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Scaling sustainable energy services for displaced people and their hosts

How policy and governance make a difference

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Summary

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- A large majority of the 100 million-plus forcibly displaced people worldwide find refuge in low- and middle-income countries. In recent years, the international community has ramped up efforts to better align humanitarian assistance with host-country policy priorities. And in many of these host countries, energy access – more specifically, provision of clean and sustainable energy in displacement settings – has materialized as an important area of focus.
 - Guided by the UN, a coordinated framework to address such energy needs has been developed at the international level. The Comprehensive Refugee Response Framework (CRRF) and the widespread adoption of associated country-specific response plans provide an overarching framework for host countries, donors and humanitarian actors to set a coordinated agenda for greater support to refugees.
 - Case studies, presented in this paper, of five countries that have engaged in response plans – Ethiopia, Jordan, Rwanda, Tanzania and Uganda – show the extent to which policy and governance conditions have affected the success of sustainable energy projects. They show that transnational actors involved in humanitarian relief must better engage with the national context in order to play a constructive role in the development of clean energy technology markets.
 - Clear national energy policies and ambitions, including rational price-setting for local fuels, are important enabling factors for clean energy delivery, especially when aiming for scale-up through the market. Equally critical are national legal provisions concerning the right to work and the right to move freely, and humanitarian cash assistance/programming. Numerous initiatives have shown that when refugees have vulnerable incomes and restricted livelihood opportunities, sales of energy are unlikely to scale or be sustainable. If rights to work are restricted, refugees may not be able to benefit from the training and job opportunities that energy projects offer.
 - Projects to bring clean energy access to populations affected by displacement can build on or accelerate national efforts to pursue a low-carbon development pathway that supports national climate commitments and the ambition to provide sustainable energy access to all (in line with UN Sustainable Development Goal 7). However, ad hoc humanitarian projects not anchored in institutional processes and designed without long-term maintenance and scale-up considerations will continue to face sustainability challenges. Project champions – national and/or implementing partners – have proved critical to

humanitarian energy project success. But typically high rates of staff turnover or rotation within the humanitarian sector represent a significant constraint on durable progress.

- Country response plans have enabled UN organizations to outline, prioritize and actively fundraise for energy and environment projects through a planned and costed approach that has previously been extremely difficult to achieve. Funding requirements for energy and environment listed in humanitarian response plans, covering 28 per cent of global refugee populations, are estimated to amount to \$300 million for 2021. But the success of these country response plans – and their energy and environment agendas – has been mixed. Some have been developed closely with government, and are well-designed and costed, while others lack ambition, overlap with alternative UN-led response plans, or have unattainable levels of ambition.
- Response plans should: a) aim to move to increasingly longer-term planning (i.e. beyond the current one- and two-year response plans implemented in Tanzania, Rwanda, Uganda and Ethiopia); b) set more realistic targets and effectively monitor, report and verify progress; and c) be better integrated with national policies. Doing so will allow a more realistic basis for attracting sufficient funding.
- Sectoral working groups for energy and environmental issues that combine development and humanitarian agency expertise are a component of the energy response in each of the countries studied for this paper. The way these groups are structured and governed varies widely across each of the locations. At their best, such groups can function as a clear, central coordination mechanism that can organize, mobilize and advocate for the humanitarian energy sector. But to achieve this normally requires the engagement of government representatives within the group – which can take years of advocacy and evidence-building.
- Host governments can use the global Clean Energy Challenge as a platform to encourage donor countries to help develop and finance major energy access investments in low-income refugee-hosting communities, de-risking private investment in what is a new and relatively untested new market segment. Several multilateral investment windows that incentivize and enable integrated solutions are also now available, including the World Bank's Regional Sub-Window for Refugees and Host Communities.
- UNHCR and other lead humanitarian agencies have limited technical capacity on issues related to energy and environment, and most do not have accreditation with the Green Climate Fund (GCF) or the Global Environment Facility (GEF). Yet there is a clear need to access global sources of climate finance to help deliver humanitarian sustainability strategies and support the progressive ambitions of refugee-hosting countries. Doing so will require systematic collaboration with relevant UN agencies and, potentially, development banks, offering a long-term operational bridge between the humanitarian agencies and the global climate change architecture.

01 Background and introduction

People who have been forced to flee their homes are often left outside national policy and planning for the provision of clean, safe and sustainable energy, even though most live and operate within a local economy.

Trends in forced displacement and the global response

Over 100 million people are currently forcibly displaced.¹ The number of people forced to flee their homes has doubled since 2011, and the UN and governments worldwide are struggling to accommodate the growing numbers of refugees and internally displaced persons. Most of these people – around 80 per cent – are hosted by low- or middle-income countries.

When, in September 2016, UN member states agreed the New York Declaration for Refugees and Migrants, they pledged solidarity and a shared responsibility for the protection of the rights of refugees and migrants. They committed to ease the burden on developing countries that host the majority of refugees by adopting the Comprehensive Refugee Response Framework (CRRF), which aims to shift from shorter-term humanitarian aid to longer-term development solutions. The CRRF was further elaborated, in 2018, in the Global Compact on Refugees and the Global Compact on Migration, both of which actively consider the impact of migration on the environment and highlight the role of renewable energy in assisting the displaced.²

¹ UNHCR (2022), 'Global Trends', <https://www.unhcr.org/uk/globaltrends.html>.

² Mach, E. (2019), 'The Migration-Energy Nexus in International Policy', in Grafham, O. (ed.) (2019), *Energy Access and Forced Migration*, London: Routledge.

The New York Declaration acknowledged the ‘positive contribution made by migrants for inclusive growth and sustainable development’. This came a year after UN member states agreed Agenda 2030 and the 17 Sustainable Development Goals (SDGs), including – under SDG 7 – new ambitions to enable access to sustainable energy for all. These principles and ambitions are aligned with the Global Compact on Refugees, specifically the aim to ease pressures on host countries and enhance refugee self-reliance.³

Success for the CRRF depends on high-level coordination led by host governments, pursued through integration of refugee and host communities in national and sub-national policies, plans and programmes. However, the extent to which the CRRF has moved from theory to changed realities on the ground largely remains to be seen.⁴

Achieving SDG 7 for displaced people

While global data remain patchy and unstandardized, available research estimates that more than 80 per cent of refugees in camp settings do not have access to modern energy solutions.⁵ Existing data show that refugees have disproportionately lower access to grid electricity than their surrounding host communities, and a comprehensive study published in 2022 cautions: ‘Without substantial investment and decisive political action, Sustainable Development Goal 7 is highly unlikely to be achieved in displacement contexts by 2030.’⁶

With the global average ‘age’ of a refugee settlement standing at around 18 years,⁷ there is a need for long-term, sustainable solutions to close this energy access gap. Investment in clean energy access can help to catalyse local economic development and energy technology upgrading, reduce land degradation and deforestation, as well as greatly increase the quality of human health, create livelihood opportunities and mitigate greenhouse gas emissions.⁸

³ Rosenberg-Jansen, S., Tunge, T. and Kayumba, T. (2019), ‘Inclusive energy solutions in refugee camps’, *Nature Energy*, 4, pp. 990–92, <https://doi.org/10.1038/s41560-019-0516-x>.

⁴ Crawford, N. and O’Callaghan, S. (2019), ‘The Comprehensive Refugee Response Framework: Responsibility-sharing and self-reliance in East Africa’, Humanitarian Policy Group (HPG) working paper, London: ODI, <https://cdn.odi.org/media/documents/12935.pdf>.

⁵ Grafham, O. (2022), ‘Energy for the most vulnerable remains a distant hope’, Chatham House Expert Comment, 13 May 2022, <https://www.chathamhouse.org/2022/05/energy-most-vulnerable-remains-distant-hope>.

⁶ GPA (2022), *The State of the Humanitarian Energy Sector: Challenges, Progress and Issues in 2022*, Global Platform for Action on Sustainable Energy in Displacement Settings, Geneva: UNITAR Publishing, Switzerland, <https://www.humanitarianenergy.org/thematic-working-areas/state-of-the-humanitarian-energy-sector>.

See also International Energy Agency (IEA), International Renewable Energy Agency (IRENA), United Nations Statistics Division (UNSD), World Bank, World Health Organization (WHO) (2020), *Tracking SDG 7: The Energy Progress Report*, Washington, DC: World Bank, https://trackingsdg7.esmap.org/data/files/download-documents/tracking_sdg_7_2020-full_report_-_web_0.pdf.

⁷ Grafham, O. and Lahn, G. (2018), *The Costs of Fuelling Humanitarian Aid*, Moving Energy Initiative, London: Royal Institute of International Affairs, p. 64, <https://www.chathamhouse.org/sites/default/files/publications/research/2018-12-10-Costs-Humanitarian-Aid2.pdf>.

⁸ Rivoal, M. and Haselip, J. A. (2017), *The true cost of using traditional fuels in a humanitarian setting. Case study of the Nyarugusu refugee camp, Kigoma region, Tanzania*, UNEP DTU Partnership Working Paper Series 2017, Vol. 3, Technical University of Denmark, DOI:10.13140/RG.2.2.32290.94403.

More broadly, the provision of clean, safe and sustainable energy (the focus of SDG 7) is one of the principal needs of developing-country populations, including energy for cooking, heating, communication, education, livelihoods and security.⁹ SDG 7 is therefore often referred to as an ‘enabling SDG’, i.e. one that all others depend on. While global progress is being made towards SDG 7, albeit unevenly, displaced populations are not formally included in global tracking. There is a lack of reliable and comparable data to track progress and needs.¹⁰ Equally significant is the fact that displaced people often remain outside national energy policy and planning, even though most live and operate within a local economy.¹¹

In global-level discussions on achieving SDG 7 in situations of displacement, much emphasis has been given to the importance of collaboration among members of the UN’s Global Platform for Action (GPA),¹² as a means to gather and coordinate resources to complete the journey from ‘assessment to investment’.¹³ The vision of the GPA is that ‘Displaced persons, host communities, and associated humanitarian response mechanisms have access to affordable, reliable, sustainable, and modern energy services by 2030.’¹⁴ Global action on humanitarian energy¹⁵ has been necessary as the UN and its partners worked to design and consolidate the global structures and processes to implement UNHCR’s Clean Energy Challenge, launched at the Global Refugee Forum in December 2019.¹⁶

How relevant is global and national policy in clean energy transitions?

The question of how to widen access to clean energy in low-income countries has inevitably triggered much debate about the role and importance of government policy. However, most in-depth studies of this topic agree that government policy, including targets, legislation, pricing and taxation, are important factors in driving

⁹ Lahn, G. and Grafham, O. (2015), *Heat, Light and Power for Refugees: Saving Lives, Reducing Costs*, Chatham House Report for the Moving Energy Initiative, London: Royal Institute of International Affairs, <https://www.chathamhouse.org/2015/11/heat-light-and-power-refugees-saving-lives-reducing-costs>; Grafham, O. (ed.) (2019), *Energy Access and Forced Migration*, London: Routledge, <https://doi.org/10.4324/9781351006941>.

¹⁰ Grafham, O. and Sandwell, P. (2019), ‘Harness better data to improve provision of humanitarian energy’, *Nature Energy*, *Nature*, 4(12), pp. 993–996, <https://doi.org/10.1038/s41560-019-0518-8>.

¹¹ Betts, A., Bloom, L., Kaplan, J. and Omata, N. (2017), *Refugee Economies: Forced Displacement and Development*, Oxford: Oxford University Press.

¹² The Global Platform for Action on Sustainable Energy Solutions in Situations of Displacement was launched in New York in July 2018, as a non-binding framework that provides a collaborative agenda for concrete actions to ensure that all refugees and displaced people enjoy safe access to affordable, reliable, sustainable and modern energy services by 2030. The United Nations Institute for Training and Research (UNITAR) hosts a coordination unit for the GPA in Geneva.

¹³ Haselip, J. and Rosenberg-Jansen, S. (2019), ‘From assessment to investment: the role of research, data and evidence to deliver the UNHCR energy strategy’, Global Platform for Action, <https://www.humanitarianenergy.org/news/latest/assessment-to-investment>.

¹⁴ Global Platform for Action (2022), ‘About Us’, <https://www.humanitarianenergy.org/what-is-the-gpa>.

¹⁵ Humanitarian energy is a new and emerging sector, one that can be defined as: ‘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, S. (2019), ‘Leaving no one behind: An overview of governance of the humanitarian energy sector’, in Grafham (ed.) (2019), ‘Energy Access and Forced Migration’.

¹⁶ Bourbon de Parme, J. and Haselip, J. (2020), ‘The UNHCR Clean Energy Challenge: setting up the global structures and processes for implementation’, Global Platform for Action, 22 July 2020, <https://www.humanitarianenergy.org/news/latest/the-unhcr-clean-energy-challenge-setting-up-the-global-structures-and-processes-for-implementation>.

the green energy transition, alongside fundamental capacity and enforcement issues.¹⁷ Conflict and political instability risk undermining or negating such progress, while influxes of forcibly displaced people complicate both energy needs and required solutions.

