel.

Compared to grid electrification that needs costly fixed infrastructure, single household and small-area solutions – such as solar panels – bring greater returns. They are also flexible, transportable, create entrepreneurship opportunities for poor people, and are politically more palatable.

However, according to a UN/Global Platform for Action report in 2022, scaling-up sustainable energy solutions for all camp populations would cost about \$1 billion annually over the next decade. That appears huge but is only 1 per cent of global humanitarian spend. It would also save costs for aid agencies who, according to the same report, spent \$1.6 billion in 2020 for providing basic cooking and lighting energy which, on the business-as-usual scenario, will rise to \$5.3 billion by 2030.

Significant upfront humanitarian energy investment is unlikely to come from stretched donors. The potential solution lies in building on informal energy markets that already exist in humanitarian settings. Perhaps that means a dedicated new financing facility that blends traditional donor grants with private-sector funds to create market-based approaches.



A woman sells vegetables along a street near the Kalma camp for the displaced just outside Nyala, the provincial capital of South Darfur. AFP

However, designing a practical way of scaling-up but de-risking investment needs leadership from the international financial institutions. Pilot approaches in refugee camps in Kenya, Burkina Faso and South Sudan show promise. Could climate adaptation and mitigation funds be tapped? Could carbon offset markets come in useful? This should be prioritised at [Cop28 in the UAE](#) later this year.

Beyond expanding and greening energy access for humanitarian populations, the aid system's own energy use requires reform as it is wasteful and inefficient. Reducing consumption and decarbonising aid delivery needs incentivising through agencies' measuring, monitoring and motivating change within themselves.

Perhaps we need an internal carbon tax within humanitarian agencies to incentivise change as has happened in other businesses. But for this to work, the carbon offset price should be set high enough – more than \$200 a tonne – to drive meaningful decarbonisation in the humanitarian system.

That is a tough challenge. Humanitarian operations often service remote locations. These are found down long, rough roads in hostile terrain. Aid agencies carry in heavy loads in large fossil-fuel trucks, after flying in supplies from across the globe in heavy-lift cargo aircraft. In addition, thousands of international aid workers criss-cross the planet.

Unsurprisingly, transport is the second-largest overhead cost for agencies. According to a 2016 paper published by the European Institute of Business Administration, their fleet of more than 100,000 vehicles incurs running costs of over \$1 billion annually. Meanwhile, the fossil-fuel generated electricity for UN

compounds costs \$0.60 per kilowatt hour compared to public grid costs of \$0.10 in the US and \$0.08 in India.

Improvements could start by reforming the much-criticised humanitarian model itself. This could become more energy efficient by cutting costly carbon miles through aid localisation including greater local procurement of goods and services. It could be coupled with remote technologies for needs assessments, project monitoring and management, as well as replacing in-kind relief with cash aid. The collateral benefit will be a better-respected and trusted international humanitarian system.

Examples pioneered by agencies show that if best practices were widely applied, the humanitarian sector could, according to a 2018 research paper from Chatham House, save 10 per cent on fuel for transport, 30 per cent by taking up more efficient technologies that already exist, 7 per cent through office staff behaviour modifications that they already use to cut personal household bills, and 60 per cent on energy generation. It adds to more than a billion dollars saved annually.

One analysis suggests that potential inefficiencies are so large in some field offices that a person could be hired only to close doors and turn off air-conditioners, and their salary would be paid back twice over within a year.

But there is a wider agenda at stake. The do-no-harm principle of humanitarian action requires that we must not trash the environment while attempting to do good. Furthermore, every million dollars that is saved through energy efficiency means 60,000 hungry children fed for a month, or 200,000 people getting safe water for a year, or 50,000 children fully immunised, or 200,000 people protected against malaria for three years.

Cutting energy waste in humanitarian work is not just a matter of economics. Doing this to help more people in a better and more sustainable manner is a moral duty.