Government intervention (including on policy) is crucial to overcoming barriers to sector-specific innovation and growth. Alongside this, research also points to a consensus on the importance of learning by ‘exploring and doing’ in clean energy market creation and entrepreneurial success.¹⁸ Just as important as policy measures is ensuring that relevant infrastructure and institutional frameworks do not inadvertently act as major barriers to innovation and market growth.

Furthermore, recent research has looked at the role of transnational actors such as regional and multilateral development banks, UN agencies and international non-governmental organizations (NGOs) in the development of clean energy technology markets. These external forces both influence and are enabled by national and local efforts to create and expand such markets in low-income countries.¹⁹ At the highest level, this growing body of work reveals the primacy of inherently global and political processes in driving and steering growth in clean energy markets.

In low-income countries, clean energy access projects targeting populations of displaced people and the surrounding host communities can build on – or accelerate – existing efforts to pursue national low-carbon development pathways. This includes the observed uptake and diffusion of solar photovoltaic (PV) technologies driving (albeit unevenly) a rapid socio-technical transition in the energy sector across Africa.²⁰

¹⁷ Banerjee, S. G., Moreno, F. A., Sinton, J. E., Primiani, T. and Seong, J. (2017), *Regulatory indicators for sustainable energy: a global scorecard for policy makers*, Washington, DC: World Bank Group, <http://documents.worldbank.org/curated/en/538181487106403375/Regulatory-indicators-for-sustainable-energy-a-global-scorecard-for-policy-makers>; IRENA and Climate Policy Initiative (CPI) (2020), *Global Landscape of Renewable Energy Finance, 2020*, Abu Dhabi: International Renewable Energy Agency.

¹⁸ Agbemabiese, L., Nkomo, J. and Sokona, Y. (2012), ‘Enabling innovations in energy access: An African perspective’, *Energy Policy*, 47, pp. 38–47; Johnson, F. X, et al. (2020), ‘Enabling Sustainable Bioenergy Transitions in Sub-Saharan Africa: Strategic Issues for Achieving Climate-Compatible Developments’, in Gasparatos, A. et al. (eds) (2020), *Sustainability Challenges in Sub-Saharan Africa I. Science for Sustainable Societies*, Singapore: Springer, https://doi.org/10.1007/978-981-15-4458-3_2.

¹⁹ Avelino, F. and Wittmayer, J. M. (2016), ‘Shifting power relations in sustainability transitions: a multi-actor perspective’, *Journal of Environmental Policy and Planning*, 18(5), pp. 628–49; Bhamidipati, P. L., Hansen, U. E., Haselip, J. (2019), ‘Agency in transition: the role of transnational actors in the development of the off-grid solar PV regime in Uganda’, *Environmental Innovation and Societal Transitions*, 33, pp. 30–44; Byrne, R., Mbeva, K., Ockwell, D. (2018), ‘A political economy of niche-building: neoliberal-developmental encounters in photovoltaic electrification in Kenya’, *Energy Research and Social Science*, 44, pp. 6–16; Dalberg Advisors and Lighting Global (2018), ‘Off-Grid Solar Market Trends Report’, https://www.gogla.org/sites/default/files/resource_docs/2018_mtr_full_report_low-res_2018.01.15_final.pdf.

²⁰ Lahn, G. (2019), *Thinking Differently about Energy in Situations of Displacement*, Energy Impact, Energy & Economic Growth Applied Research, Oxford Policy Management/UKAID, <https://www.energyeconomicgrowth.org/sites/default/files/2019-04/Energy%20access%20in%20mass%20displacement%20CLEAN%20FINAL%20%5Bglrevisions%5D.pdf>.

A focus on market-based solutions requires greater understanding of national-level policy and governance

Conventional humanitarian policy and practice tends to be characterized by the implementation of short-term solutions: for instance, the pursuit of relief in the form of immediate measures to improve people's welfare. The humanitarian system originally evolved to intervene in crises to try to protect human lives, not to get involved in long-term development issues. This short-termism is incentivized by traditional humanitarian budget cycles, whereby allocated donor funds must be spent within a given financial year. When it comes to providing energy, this still mostly translates into the procurement of diesel generators and/or the distribution of solar lanterns or improved cookstoves, regardless of the underlying needs, preferences or economic circumstances that could inform the design of more sustainable solutions.

In the last five or so years, there has been a marked shift in thinking regarding responsibilities for delivering the benefits of sustainable development for all, including energy to displaced people.²¹ Given fundraising shortfalls and the lack of technical capacity for things like energy management in the humanitarian sector on the one hand, and recognition of protracted displacement needs on the other, this change in thinking seeks to move away from short-term relief and free distribution of products. Instead, newer approaches aim to harness market-based models and partnerships with the private sector (especially given the emerging consensus on the need to pursue market-based solutions).²² At this juncture, it becomes vital to understand national policy and regulation governing this area.

Creating an enabling environment for private sector investment in clean energy requires a detailed understanding of the various financial and non-financial barriers and constraints, and analysis of how to overcome them.

In order to invest in clean energy, business and finance decision-makers want to have confidence in the longevity of policies – they need to be 'long, loud and legal'.²³ In many countries, this confidence is lacking and the specific conditions around displacement situations add uncertainty.²⁴ As such, creating an enabling

²¹ Hyman, J. (2018), 'Landscaping study for the Moving Energy Initiative', E.Co.

²² Lahn and Grafham (2015), *Heat, Light and Power for Refugees*; Vianello, M. and Boodhna, A. (2019), 'The Role of Market Systems in Delivering Energy Access in Humanitarian Settings: The Case of Burkina Faso', in Grafham (ed.) (2019), *Energy Access and Forced Migration*; Whitehouse, K. (2019), *Adopting a Market-based Approach to Boost Energy Access in Displaced Contexts*, Moving Energy Initiative, London: Royal Institute of International Affairs, <https://www.chathamhouse.org/sites/default/files/publications/research/2019-03-25-MEIWhitehouse.pdf>; Boodhna, A., Sissons, C. and Fullwood-Thomas, J. 'A systems thinking approach for energy markets in fragile places', *Nature Energy*, 4, pp. 997–999 (2019), <https://doi.org/10.1038/s41560-019-0519-7>.

²³ Hamilton, K. (2009), *Unlocking Finance for Clean Energy: The Need for 'Investment Grade' Policy*, Energy, Environment and Development Programme Paper, London: Royal Institute of International Affairs, https://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/1209pp_hamilton.pdf.

²⁴ Lahn (2019), *Thinking Differently about Energy in Situations of Displacement*.

environment for private sector investment in clean energy – even at the micro level of, for instance, selling solar home systems in a refugee camp – requires a detailed understanding of the various financial and non-financial barriers and constraints, and analysis of how to overcome them.

For all the global initiatives and the increasing focus on the subject, little attention has been paid to the significance of national host government policy and governance in creating ‘effective ecosystems for implementation’ of clean energy objectives in situations of displacement.²⁵ While development agencies tend to consider these issues carefully and conduct research, in-depth analysis and stakeholder consultations, humanitarian agencies rarely have the time, scope, budget or expertise to fully engage with these issues.

Joining the dots on policy solutions for refugee energy access

This paper examines the ways humanitarian efforts to scale up more sustainable electricity and access to cleaner cooking have been affected by the policy context – global and local – with a focus on five country case studies. Insights on these national policy contexts show the influence of policy and governance structures (or lack of them) in the delivery of clean energy for refugees and host communities, while the analysis attempts to identify the key factors of an ‘enabling environment’. In the concluding chapter, the authors discuss the role that UN agencies can play in fostering this enabling environment, and thus help to secure technical and financial resources that can assist refugee-hosting countries in achieving SDG 7.

Specifically, the paper attempts to answer the following questions:

- What difference do host governments’ policies and governance (including organizational structures) make to enabling energy access in displacement-affected areas?
- What types of engagement between host-country authorities and the global humanitarian sector have benefited attempts to increase access to sustainable energy?
- What does recent experience mean for future energy planning in displacement situations; and how can host countries benefit from evolving international interest in this area?

²⁵ Ibid.

02

Country policy and governance contexts: case studies

Case studies, exploring national policy contexts in Ethiopia, Jordan, Rwanda, Tanzania and Uganda, help identify enablers and impediments in projects to deliver clean energy to refugees and host communities.

Drawing on case study analyses from Ethiopia, Rwanda and Uganda, this chapter explores how approaches to energy in refugee camps and surrounding areas have evolved since these countries signed up to the CRRF in 2016. Also explored is the progress of Jordan, a non-CRRF country, which began implementing a national response plan to the Syria crisis in 2015; and the case of Tanzania, which was among the first CRRF countries but withdrew from the arrangement in 2018.

Why these case studies

The choice of countries is in part determined by the authors' experience in these countries, and partly by the fact that these countries have attracted a comparatively high level of attention in terms of humanitarian energy projects. Ethiopia, Jordan, Rwanda, Tanzania and Uganda are considered to have several conditions in common that make them attractive for energy access projects, offering a few years of experience to reflect on:

- These countries have offered a relatively stable political situation (with the exception of Ethiopia since November 2020), and a level of security for humanitarian settlements and local host communities;
- They have a relatively long history of hosting refugees, although recent crises were unprecedented in scale;
- They allow refugees to have access to household income, through formal right-to-work policies in Ethiopia, Jordan (although the certification can be expensive) and Uganda (as well as tacit acceptance in Rwanda and Tanzania), and use cash-based interventions to support market-based solutions of accessing a range of products and services; and
- They are (or were, in the case of Tanzania, and with the exception of Jordan) pilot countries for the CRRF, and their governments are amenable (to different degrees) to the long-term stay and integration of refugees.

However, beyond these broad common conditions, the context and specifics in each country vary greatly, justifying a more in-depth analysis of energy project interventions and outcomes. Countries exhibit various levels of awareness, policy coherence, government coordination and wider coordination between humanitarian, government and non-state actors.

Ethiopia

Estimates from February 2022 suggest that Ethiopia is hosting around 4.23 million internally displaced people²⁶ as well as more than 850,000 refugees.²⁷ Across Ethiopia, it is estimated that only 7 per cent of refugees have access to electricity and – depending on the location – this is mainly through diesel generators, operating for an average of four hours a day.²⁸ As in most of our other case studies, refugees across Ethiopia are also highly dependent on wood for cooking. Although numbers vary between the camps, detailed assessments conducted in the Dollo Ado camps in the east of the country suggest that some 95 per cent of refugees use firewood as their main fuel for cooking, with charcoal constituting the remainder.²⁹ As in other countries around the world, the lack of access to clean cooking fuels creates significant protection risks for refugees, as they are highly dependent on collecting firewood in areas around the settlement. This has caused degradation of forests and conflicts with host communities. Women and girls are particularly

²⁶ International Organization for Migration (IOM) (2022), *Displacement Tracking Matrix Ethiopia: Mobility Overview 2021*, February 2022, <https://displacement.iom.int/sites/default/files/public/reports/DTM%20Ethiopia%20Mobility%20Overview%202021.pdf>.

²⁷ UNHCR (2022), 'Operational Data Portal, Ethiopia', 30 April 2022, <https://data2.unhcr.org/en/country/eth> (accessed 4 May 2022).

²⁸ IRENA (2019), *Renewables for refugee settlements: Sustainable energy access in humanitarian situations*, Abu Dhabi: International Renewable Energy Agency. Note, however, that for some camps the estimate is much higher. UNHCR reports that approximately 47 per cent of refugees in Dollo Ado have access to energy solutions more broadly, including solar mini-grids in health centres and public solar street lights. See Betts, A., Marden, A., Bradenbrink, R., and Kaufmann, J. (2020), *Building Refugee Economies: An evaluation of the IKEA Foundation's programmes in Dollo Ado*, p. 101, Oxford: Refugee Studies Centre, <https://www.rsc.ox.ac.uk/publications/building-refugee-economies-an-evaluation-of-the-ikea-foundations-programmes-in-dollo-ado>.

²⁹ Behrens-Shah, P. et al (2018), 'Cooking Fuel Supply Options for Melkadida Camp Settings, Ethiopia', UNHCR and Integration, Environment & Energy.

at risk from gender-based violence when they leave the camp. In addition, the health risks of cooking with traditional biomass are well documented.

At the policy level, since 2016 Ethiopia has adopted a series of progressive policy and legislative changes relating to refugees. These reforms include the ‘Nine pledges in 2016’, its adoption of the CRRF in 2017, and the Refugee Proclamation of 2019.³⁰ The government’s ‘Nine pledges’ – launched at a refugee conference inaugurated by then US President Barack Obama – included announcements around work permits for refugees; job creation in new industrial parks; a new jobs compact with international donors; expansion of the out-of-camp policy; a pathway to naturalization for refugees present in the country for more than 20 years; land for agricultural irrigation close to refugee camps; improvements to basic and social services; increased education enrolment; and better access to identity and related documentation.³¹ The proclamation enshrined a set of socio-economic rights for refugees that are among the most progressive in the world. In law at least, Ethiopia went from having a strict encampment policy that denies refugees the right to work towards one that ostensibly allows refugees greater freedom of movement and the right to work.³² Progress towards these goals – although limited – has been steady.³³

Ethiopia went from having a strict encampment policy that denies refugees the right to work towards one that ostensibly allows refugees greater freedom of movement and the right to work.

Alongside this, Ethiopia has been the site of some of the most visible pioneering ‘humanitarian energy’ interventions. The IKEA Foundation’s investments in the Dollo Ado camps are often seen as a ‘vanguard’ for the humanitarian energy sector.³⁴ The government of Ethiopia consolidated much of this momentum around energy and environmental interventions by pledging to ‘provide market-based sustainable, reliable, affordable, culturally acceptable, environmentally friendly clean/renewable energy solutions for 3 million people’ as one of its four headline pledges at UNHCR’s inaugural Global Refugee Forum in December 2019.

Despite this overwhelmingly progressive policy architecture, the landscape for ensuring that energy and environmental projects come to fruition is widely perceived as administratively complex. Figure 1 is a stylized schematic depicting the responsibilities of the various ministries and organizations involved in energy response for refugees in Ethiopia:

³⁰ Federal Democratic Republic of Ethiopia via Refworld (2019), ‘Proclamation No. 1110/2019, Addis Ababa: Federal Negarit Gazette of the Federal Democratic Republic of Ethiopia’, <https://www.refworld.org/docid/44e04ed14.html>.

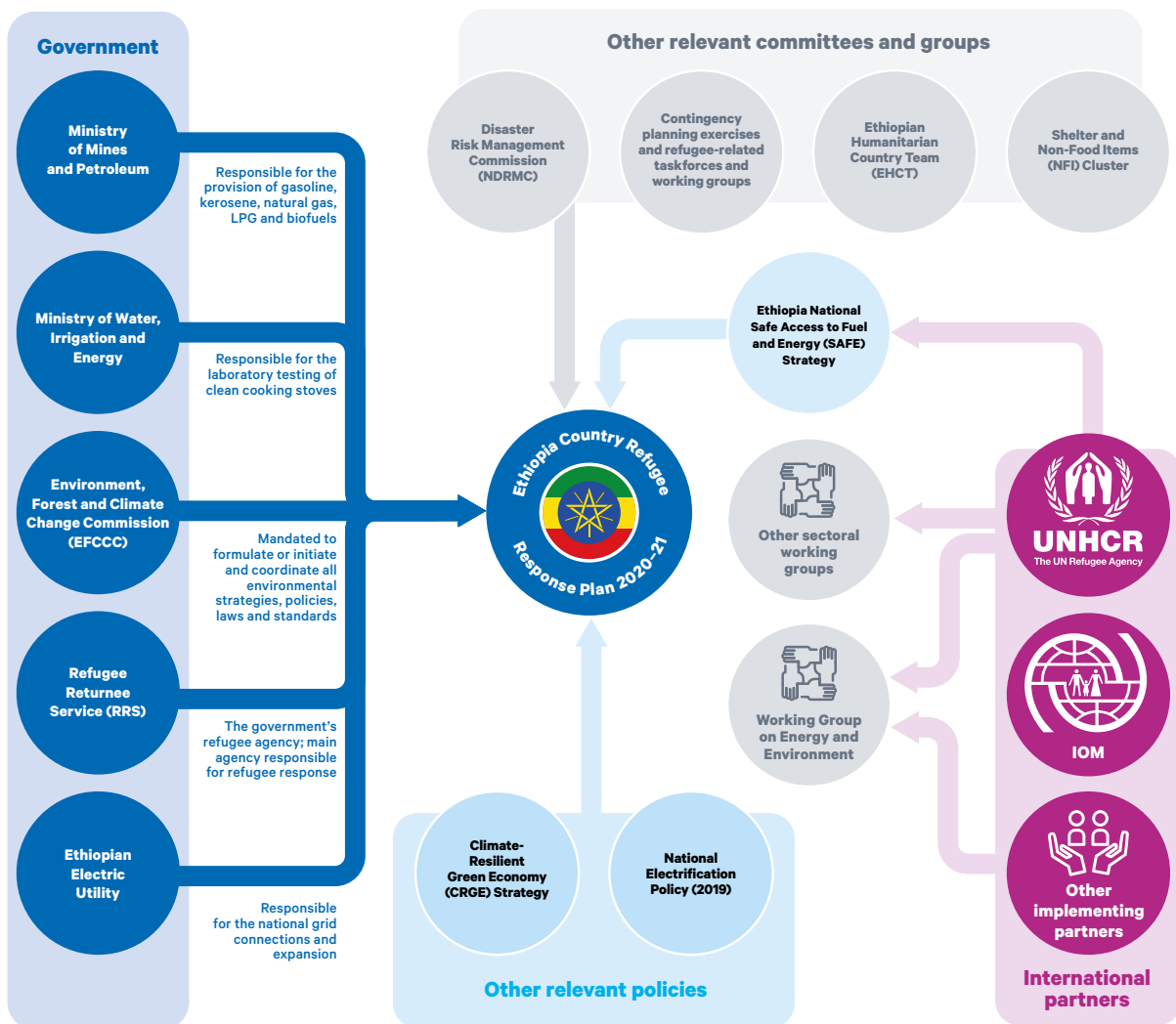
³¹ Betts, Marden, Bradenbrink and Kaufmann (2020), Building Refugee Economies.

³² Ibid.

³³ UNHCR and Government of Ethiopia (2021), Ethiopia GRF Pledge Progress Report December 2021, <https://reliefweb.int/sites/reliefweb.int/files/resources/Ethiopia%20GRF%20Pledge%20Progress%20Report%202021.pdf>.

³⁴ Ecorys (2017), ‘Impact Assessment of the Brighter Lives for Refugees Programme’, IKEA Foundation and Ecorys.

Figure 1. Humanitarian energy policy landscape in Ethiopia, 2020–21



Source: Based on interviews conducted by Hajar Al-Kaddo, and the authors' own analysis.

Energy access projects are generally overseen and coordinated by a working group on energy and the environment, co-chaired by UNHCR, the Refugee Returnee Service (RRS – formerly known as the Administration for Refugee and Returnee Affairs (ARRA)) and the German development agency GIZ. This group is central to the coordination of humanitarian energy projects, and participants generally regard it as an excellent place to exchange information on regulatory and legislative issues, as well as for sharing of best practice between organizations. RRS is formally a co-chair of the group, but in practice its role in the coordination of this group is limited. Despite this, the policies and strategies around clean energy and humanitarian and refugee response in Ethiopia are informed by a collection of government ministries and departments. Each agency works on different areas that influence policymaking, which has direct and indirect effects on host and refugee populations. Among these, RRS is the most central.

In addition to Ethiopia's broader refugee policy commitments described above, the key policies and strategies relevant to energy and refugees are the National Electrification Program³⁵ and the Climate-Resilient Green Economy (CRGE) Strategy.³⁶ An updated version of the National Energy Policy (2013) was drafted and discussed in 2018 but has not been taken forward. Nonetheless, when combined, these national-level policies and strategies provide a relatively progressive policy framework for clean energy ventures, although none of these national-level policies explicitly mentions refugees.

In the humanitarian space, as with the other countries considered in this analysis, Ethiopia has a Country Response Plan (most recently for 2022) that includes an 'energy and environment' component. Previous iterations of the response plan have also strongly referenced the 'Ethiopia Safe Access to Fuel and Energy Strategy' (SAFE), although this had not been updated since its design in 2015 and does not reflect more recent policy advances or programming – such as the CRRF or the Clean Energy Challenge. The fact that mention of the policy has been dropped from the most recent iteration of the response plan is perhaps because recently GIZ and the Energy and Environment Working Group have been developing a 'Multi-actor National Cooking Fuel Strategy', which may be expected to provide the policy direction that was previously lacking.

Although overall financial requests have been increased in Ethiopia's 2022 response plan, it is nonetheless evident that ambitions for electrification and clean cooking on the scale envisaged will require an exponential increase in resources.

The Country Response Plan for 2022 commits to continuing the connection of camps to the national electricity grid, as well as activities relating to enhancing energy access, promoting alternative fuels and restoring native ecosystems.³⁷ However, the situation in Tigray³⁸ has vastly complicated such priorities (at least for the camps in areas of active conflict). Previous iterations of the strategy were vastly under-budgeted compared with the scale of ambition contained within the documents. (For example, one aim in the 2020–21 plan was to increase access to clean and reliable domestic energy for cooking and lighting to 70 per cent of the refugee population, when the current baseline reveals just 4 per cent of refugees have access to advanced stoves for cooking.)³⁹ But specific targets have been removed from the most recent plan. Although overall financial requests

³⁵ Federal Democratic Republic of Ethiopia (2019), *National Electrification Program 2.0: Integrated Planning for Universal Access*, <https://www.powermag.com/wp-content/uploads/2020/08/ethiopia-national-electrification-program.pdf>.

³⁶ Federal Democratic Republic of Ethiopia (2012), *Ethiopia's Climate-Resilient Green Economy Strategy*.

³⁷ UNHCR (2022), *Ethiopia Country Refugee Response Plan: January 2022– December 2022*, <https://reporting.unhcr.org/document/2702>. For the previous iteration, see UNHCR (2020), *Ethiopia Country Refugee Response Plan (ECRRP) 2020–2021*, [https://data2.unhcr.org/en/documents/details/73572#:~:text=Ethiopia%20Country%20Refugee%20Response%20Plan%20\(ECRRP\)%202020%2D2021,-Document%20Type%3A&text=The%20Plan%20aims%20to%20ensure,and%20effective%20protection%20and%20solutions.](https://data2.unhcr.org/en/documents/details/73572#:~:text=Ethiopia%20Country%20Refugee%20Response%20Plan%20(ECRRP)%202020%2D2021,-Document%20Type%3A&text=The%20Plan%20aims%20to%20ensure,and%20effective%20protection%20and%20solutions.)

³⁸ Civil war erupted in the Tigray region of Ethiopia in late 2021. A ceasefire was called in March 2022, but conflict continued at the time of writing.

³⁹ UNHCR (2020), *Ethiopia Country Refugee Response Plan (ECRRP) 2020–2021*.

have been increased in the 2022 plan, it is nonetheless evident that ambitions for electrification and clean cooking on this scale will require an exponential increase in resources. Finally, the document also appears to sit alongside the Humanitarian Response Plans of the UN Office for the Coordination of Humanitarian Affairs (OCHA), which have no dedicated focus on energy and environmental issues and are instead organized around the traditional humanitarian cluster systems. The interaction between these plans is unclear.

A testing ground for new approaches

In its partnership with UNHCR, the IKEA Foundation became the first private sector donor to become involved in large-scale access to energy programming in humanitarian refugee settings. Its long-term support for clean energy projects in the Dollo Ado refugee camps has led to a number of policy and programme innovations that are pertinent to the broader ‘humanitarian energy’ community. The Brighter Lives for Refugees campaign, which ran between 2014 and 2017, donated 40,000 solar lanterns and 240 street lights to Dollo Ado. The foundation also provided \$11.45 million to energy and environmental projects in Dollo Ado between 2012 and 2018 as part of an overall investment of \$98.95 million in that time period.

As a result of this investment, eight solar mini-grid installations (five of which serve public health centres, and three of which provide private electrical supply) have been installed.⁴⁰ Research published by the University of Oxford’s Refugee Studies Centre has estimated that roughly 25 per cent of refugee households across Dollo Ado had access to electricity in their homes, whether from a generator or solar panel, independently purchased or distributed by an implementing partner or UNHCR.⁴¹ UNHCR also reports that approximately 47 per cent of refugees have access to energy solutions more broadly, including the solar mini-grids in health centres and public solar street lights.⁴² In addition, 1,409 solar street lights have been erected throughout all of the camps and kebeles (neighbourhood administrative areas), and nearly 5,000 home solar energy systems have been distributed by UNHCR. Perhaps even more ambitiously, the IKEA Foundation set up a series of energy-related cooperatives across Dollo Ado.

Five cooperatives (of around 12 to 21 people) have been set up to look after and ensure the maintenance of power-related infrastructure; and five cooperatives (mostly 40–65 people) have been set up to source and transform firewood from the invasive *prosopis juliflora* tree (hereafter *prosopis*).⁴³ The power-related cooperatives have a number of viable income streams, including maintenance of IKEA Foundation-funded solar street lights that have been installed as part of this programme; installation and repair of solar home systems; and maintenance of the solar mini-grid installations. A recent evaluation of the programme suggested that only two of the five power-related cooperatives had been

⁴⁰ A mini-grid is an off-grid electricity distribution network involving small-scale electricity generation for local-level consumption. Solar PV technologies convert sunlight into electricity to power these systems.

⁴¹ Betts, Marden, Bradenbrink and Kaufmann (2020), *Building Refugee Economies*.

⁴² Ibid.

⁴³ Others have written in more detail about the relative strengths and weaknesses of such models. See Gianvenuti, A., Farah, I., Yasmin, N., Jonckheere, I. and Xia, Z. (2018), *Using Prosopis as an energy source for refugees and host communities in Djibouti, and controlling its rapid spread*, Rome, Food and Agriculture Organization of the United Nations (FAO), <https://www.fao.org/publications/card/en/c/CA0163EN>.

successful in transitioning towards self-reliance (those associated with the mini-grids providing private electricity supply), with the other three still unable to generate the necessary revenues to sustain the group. The prosopis-related cooperatives source (and to a lesser extent collect)⁴⁴ the firewood, sell the raw wood and also transform it into charcoal briquettes that can be sold for household use. But the same evaluation highlighted serious problems with the business model behind these cooperatives, noting ‘varying levels of success’.⁴⁵ This has been largely attributed to lack of access to an affordable and reliable supply of the prosopis; additional factors have been reliance on defunct machinery or low demand for the briquettes. Despite the mixed success of the cooperative ventures, these interventions represent one of the most complete and ambitious attempts to transform access to energy for refugees. At its most basic, the foundation’s commitment to multi-year, multi-partner, project-based funds has been welcomed by all stakeholders, and has provided both the strategic space and the funds to deliver ambitious long-term energy projects. Staffing support provided by foundation funds has been central to progress in the camps. In particular, UNHCR’s Energy Unit in Dollo Ado has benefited from an improved staffing structure since 2017, when a new energy officer was brought in who now sits alongside two energy associates.⁴⁶ Few field offices have a comparable level of technical capacity, but through the course of research for this paper many stakeholders have identified this technical capacity as central to the success of energy ventures in Dollo Ado.

The huge financial commitment and the long-term nature of the work in Dollo Ado also provide the ability to meet the challenge of securing permissions and approvals and of engaging local government effectively (which is a notable barrier in other projects – see Box 1). Stakeholders have highlighted the ‘intricacy of authority networks and the complications of managing their expectations and generating buy-in from critical individuals’ as a ‘persistent challenge’ in Dollo Ado⁴⁷ and several other projects. Work in Dollo Ado highlighted the importance of individuals (particularly those in UNHCR leadership positions within sub-offices) in engaging with officials to remove blockages and promote good outcomes. For example, UNHCR engagement with woreda (district-level) officials convinced the local host community that new agricultural programmes for refugees would also benefit the host communities if they were well supported;⁴⁸ and UNHCR support for the upskilling of local electricity utility staff and the sharing of information and data with government entities helped with progress of other programming.⁴⁹

However, this does not necessarily translate into more enabling environments for clean energy in other humanitarian settings in the country. Gaia Clean Energy’s work to promote ethanol as a sustainable and clean cooking fuel has now been stalled for several years after more than 12 years of attempting to

⁴⁴ Refugees cannot typically do much ‘free collection’ of the tree wood due to restrictions on their movement and political dynamics between refugees and host communities. See Betts, Marden, Bradenbrink and Kaufmann (2020), *Building Refugee Economies*.

⁴⁵ Ibid, p. 108.

⁴⁶ Betts, Marden, Bradenbrink and Kaufmann (2020), *Building Refugee Economies*.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Al-Kaddo, H., Gibbons, P. and Ward, S. (2020, unpublished), ‘Policies, Priorities and Progressive Practices: Humanitarian Clean Energy Politics and Programmes in Ethiopia and Jordan’.

create a market-based model for this fuel in the southern camps of Ethiopia. This has led to a large quantity of cooking stoves being abandoned, and a significant infrastructure for ethanol supply into the refugee camps being left dormant. The programming has notably succeeded on health and environment measures: it is estimated that the distribution of sustainably produced and clean-burning ethanol has prevented 10,000 tonnes of wood from being burned since 2006.⁵⁰ However, there has been little movement in terms of translating this success into national policy objectives for the expansion of the ethanol market. Moreover, the limited purchasing power of the refugees in the camps has hampered the commercial expansion of the business into refugee settings, with tax and currency exchange on goods also proving challenging. Policy interventions that could further support these efforts (e.g. the use of restricted vouchers for energy purchase or direct or end-user subsidies) appear to have fallen between the mandates of government and UNHCR; wider national possibilities such as VAT being applied on charcoal and/or kerosene have not been undertaken. Despite the huge efforts and expense that have gone into setting up distribution channels, storage facilities, supply chains and credible payment plans, the fuel supply has been unavailable since April 2018 and unutilized, and reliance on wood fuel in the southern Ethiopian refugee camps remains the norm.

Box 1 describes another example of a ground-breaking attempt at greater integration of refugee populations within the national energy system – namely through extending the grid to them.

Box 1. Alianza Shire: extending electricity to refugees and host communities

The refugee camps in the Shire area of northern Ethiopia are populated by Eritreans. Unlike most refugee camps, three of the four camps in Shire already had some connection to the national electricity grid. Alianza Shire, which is the first Spanish multi-sectoral and multi-stakeholder partnership for humanitarian action,⁵¹ launched a pilot project in 2014 in Adi Harush, one of the four Shire refugee camps. The aim was to deliver innovative solutions for improving access to electricity for refugees and displaced populations.

The first-phase project (2014–17) sought to improve electricity distribution and install street lighting networks in the Adi Harush camp, with 8,000 beneficiaries. The existing electricity grid was improved and extended to a total of 4 km, connecting field operations, public services and public lighting. In addition, refugees were trained and a group of operators was set up in order to carry out basic maintenance of the installation.

⁵⁰ Estimate by Desalegn Getaneh of Gaia Clean Energy, shared during research interview conducted on 22 April 2022, and based on 5 million litres of ethanol fuel distributed since 2006, and ethanol cookstove efficiency of 61 per cent, compared to a baseline of a three-stone fire.

⁵¹ Alianza Shire is a collaboration between the private, public and academic sectors working locally in partnership with UNHCR, the Refugee Returnee Service (RRS) and the Ethiopian Electric Utility (EEU). Partners include three of the leading Spanish energy sector companies: Acciona.org, Iberdrola and Signify; the Spanish Agency for International Cooperation and Development (AECID); and the Innovation and Technology for Development Centre at the Universidad Politécnica de Madrid (itdUPM). The second phase of the project is co-funded by the EU and AECID, and it counts, among others, the participation of ZOA (a Dutch charity working on ‘relief to recovery’) as an implementing partner. For more information, see www.alianzashire.org.

From 2018, the project was scaled up from one camp to four camps in Shire, targeting 40,000 people in the refugee camps and host communities. This second phase (2018–21) aimed to extend the electricity grid and connect community services and businesses to this network as well as install more than 20 km of new street lighting. Additionally, under an off-grid work stream, several businesses would have been supported to distribute, manage and maintain 1,700 solar home systems through a market-based delivery model. However, first because of the COVID-19 pandemic, and then due to the outbreak of conflict in Tigray, the project's activities had to be suspended. Eventually, in 2021, together with local stakeholders, the project's activities were transferred from Shire to the Dollo Ado refugee camps.

At the national level, Alianza Shire worked closely with UNHCR and the Refugee Returnee Service (RRS) and with Ethiopia's in-line ministries, especially the Ministry of Water, Irrigation and Energy (MoWiE), while at the regional and local levels it worked with the leadership of the woreda (district level) and kebele (municipality level) governments. According to members of the Alianza Shire team, they only needed to interact with UNHCR and RRS during the first phase: this involved operating at the local level, with RRS issuing all necessary permissions and documents to build the physical infrastructure. On a technical level, the team had most contact with the Ethiopian Electric Utility (EEU), and found them collaborative and willing to learn about how to include refugee communities in the electrification process.⁵²

In the second phase, Alianza Shire implementers had little operational connection to the national-level authorities, with most official coordination taking place among UNHCR, RRS, and the EEU regional and local offices. The Ethiopian National Electrification Program does not prioritize the electrification of refugee camps. Gaining the necessary permissions and authorizations from national authorities was stated to be harder in this phase, with multiple delays. But the project was able to push forward as it was largely understood as a development-oriented project that was 'owned' by the main humanitarian agencies. Support from the EEU in this humanitarian-led energy access project was largely confined to the technical realm, and was reinforced by the successful completion of the first phase and the delivery of bespoke training sessions for EEU staff.

The off-grid component required different coordination and governance mechanisms with RRS, UNHCR, the Refugee Central Committee and local administration representatives and community leaders from the host communities. The market-based delivery model was designed to create photovoltaic electrification committees at community level, and user assistance centres (UACs) and a renewable energy service company (RESCO) to ensure the required coordination and management structures.

⁵² Insights shared in research interviews and correspondence with the authors.

Summary reflection: did policy matter?

The humanitarian-led nature of Ethiopia's energy plans, with a low level of specification from government on integration within and contribution to national energy objectives, has both positive and negative implications for project delivery. Positive because change can be driven from the ground up by NGOs and development partners in collaboration with local humanitarian actors, with little red tape. But negative because it is often difficult to know who has responsibility and ultimate sign-off for the most sensitive decisions, and because it can lead to fragmentation and lack of strategic alignment – particularly in those projects being implemented away from the spotlight of the Dollo Ado camps, where financial and political interest in good outcomes is higher.

Policy seems to matter more when projects are longer term, or where they fundamentally change the nature of local economies.

In the first phase, the Alianza Shire case clearly benefited from a single approvals process from ARRA and a positive relationship with the utility (EEU). These were attributed to two factors: i) the favourable attitude of the government of Ethiopia towards refugee integration; and ii) the fact that the grid was already present in the area, and thus the project was effectively financing improvements and extensions. At the same time, the project brought to light some fundamental misalignments between the local and national-level policies and agencies governing the electrification agenda, with significant differences among both projects' components. In the case of the off-grid component, implementers found that they had to pay greater attention to setting up governance structures to enable delivery of the project, given the absence of government ones.

Policy seems to matter more when projects are longer term (for example, Gaia Clean Energy's work on ethanol), or where they fundamentally change the nature of local economies (for example, the IKEA Foundation work in Dollo Ado). Even more fundamentally, the ongoing crisis in Tigray, which erupted in November 2020, threatens humanitarian and development work in general, including progress in the energy and environment domain. For example, the Alianza Shire project has had to withdraw from the camps where it was working and repurpose many of its activities and actions to other areas of the country.

Jordan

When, from 2011 onwards, the civil war in Syria caused hundreds of thousands of people to flee to Jordan (some 672,000 Syrians were registered with UNHCR as refugees there as at October 2021),⁵³ the Jordanian government and humanitarian agencies alike quickly recognized energy as a major challenge.

⁵³ UNHCR (2021), 'Operational Data Portal: Syria Regional Refugee Response', <https://data2.unhcr.org/en/situations/syria/location/36>, updated 31 October 2021 (accessed 26 Nov. 2021). This number is considered to be around half of the total of Syrians living in Jordan.

Syrians were accustomed to reliable power. The lack of power in the camps and landlord–tenant disputes over bill payment in the rented accommodation sector were compromising refugee welfare. As around 80 per cent of refugees in Jordan live in rented accommodation, the situation for energy and other municipal services came under pressure in some urban areas, particularly in Mafraq and Irbid. Government subsidies for residential electricity and liquefied petroleum gas (LPG) rose rapidly, as did the bills for public buildings such as schools and hospitals that now served both national and refugee communities. This case study looks at the policy and coordination environment that enabled a range of innovative projects, focusing on refugee camps and the wider municipal context.

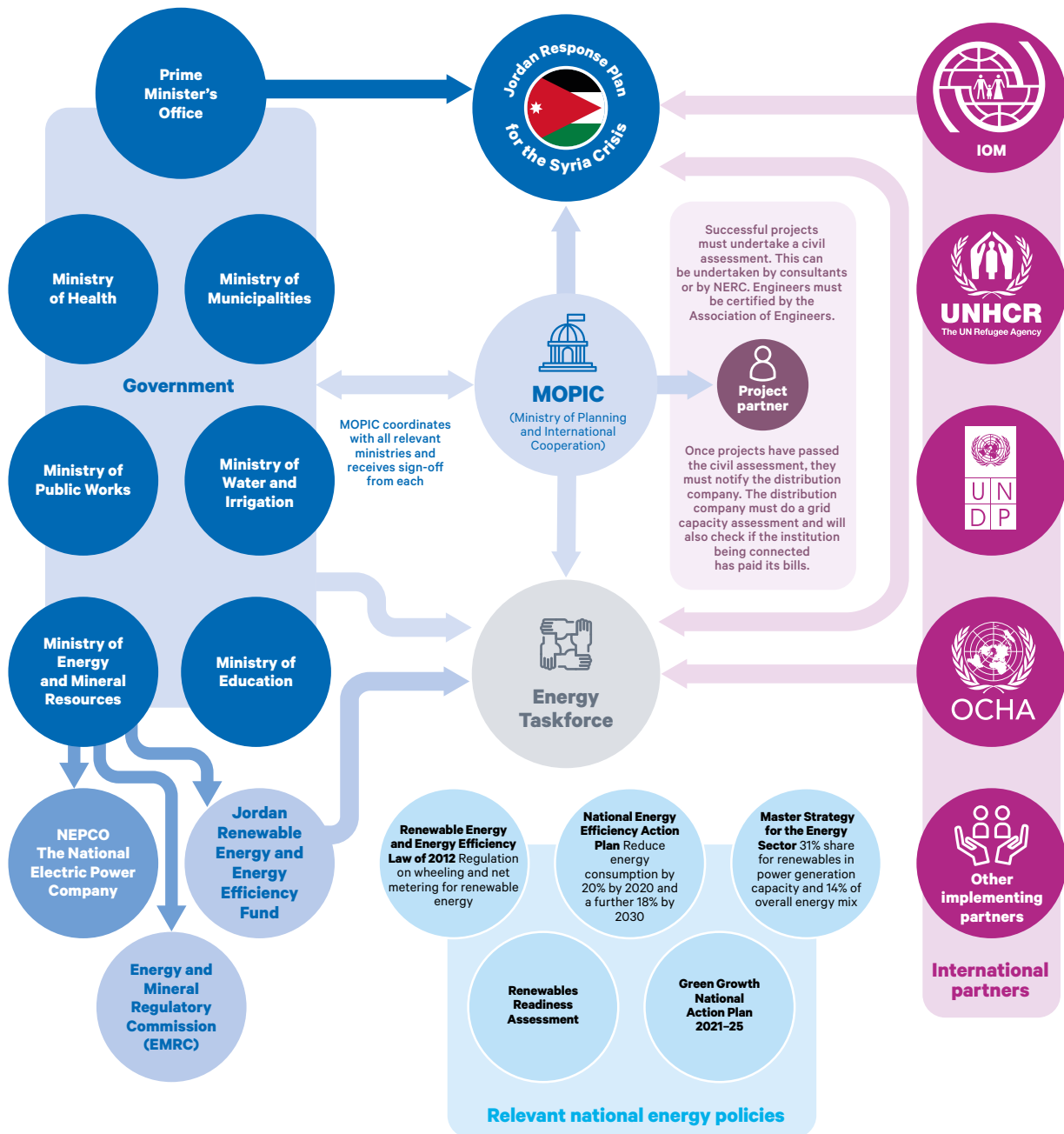
Humanitarian-focused energy projects in Jordan have benefited from the fact that the government and monarchy of Jordan sent clear signals from the beginning of the Syria crisis that they were prepared to help and plan for the long-term safety and security of Syrian refugees. As with many countries hosting refugees, labour rights are a sensitive political issue in Jordan. Since July 2016, refugees have been legally entitled to work in certain sectors if they can gain a work permit – usually via their employer. Restrictions have relaxed over time, although work remains a point of contention. Given the difficulty and expense of obtaining permits, many Syrians remain workers in the informal economy.

Jordan is part of the Regional Refugee and Resilience Plan for the Syria Crisis – a multi-country platform of five countries that supports inter-country coherence and mobilizes resources, and is co-led by UNHCR and the UN Development Programme (UNDP).⁵⁴ The Jordan Response Plan for the Syria Crisis (JRP) is prepared under the overall supervision of the government of Jordan, represented by the Ministry of Planning and International Cooperation (MoPIC) (leadership) and with the meaningful participation of the sector taskforces (ownership and inclusive participation) representing all relevant national and international stakeholders. The process is funded by UNDP. Plans are vetted and approved by all relevant ministries, and power projects work their way through civil assessment and approval by the regulator before receiving final sign-off.

Prior to the JRP, there was a history of interagency and government coordination in Jordan focused on humanitarian clusters, but these did not include energy. The JRP was one of the first crisis-response plans to incorporate energy alongside areas such as training and job creation, water infrastructure and improved health, education and housing that refugee-hosting governments are asking humanitarian agencies to deliver. It put in place a framework that sets out what is needed, and the processes by which to gain approvals. The JRP process involves rolling three-year plans drawn up by taskforces comprising the main relevant government, humanitarian and development actors for each theme. One dedicated to energy – merged into public services as of 2020 – has played an important priority-setting and coordinating role. The taskforces have proved to be an effective means to discuss refugee and local development needs, and to agree on priority projects for international financing.

⁵⁴ Regional Refugee and Resilience Plan (3RP) (2021), '3RP Structure and Role', http://www.3rpsyriacrisis.org/wp-content/uploads/2021/01/3RP_struct.pdf.

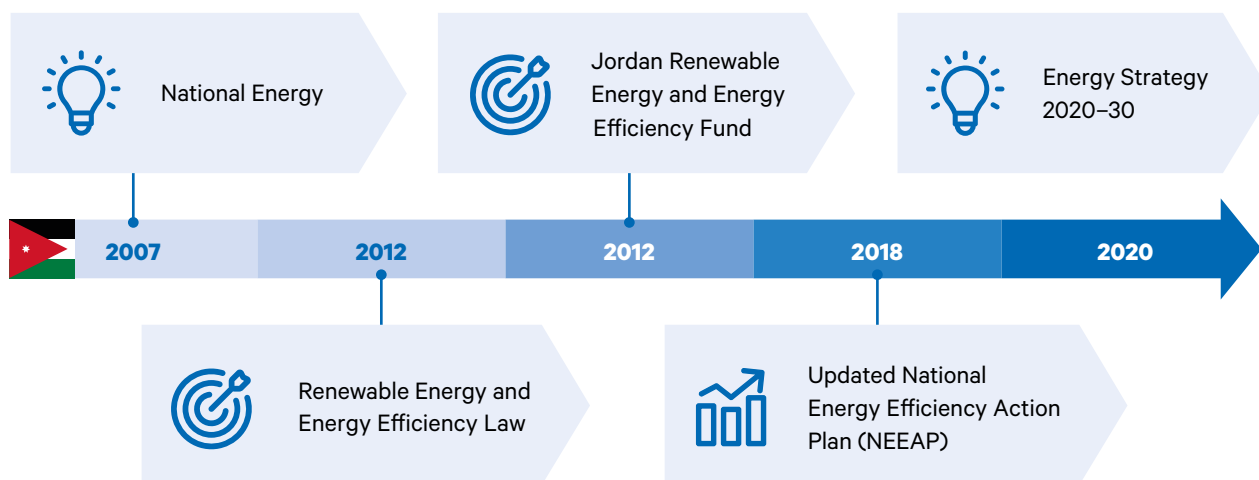
Figure 2. Humanitarian energy policy landscape in Jordan under the Jordan Response Plan for the Syria Crisis



Source: Based on interviews and the authors' own analysis.

The overarching policy environment – as exemplified by the Master Strategy for the Energy Sector, Renewable Energy and Energy Efficiency Law of 2012, and the Green Growth National Action Plan 2021–25 – is highly conducive to the promotion of renewable energy projects (see Figure 2) and has evolved effectively over time (Figure 3).

Figure 3. Jordan’s evolving energy policy framework



Source: Dolidze, N. (2021), “Evaluation of the Project “Renewable Energy for Refugees”, RE4R report presentation, 14 January 2021.

Responding to escalating costs and energy demands in camps

Jordan is the first country to have dedicated renewable energy power plants aimed at enabling refugee access to electricity. Two on-grid solar PV plants, which both came online in 2017, now enable improved supply of electricity to the country’s largest camps: Zaatari (80,244 inhabitants in 2021) and Azraq (43,677 inhabitants in 2021) (see Box 2). One driving factor was the national cost of electricity. In Jordan, humanitarian agencies pay the higher commercial rates for use of grid electricity. When the camps were established, UNHCR was using electricity from the national grid for Zaatari camp operations, and diesel generators in the case of Azraq camp. This was too expensive to extend to households, but at the largest camp, Zaatari, residents increasingly connected informally to the national grid, further enlarging the bill for UNHCR. By early 2015, it had reached around \$8.7 million for the 2014/15 financial year, leading UNHCR to cut informal connections, which caused social discontent and an upsurge in diesel generators.⁵⁵

Box 2. Solar power plants at Azraq and Zaatari refugee camps

The first solar plant at Azraq opened in May 2017, with funding from the IKEA Foundation, with a peak generation capacity of 2 megawatts (MW), later expanded to 5 MW.⁵⁶ A low- to medium- voltage network, funded by the Saudi Fund for Development, subsequently connected the camp. The arrangement allows UNHCR to provide electricity free of charge to refugees, and has enabled families – initially in 4,903 shelters, rising to 9,277 by 2020 – to power a fridge, a TV, fans, lighting

⁵⁵ Lahn and Grafham (2015), *Heat, Light and Power for Refugees*.

⁵⁶ Construction took place in three phases, giving capacity of 2 MW by May 2017; an additional 1.5 MW in September 2018; and a final 1.5 MW added offsite in August 2019.

and other appliances for 14–16 hours a day.⁵⁷ Some 472 solar street lights and 424 LED street lights had also been installed by 2020. The plant was reported to be offsetting about 70 per cent of Azraq camp's electricity bills in 2020.⁵⁸ The project, costing €8.75 million, was the first of its kind, leading to financial savings for UNHCR of around €3 million per year, as well as reducing carbon dioxide emissions by 5,865 tonnes a year.

The second plant, located next to Zaatari camp, opened in November 2017, with peak generating capacity of 12.9 MW, producing around 23,000 megawatt hours (MWh) annually. The government of Germany funded the plant through the Kreditanstalt für Wiederaufbau (KfW) Development Bank at a cost of €15 million,⁵⁹ while a renovated medium- and low-voltage power network was added with support from the government of the Czech Republic. All shelters were connected to electricity by 2018 – at first for 12 hours, rising to 12.5 hours a day; and some 2,100 solar and 456 LED street lights had been installed across the camp.⁶⁰

By 2021, the solar plants were estimated to be helping UNHCR save some \$6 million annually in electricity costs,⁶¹ and reducing the emissions footprint of Jordan operations by around 20,100 tonnes each year (equivalent to that of burning 46,660 barrels of oil).

The policy environment, at national government, humanitarian agency and donor levels, has been relevant to the effectiveness of the renewable energy installations in Jordanian refugee camps in three aspects.

First, in terms of ownership and bureaucratic process, these projects were enabled by law (the Renewable and Energy Efficiency Law of 2012) and clear regulation on solar PV installations and grid connection. This allows 'wheeling', a model whereby electricity can be generated off-site and fed into the grid, offsetting electricity bills. However, as in Ethiopia, lengthy approval and procurement processes can delay implementation and increase costs. In the case of the Azraq plant, where UNHCR took charge of procurement and project management, approvals from the local electricity distribution company, together with UNHCR procurement challenges, delayed the project by more than 18 months. In the case of the Zaatari plant, where the energy ministry, supported by KfW, was responsible for procurement and project implementation, the process benefited from groundwork done in Azraq. Direct government ownership appeared to facilitate procurement and connection approvals.

⁵⁷ UNHCR (2019), *Impacts of electricity: Participatory impact assessment of electricity access in Zaatari and Azraq camps in UNHCR Jordan*, <https://data2.unhcr.org/en/documents/details/67947>; UNHCR (2020), 'Electrification Factsheet: Azraq Camp – Jordan', August 2020, <https://data2.unhcr.org/en/documents/download/79057>.

⁵⁸ IRENA (2021), *Renewables Readiness Assessment: The Hashemite Kingdom of Jordan*, Abu Dhabi: International Renewable Energy Agency, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Feb/IRENA_RRA_Jordan_2021.pdf.

⁵⁹ Kreditanstalt für Wiederaufbau (KfW) Development Bank (2017), 'Clean power for refugees: World's largest photovoltaic plant in a refugee camp goes live in Jordan', https://www.kfw-entwicklungsbank.de/International-financing/KfW-Development-Bank/News/News-Details_445760.html.

⁶⁰ UNHCR (2018), 'Electrification Factsheet Zaatari Camp – Jordan', August 2020, <https://data2.unhcr.org/en/documents/download/64899>.

⁶¹ IRENA (2021), *Renewables Readiness Assessment: The Hashemite Kingdom of Jordan*.

Second, regarding donor and humanitarian provision for scalable financing, both the Zaatari and Azraq plants were funded by grants whereby cost savings translated into improved UNHCR capacity for humanitarian operations. Since their inauguration, and the clear evidence of cost savings, loans or blended finance have been proposed as additional, more scalable alternatives, especially for long-running operations (see Box 3).

Box 3. Evolving humanitarian agency and donor approaches to energy finance

Humanitarian organizations have not historically taken on loans, or had the capacity to do so, due to uncertain funding and one-year budgeting. While donor funding for energy applications has been forthcoming in the case of Jordan and several other refugee situations, it has been dependent on grants and therefore also subject to donor preferences and fatigue. Risk guarantees could provide a potential solution. In 2021, UNHCR launched an internal Green Financing Facility with initial donor funding to effectively de-risk clean energy investments for its own offices and facilities under the UN's Greening the Blue initiative.⁶² This would not apply to facilities for refugee or local communities. However, experience in deploying the model may have potential to overcome some of the agency policy constraints, as a study led by the multiparty GPA for Sustainable Energy in Situations of Displacement demonstrates.⁶³ In the meantime, a proposal for a 3-MW solar project off-site (under Jordan's electric power wheeling regulation) to offset the electricity use of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) in several places in and around Amman and Zarqa is seeking KfW finance, and may be one of the first humanitarian projects to use a borrowing arrangement for renewable energy.⁶⁴

Third, with regard to national and humanitarian policy on commercial transactions, UNHCR's engineers have worked to develop the quotas and 'district' metering schemes to try to make sure that provision is fair and that demand does not overload the system. Some have indicated the willingness of refugees to pay for grid electricity beyond the quota – especially those running small enterprises who currently resort to diesel generators.⁶⁵ However, UNHCR's mandate does not allow it to accept any payment from the people it serves, while refugees cannot register with the distribution companies for their own metering.

⁶² The UN rules mean that an internal facility like this can only guarantee \$1 to leverage \$1. GPA modelling proposed that a de-risking tool hosted outside the UN has the potential to use \$1 to leverage \$10. MRC Group/EMRC on behalf of The Global Plan of Action (GPA) for Sustainable Energy Solutions in Situations of Displacement and Shell International B.V. (2020), *Feasibility and Applicability of a Global Guarantee Mechanism in Humanitarian Energy Contracts*, https://energypedia.info/images/5/57/Energy_Provision_in_the_Humanitarian_Sector.pdf.

⁶³ Ibid.

⁶⁴ EcoConsult (2020), 'UNRWA 3MW Solar PV Power Project: Environmental and Social Impact Assessment (ESIA)', https://www.unrwa.org/sites/default/files/content/resources/esia_unrwa_3mw_solar_pv_project_15112020_rev1.pdf.

⁶⁵ Remarks made during workshop discussions held under the Chatham House rule, Renewable Energy for Refugees Project, 2019.

Improving urban living conditions and security of tenure

Given the intersecting interests of the Jordanian government in renewable energy and energy efficiency scale-up with those of humanitarian agencies and donors in securing refugee welfare outside camps, a new focus on urban humanitarian energy solutions has developed. This has featured projects to apply energy efficiency measures and solar water heating to improve housing conditions outside camps (see Box 4), and to reduce bills for public buildings such as schools and hospitals that serve both national and refugee populations.⁶⁶ As the majority of refugees live in urban areas, it is important to consider the ministries that deal with public services (health, education, municipalities and public works and housing, etc.) – especially now energy priorities in the response plan are listed under public services.

Box 4. Improving standards of living in residential areas

A handful of projects have pioneered responses that address the wider housing stock and deploy sustainable energy services to address the issues of securing shelter, improving refugee–host community relations and/or reducing pressure on vulnerable incomes through bill reduction. These have been enabled by the focus of the JRP on ensuring long-term benefits for host communities as well as serving immediate refugee needs.

One such project has been part of the Norwegian Refugee Council (NRC) shelter programme in Irbid and Al-Mafraq governorates, adding solar water heating (SWH) and efficiency upgrading to properties where Jordanian owners rent rooms or apartments to refugees. As part of the Renewable Energy for Refugees (RE4R) project, NRC planned and managed the installation of SWH systems in 602 properties and 158 efficiency upgrades (including insulation of internal walls, repairs to windows, and repairs to doors for refugee family quarters) between 2019 and 2021. These installations became the property of the Jordanian landlords in return for 12 months of reduced rent for the refugee tenants. These savings were reported to be mostly spent on food, debt repayment and medical expenses, with three female-headed households citing being able to save some of the money for future needs. In all, 3,637 people benefited from the scheme, 85 per cent of whom were refugees and 15 per cent Jordanian (landlords). Refugee families who were covering their own bills reported an average reduction of 29.1 per cent in their fuel expenditure as a result of these interventions.

In terms of main impacts, at the time of writing the majority of refugee respondents cited the constant availability of hot water followed by a reduction in expenditure on gas and electricity. Those properties receiving both SWH and efficiency improvements noted larger savings on their energy bills. The benefits calculated in reduced or rent-free tenancy over the lease agreement (first 12 months) reached JOD 184,636 (equivalent to some \$260,000⁶⁷), equivalent to 80 per cent of the cost of SWHs in

⁶⁶ Lahn, G. et al. (2022, forthcoming), *Scaling up sustainable energy in Jordan's public facilities: The case for greening schools and hospitals in refugee-hosting countries* [working title], Research Paper, London: Royal Institute of International Affairs.

⁶⁷ The Jordanian dinar is pegged to the US dollar at a rate of JOD 1 = USD 1.41.

the first year. The evidence suggests that most refugee families intended to continue their tenancy beyond the period (77 per cent of those receiving the SWH only; and 81 per cent of those receiving both efficiency upgrades and SWH).⁶⁸

Benefits to well-being were greatly valued, particularly by women, with improved privacy, safety and comfort inside the room during winter and summer widely cited. More than 80 per cent of respondents reported that the SWHs and efficiency upgrades have improved their day-to-day lives, mainly due to these better conditions along with reduced levels of humidity.⁶⁹ Such welfare improvements, in addition to savings, were also a finding of Green Affordable Homes, another project meeting JRP guidelines, which was completed by the Jordan Green Building Council and Habitat4Humanity under the UK DFID-funded Moving Energy Initiative in 2018.⁷⁰

The JRP has specifically called for assistance with renewable energy and energy efficiency in residential areas and public buildings, in line with Jordan's national sustainable energy goals. The NRC/RE4R shelter project was also able to benefit from the existing scheme through the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF) for subsidizing 50 per cent of the cost of SWHs, and close coordination with the municipality in Irbid. Similarly, the solar for schools project (first funded by the EU and expanded under RE4R) benefited from the fact that the Royal Initiative for Schools Heating, overseen by the JREEEF, has been scaling up solar PV for schools in the country; the humanitarian projects were able to officially fit under and complement this initiative.

Another policy affecting the shelter project related to the youth training component whereby 107 young people were trained as renewable energy technicians. The vulnerable economic situation for refugees meant that few were able to enrol or complete training. Job prospects following training were also decreased (at least temporarily) by the unexpected policy change that froze all new investments in solar power over 1 MW due to a power surplus and grid limitations.

Public infrastructure projects often require additional levels of approval because of the multiple layers of authority that are linked with them (for example, for hospitals, the Ministry of Planning and International Cooperation, the Ministry of Energy and Mineral Resources, the Ministry of Health and the Prime Minister's Office), as illustrated in Figure 2. As with the Azraq example, solar PV projects can also be subject to delays in connecting to the grid, with several hoops to jump through, given electricity distribution company requirements and regulations. For instance, the distribution companies will normally require that buildings settle unpaid bills before allowing them to benefit from net metering. The fundamental mismatch in incentives between electricity distribution companies that need to

⁶⁸ Surveys were carried out with heads of households at three periods during the project, with sample sizes ranging from 86 to 123. For more information, see Norwegian Refugee Council (NRC) (2021, unpublished), *Renewable Energy for Refugees (RE4R) Project Close Out Report: Project Update* (1 January 2021 to 13 April 2021), Norwegian Refugee Council Jordan.

⁶⁹ Ibid.

⁷⁰ Dupire, C. (2018), 'The right to a green home: project builds energy, water efficient houses', *Jordan Times*, 4 July 2018, <https://jordantimes.com/news/local/right-green-home-project-builds-energy-water-efficient-houses>. The UK Department for International Development (DFID) was merged into the Foreign, Commonwealth and Development Office (FCDO) in 2020.

cover their costs through selling electricity on the one hand, and solar power that can be fed into the grid and reduce customers' bills on the other, can also mean delays in grid connection.

The Jordan Response Plan has enabled an unprecedented experiment in 'legacy' humanitarian energy projects that should outlast the Syria crisis, provided owners continue to maintain them.

Problems can arise with infrastructure and responsibility for facilities and equipment once a project has ended. In the case of individual properties, landlord ownership may help, although in a small number of cases equipment fell into disrepair or, in the case of the shelter project, was sold for cash. In implementing the solar for schools project, lack of clear incentives and responsibility for maintenance, as well as ad hoc decisions by the ministries involved, threaten to undermine the value of assets. NRC has worked closely with the Ministry of Education to train engineers, the plan being that these engineers will take maintenance roles within regional renewable energy units. At the time of writing, however, it seems uncertain that the renewable energy units will be properly resourced by the Ministry of Education.

Summary reflection: did policy matter?

National policy and energy pricing has been critical to the implementation of energy projects in Jordan. Strong renewable energy goals and acceptance of long-term camp infrastructure enabled proposals for assets such as the Azraq and Zaatari solar plants and connection lines to gain approval. The JRP has enabled an unprecedented experiment in 'legacy' humanitarian energy projects that should outlast the crisis, provided owners continue to maintain them. Issues around policy incentives, particularly for electricity distribution companies, affect both solar plants and solar PV connections for public buildings, which may delay and add costs to projects. The JRP has provided excellent data, sets out specific and ambitious targets for donor funding, and evaluates its own plans. More than a decade after the Syria crisis began, humanitarian funding for Jordan, which has been one of the highest per capita in the world, is waning. The next step would be to ensure that plans are in place for donor-funded projects to transfer to the state or private sector over time, or to provide loan guarantees for financing in order to stimulate the transition away from aid.

The experience of projects may also have some influence on national policies. Certain projects, such as the solar for schools and shelter programmes, have shown benefits for Jordanian people as well as refugees. It would appear that the combined response plan approach, coupled with international donor funding in general, has helped to facilitate national policies such as the right to work, which in turn open up opportunities for refugee training and livelihood programmes.

It is also possible that experiences in the humanitarian sector could inform green growth plans, nationally determined contributions (NDCs) under the Paris Agreement, and climate resilience plans. The application of sustainable energy in residential upgrading, for example, is an area of evolving learning that can serve as a pilot for what is possible through retrofitting and renewable energy in the residential sector more widely, thus potentially contributing to ongoing home-building as well as to country climate resilience.

Rwanda

Rwanda has taken in refugees for more than two decades, and by mid-2022 was hosting nearly 127,000 refugees – mainly from the Democratic Republic of the Congo (DRC) and Burundi – in five refugee camps (Kigeme, Kiziba, Mahama, Mugombwa and Nyabiheke) and in two urban areas (Kigali and Huye). Recent surveys from refugee camps in Rwanda show high levels of energy poverty among respondents. For example, results from 2018 in Gihembe (since closed), Kigeme and Nyabiheke indicate that more than three-quarters of households then relied primarily on the most basic technologies for cooking, while nearly 60 per cent had no access to energy for lighting whatsoever.⁷¹

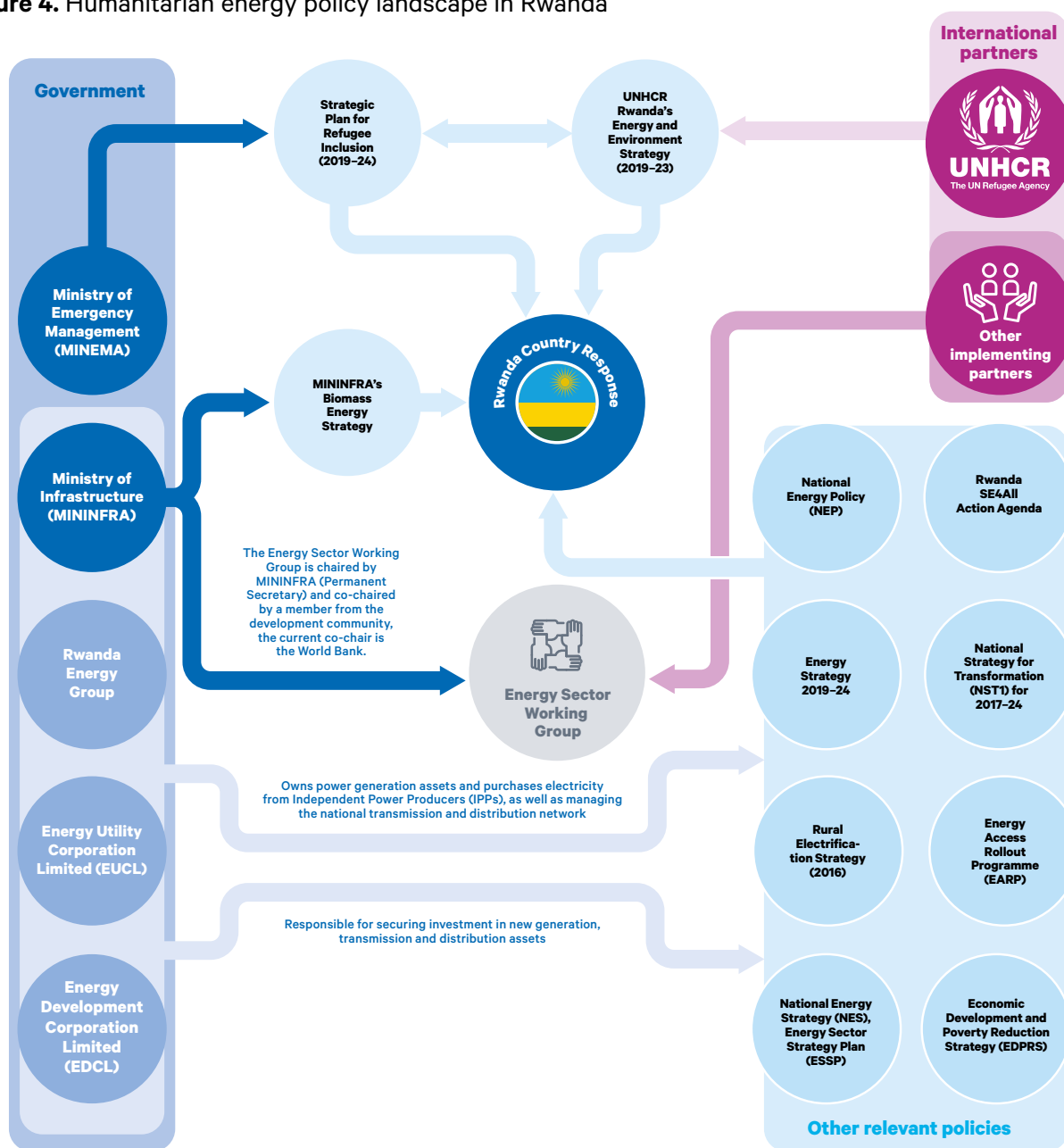
The Rwandan government places great emphasis on environmental protection and conserving the country's rich biodiversity and biomass resources. At the Global Refugee Forum (GRF) in December 2019, the Rwandan government made the following commitments with regard to energy, infrastructure and the environment:

- To undertake environmental protection and rehabilitation in refugee-hosting areas.
- To build resilient refugee settlements that promote conscious land use and reduce adverse impact on the environment.
- To ensure sustainable use of natural resources by providing clean and renewable energy solutions in refugee and host community households, in order to discourage the use of firewood.

As such, the Rwandan government's pledge to the GRF under Energy, Infrastructure and Environment is expected to attract new humanitarian energy access projects that will help to reduce the demand for unsustainable biomass among refugee households and provide them with access to electricity – either through on- or off-grid solutions. The overall environment for humanitarian energy in Rwanda is illustrated in Figure 4, with the Ministry of Emergency Management (MINEMA), which oversees refugee affairs, and UNHCR as the 'go-to' points of contact for energy projects in refugee settings.

⁷¹ Practical Action (2020), 'Ensuring refugee camps in Rwanda have access to sustainable energy', Rugby: Practical Action Publishing, https://infohub.practicalaction.org/bitstream/handle/11283/622633/Access%20to%20energy%20in%20refugee%20camps%20in%20Rwanda_web%20updated%20March%202021%20w%20HEED%20updates.pdf?sequence=8&isAllowed=y.

Figure 4. Humanitarian energy policy landscape in Rwanda



Source: Based on interviews and the authors' own analysis.

MINEMA has no dedicated energy expertise, and the two projects discussed in this paper (Inyenyeri and RE4R) were placed under the 'livelihoods' cluster at the ministry. Nonetheless, partners on the ground suggest that MINEMA and UNHCR have a good working relationship, and the coordinated nature of the decision-making set-up provides clarity and coherence. The Rwanda Country Response Plan 2020-21 (and the subsequent Rwanda Country Response Plan 2021) also brought together 17 humanitarian and development partners within a coherent policy framework for establishing the priorities and shared ambitions of UNHCR and the Rwandan government regarding energy and environmental issues in the refugee camps. The Rwanda Country Response Plans enshrine the pursuit of 'alternative

cooking energy solutions in all camps in line with the national policy banning the use of firewood'. The 2020–21 plan set an ambitious goal of providing 100 per cent access to sustainable energy for refugees by the end of 2021,⁷² while the 2021 Country Response Plan downgraded this target to 75 per cent.⁷³

This set-up underlines the importance of such humanitarian projects working in close partnership with wider government ministries and agencies to design and implement energy access projects that are aligned with national energy policy and planning. However, Figure 4 also shows something of a disconnect between the 'energy policies' underpinning the Rwandan country context (which are largely owned by the Ministry of Infrastructure – MININFRA) and the programming being undertaken in refugee camps (largely undertaken by MINEMA). It is unclear to what extent national policies – such as around the Energy Access Rollout Programme (EARP) – have been integrated within humanitarian strategy (for instance, there is no mention of these policies within UNHCR's Energy and Environment Strategy 2019–2023).⁷⁴ It is also possible to increase the policy coherence of national responses by better integrating refugee settings in national planning – e.g. by including refugee camps within relevant policies like the Rural Electrification Strategy.

Rwanda is considered an important pilot country for such energy access programmes and innovations, given the protracted nature of the refugee population and the situation in which some camps have existed for more than two decades.

Various externally funded humanitarian energy access projects have been implemented in Rwanda's refugee camps. The country is considered an important pilot country for such programmes and innovations, given the protracted nature of the refugee population and the situation in which some camps have existed for more than two decades. With the help of dedicated external partners, UNHCR Rwanda has experimented with efforts to create markets for cleaner energy technologies – access to electricity and clean cooking fuels – targeted at both refugees and the host economy.

Clean cooking

Until the end of 2018, 88.5 per cent of camp-based refugees were relying on 25 kg of firewood per month per household, distributed by UNHCR as the primary energy for cooking.⁷⁵ However, this fuel distribution covered only half of household requirements, on average. Consequently, refugees were trading or selling the food

⁷² UNHCR (2020), *Rwanda Country Refugee Response Plan January 2020 – December 2021*, <https://reporting.unhcr.org/sites/default/files/Rwanda%20Country%20Refugee%20Response%20Plan%202020-2021%20-%20March%202020.pdf>.

⁷³ UNHCR (2021), *Rwanda Country Refugee Response Plan January 2020 – December 2021*, <https://reporting.unhcr.org/sites/default/files/2021%20Rwanda%20Country%20Refugee%20Response%20Plan.pdf>.

⁷⁴ UNHCR (2018), 'UNHCR Rwanda Strategy 2019–2023: Environmental Protection and Access to Clean Energy', obtained by the authors on request.

⁷⁵ Ibid.

assistance they received to purchase firewood or charcoal at the market, or in some cases, illegally collecting wood in the surrounding areas to cover their needs, contributing to land degradation and the risk of conflict with host communities.

In October 2018, MINEMA informed UNHCR that the government would restrict the use of firewood in all refugee camps, with effect from January 2019. In order to comply with this new policy, UNHCR Rwanda focused attention on securing a sustainable cooking fuel solution for all operations. With the support of an energy expert from UNHCR headquarters, various alternative solutions available on the market in Rwanda were reviewed, including a mix of briquette and pellet fuel solutions in the smaller camps and LPG and biogas in Mahama (the largest camp) and Mugombwa.

Before the firewood restrictions were brought in, UNHCR had decided that unrestricted cash-based interventions (CBI) should be used to provide assistance for families who sign up to buy cooking fuel from the prequalified suppliers operating in the camps (notably Inyenyeri, as discussed in Box 5). However, when the firewood restrictions were announced, all camp residents were switched to cash assistance for fuel, with fuel able to be purchased from any vendor – not just prequalified suppliers. After three months, it became clear that most refugee households were not using the cash to purchase alternative cooking fuel from the prequalified suppliers, instead resorting to collection of firewood and/or purchase of charcoal.

Box 5. Inyenyeri: insights from an ambitious experiment

In 2016 UNHCR partnered with Inyenyeri, a Rwandan for-profit start-up, focused on creating a business model for clean cooking. The company had achieved considerable positive press in its short lifetime, and had ‘enchanted’ financiers with ‘a simple but provocative thesis [...] Affordable cookstoves are not clean enough and poor customers will not buy expensive cookstoves, so lease them clean cookstoves for free and make money by charging for a specialized fuel (renewable wood pellets).’⁷⁶ Inyenyeri produced biomass pellets and paired this fuel with a fan-gasifying stove, the Mimi Moto, that reduced biomass consumption by 85 per cent and toxic smoke emissions by 98 per cent. UNHCR and Inyenyeri ran a pilot in Kigeme camp to test the willingness and ability of refugee households to pay for Inyenyeri’s clean cooking solution.

The pilot showed that refugees wanted to pay for Inyenyeri’s solution, but were unable to do so on the World Food Programme (WFP) cash distribution programme, which covered only their most basic needs. This pilot partnership propelled UNHCR to consider switching in-kind firewood to cash distribution in 2017. Initially, only refugee households who signed up to Inyenyeri’s fuel and stove programme received cash from UNHCR to buy the cleaner fuel. The switch to cash assistance was broadly welcomed across the camp; however, the cash assistance from UNHCR was unrestricted, and in many cases refugees chose not to spend the cash assistance on Inyenyeri’s fuel given their competing budgetary priorities such as food, other cooking fuels, and further

⁷⁶ For more on the ‘rise and fall’ of Inyenyeri, see Ferguson, R. (2022), ‘Inyenyeri and Today’s Biomass Pellet Pioneers’, 3 February 2022, <https://cleancooking.org/news/inyenyeri-and-todays-biomass-pellet-pioneers>.

needs. Many refugees only spent a small proportion of the cash assistance they were given on Inyenyeri's pellets, and used the rest to purchase other fuels available in the camps, such as firewood and charcoal. As in many other situations, refugees also made decisions based on their cooking preferences (since the choice of fuel had an effect on the taste of the food) and their ability to use multiple stove-and-fuel combinations within the same household (a practice known as stove-stacking).

UNHCR stopped the Inyenyeri programme as refugee households were not purchasing enough cooking fuel, though the potential for returning to restricted cash for cooking fuels to increase spending and adoption of clean cooking fuel was not considered. Inyenyeri ceased to operate in April 2020 due to its 'inability to raise the capital required to thrive', marking a sudden end to an ambitious experiment to transform the clean cooking market in Rwanda.

In response to the issues with unrestricted cash transfers for energy, and the pressure from government to find a solution, UNHCR decided to shift from CBI transfers to in-kind distribution of alternative cooking fuels, with immediate effect. A Request for Proposals (RFP) was first issued in May 2019, through which Bamboo Riverside company was selected by UNHCR to supply all refugee households (apart from Mahama camp, then hosting around 60,000 of Rwanda's 150,000 refugees) with stoves and un-carbonized briquettes, manufactured from sawdust waste. The tendering process was completed under time pressure, and the process lacked a detailed analysis of why the CBI-for-fuel policy had failed.

UNHCR's return to in-kind distribution of alternative cooking fuels is emblematic of the struggle over clean cooking evident in many refugee-hosting areas around the world. The government of Rwanda is clear about wanting to move away from wood as the primary source of fuel for cooking. UNHCR also claims to want to move away from the free-distribution paradigm. But the experiment of using market-based solutions to support a 'clean-cooking-enterprise' lacked the requisite financial support to truly enable refugees (with their limited purchasing power) to make the shift.

Supply of improved fuel sources in the form of briquettes would appear to move refugees up the 'energy ladder', but does not truly equate to a 'clean' source of fuel for cooking; indeed it reinforces a traditional model of humanitarian distribution rather than a more CRRF-compatible model of treating refugees as active purchasers rather than passive consumers. At the time of writing, UNHCR and partners in the camp were continuing to work on new responses.

Electricity access

In Rwanda, the 2011 Electricity Law opened up the sector for private investment participation, yet the state retains control over project planning, development and market regulation. The parastatal Rwanda Energy Group (REG), overseen by MININFRA, comprises two independent subsidiaries: the Energy Utility Corporation Limited (EUCL) and the Energy Development Corporation Limited (EDCL). The EUCL is a vertically integrated operational arm that owns power generation assets and purchases electricity from independent power producers, as well as managing

the national transmission and distribution network. The EDCL is responsible for securing investment in new generation, transmission and distribution assets, as well as off-grid and ‘social energies’.⁷⁷

The key policies and regulations that drive and steer new electricity access projects in Rwanda are the National Strategy for Transformation (NST1) for 2017–24, which includes the ambition to reach universal access to electricity by 2024, and the Energy Strategy 2019–24 which is owned by MININFRA. Expansion of the national grid will continue through the EARP, which has a target to have 52 per cent of households connected to the grid by 2024. By the end of 2019, approximately 37 to 39 per cent of households were connected to the grid. Grid connections will not be efficient or possible for many households that use small amounts of electricity, and so 100 per cent roll-out of the grid will take decades, following longer-term development ambitions. In the meantime, the remaining 48 per cent of households will fall under off-grid solutions, as set out in the national Rural Electrification Strategy (2016). Currently, approximately 14 per cent of households have their electricity needs met by off-grid solutions.

When it comes to humanitarian energy access, these household electricity access targets are included in the government’s Strategic Plan for Refugee Inclusion (2019–24), which is the responsibility of MINEMA. In turn, this is aligned with UNHCR Rwanda’s Energy and Environment Strategy 2019–23, which aims – ambitiously – for 100 per cent of households to ‘have their electricity needs met by grid access and off grid solutions by the end of 2023’.⁷⁸

Box 6. Grid expansion in Nyabiheke

One example of how humanitarian energy access projects interact with national electrification policies and governance is the case of the Nyabiheke refugee camp. Under the RE4R project, UNHCR was a joint partner in a planned intervention to deliver a PV-powered mini-grid system to power the water pumping station, clinic and other basic services, as well as a number of refugee-owned businesses. As of early 2020, there were two 66-kVA diesel generators operating for a total of 19 hours a day, pumping approximately 8 cubic metres of water per hour from a depth of 80 metres, consuming an average of 105 litres of fuel a day.

Rwanda has a target of supplying 80 per cent of electricity from renewable sources. Mini-grid developers are encouraged to invest in remote areas or ‘non-grid’ locations, as a means to help the government reach its 2024 electrification targets. According to the MINEMA camp manager, the Rwanda Energy Group (REG) had given the green light to UNHCR and Practical Action to build a mini-grid. Nonetheless, the solar PV mini-grid project did not go ahead as planned under the RE4R project. Instead, institutional electricity users and the water pumping station in Nyabiheke were connected through a UNHCR-financed extension to the grid, which takes precedence in Rwandan energy access policy.

⁷⁷ For a more detailed analysis of the electricity market structure, policies and incentives for investment in renewable power generations, see Rodríguez-Manotas, J., Bhamidipati, P. L. and Haselip, J. (2018), ‘Getting on the ground: Exploring the determinants of utility-scale solar PV in Rwanda’, *Energy Research & Social Science*, 42, <https://doi.org/10.1016/j.erss.2018.03.007>.

⁷⁸ UNHCR (2018), ‘UNHCR Rwanda Strategy 2019–2023’.

The grid extension was eventually completed in the final months of 2020 – nearly one year after the withdrawal of the mini-grid project. As was seen with similar proposals in Kenya and Ethiopia, once grid expansion became a viable reality, private companies and investors interested in mini-grid development had no incentive to remain involved, as even with the backing of humanitarian and development partners most such ventures would still consider refugee settings to be of significant financial risk. Even more problematically, when the grid connection to the camp was installed, not all of the users previously connected to the diesel generators were connected to the grid extension, meaning that a number of small refugee businesses have effectively been cut off from their electricity supply. Furthermore, there is also almost no prospect of the grid connection powering anyone other than the institutional users (such as the humanitarian agencies), since REG will not connect refugees or refugee businesses to the grid because of safety and repayment concerns. Even though the camp is now connected to the grid, there is little prospect for refugees themselves to get connected to these systems. This would not have been the case with the mini-grid project, which proposed to connect more refugee businesses and power other community spaces.

Finding a way to navigate the issue of grid expansion in politically sensitive ways is shaping up as one of the key challenges for those seeking to provide off-grid power in humanitarian settings.

Summary reflection: did policy matter?

In Rwanda, new government policy around use of biomass and grid expansion has led to rapid shifts in the humanitarian energy landscape. Regarding cooking, UNHCR came under rapid pressure to reduce the use of firewood in camps – and the resulting interventions are perhaps less transformative than may otherwise have been imagined. Regarding grid integration, policy signals from the government of Rwanda pushed UNHCR to integrate the second largest camp to the national grid – which is an important step – albeit with some teething issues. However, the lack of clarity and coordination of plans led to lost resources in the planning of solar mini-grids in some locations, and the grid connection that has been established seems unlikely to lead to better access for refugees themselves.

In concrete terms, more people now have access to energy in Rwandan camps than they did previously, and Rwandan government policy has helped to send strong signals about how humanitarian agencies should be programming for energy issues. Although chances for greater efficiency, scale and impact have undoubtedly been missed, Rwanda's policy environment has also played a strong facilitating role in supporting the markets for solar home systems that have been set up under the RE4R programme. For example, enabling access to the camp for the private sector, continuing to support unrestricted cash assistance, allowing interactions between host and refugee communities, and supporting the involvement of refugees in the value chains of these businesses. These factors mean that, as of December 2021, the equivalent of 58 per cent of refugee households across the target camps had some access to electricity; and 33 per cent of the

same households had access to improved cooking solutions⁷⁹ – which although a small step, should nonetheless be acknowledged as important progress.

Tanzania

Tanzania has hosted refugees and asylum seekers for more than 50 years. By January 2022, there were over 246,000 persons of concern to UNHCR in Tanzania, most of whom originate from Burundi (71 per cent) and the DRC (28 per cent).

Tanzania operates a strict encampment policy, and the majority of refugees live in three camps located in the northwest Kigoma region. The relative population density of these camps means they effectively function as large towns or small cities yet with minimal formal infrastructure or connection to the national grid, or access to markets for clean cooking fuels. For example, Nyarugusu, set up in 1996, hosts more than 134,000 refugees, located within just 28 sq km. By comparison, Kigoma – the largest urban area in the region – has a population of around 215,000. Natural resource consumption and the impact of refugees on the nearby physical environment has thus been a constant concern for local leaders and the national government, especially as regards the use of biomass (wood and charcoal).

The government of Tanzania has been historically been one of the most generous and long-standing host countries for refugees. It granted citizenship to 162,000 Burundian refugees in 2014.⁸⁰ Tanzania was also among the first group of CRRF pilot countries, indicating a willingness to engage with progressive politics and embrace innovative solutions to long-term refugee hosting that can also deliver material benefits for host communities. However, in early 2018, the government took the decision to withdraw from the CRRF, in response to a range of factors including what it saw as unsatisfactory terms and conditions offered by the international community's package to help finance the cost of hosting refugees.⁸¹

The overall humanitarian energy access landscape in Tanzania is summarized in Figure 5. Central in this is the Energy and Environment Working Group, which holds monthly meetings chaired by UNHCR. Other members are the Ministry of Home Affairs (MoHA), which oversees national refugee policy and management, and key NGO partners, including Relief to Development Society (REDESOS) and Good Neighbours. Since the appointment of a new director of the refugee services at the MHA in 2019, there has been closer scrutiny of energy and

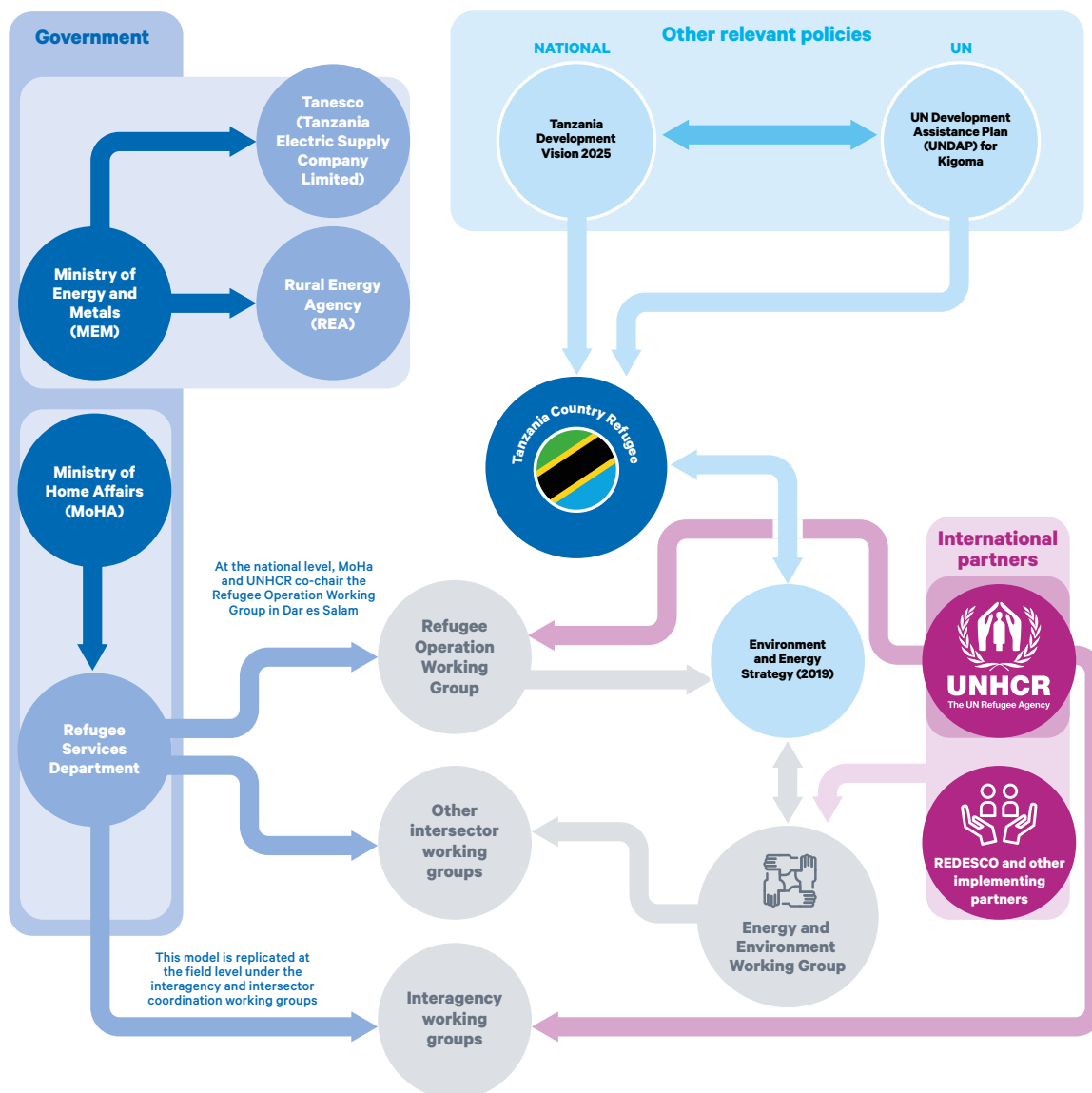
⁷⁹ As at December 2021, 4,279 refugee households had Tier 1 access to electricity (a technical definition that implies one to three hours of access to electricity per day) from solar home systems (SHS) installed under RE4R. The subsequent closure of Gihembe, discussed elsewhere in this paper, complicates the analysis, but when SHS distributed to households there are included in the analysis (given that many people in these households have now moved onto other camps) access equates to 58 per cent if still measured against the three original RE4R camps. Similarly, 2,412 refugee households had access to improved cooking solutions under RE4R (equivalent to 33 per cent camp-wide access if still measured across the three original RE4R camps).

⁸⁰ This response to long-standing refugee status was the largest offer of naturalization by a country of first asylum. See UNHCR (2014), 'Tanzania grants citizenship to 162,000 Burundian refugees in historic decision', 17 October 2014, <https://www.unhcr.org/uk/news/latest/2014/10/5441246f6/tanzania-grants-citizenship-162000-burundian-refugees-historic-decision.html>.

⁸¹ Other notable factors include: the increasingly centralized processes of decision-making in the Tanzanian government; the historical 'place' of refugees in the Tanzanian state (encamped and with restricted movement); and the complications arising from the naturalization of Burundian refugees. For further details, see: Felleson, M. (2021), 'From Roll-Out to Reverse: Understanding Tanzania's Withdrawal from the Comprehensive Refugee Response Framework (CRRF)', *Journal of Refugee Studies*, 34(3), pp. 2699–719, <https://doi.org/10.1093/jrs/fez055>.

environment issues, evidenced by the creation of new dedicated field officers, so that local government decision-making no longer depends solely on the camp commandants – a refugee administrative structure whose role is to help improve camp security and filter concerns to UNHCR and government officials.⁸²

Figure 5. Humanitarian energy policy landscape in Tanzania



Source: Based on interviews and the authors' own analysis.

⁸² Camp commandants are an administrative position who coordinate with UNHCR and government officials to ensure security within the camps. They are modelled on the 'sungu sungu' – village-level civil defence structures – whose members are selected by the community and represent them at local government meetings. A similar structure has been set up within the refugee camps, relying on male refugees to augment security within the camps.

Until now, the main focus of energy and environmental issues in Tanzania's refugee camps has been on providing adequate cooking fuel. Wood fuel is the main source of energy for cooking in the camps where refugees are housed, and a combination of cooking practices and lack of alternative provision have led to a scarcity of this resource. This both increases conflict risk with host communities and creates business opportunities for innovation. In response, small projects have been initiated that focus on the production of low-cost briquette fuels, operating within modest project budgets to pay for manual pressing machinery, employing refugees and local communities. The extent to which this technology option offers a sustainable and desired solution is not clear, and currently the scale of production is only a fraction of the overall level of energy demand.

Wood fuel is the main source of energy for cooking in the camps where refugees in Tanzania are housed, and a combination of cooking practices and lack of alternative provision have led to a scarcity of this resource.

As Figure 5 shows, Tanesco, the country's national electricity utility, and the Rural Energy Agency (REA) are not aligned to other policies concerning energy provision in humanitarian settings. This means that less attention is paid to electrification of refugee settings – although UNHCR is making some efforts to solarize the main hospital and seven health posts in Nyarugusu refugee camp.⁸³ The prioritization of providing adequate cooking fuel is also reflected in the Tanzania Country Refugee Response Plan for 2019–20 (the last available), which focuses primarily on the need to reduce firewood consumption and promote afforestation in the surrounding areas.⁸⁴ However, despite listing and costing a range of interventions, the plan appears to have had limited success in attracting funding for observable outcomes; low percentages of the requested operational needs are being met by the Tanzania response and the wider Burundi Regional Response Plan launched by UNHCR, which would have supported Burundians in Tanzania.⁸⁵ Some small energy and environment interventions, such as briquette manufacturing and plastics waste management, were implemented in Tanzania, but even those were relatively small-scale and have not been scaled up due to limited funding.

⁸³ Global Platform for Action (2021), 'High-Level Meeting on Clean and Safe Energy in Refugee Settings: Moving forward on the Clean Energy Challenge (CEC)', information pack presentation, June 2021, https://www.humanitarianenergy.org/assets/resources/Clean_Energy_Challenge_Information_Pack_High-level_Event_2021_June.pdf.

⁸⁴ Although there is limited reference to a desire to develop more solar street lighting and renewable energy technologies for households.

⁸⁵ As of mid-2021, Tanzania had received only 33 per cent of the funding requirements from the Burundi Response Plan. UNHCR (2021), *Burundi Regional Refugee Response Plan, 2021 Mid Year Report*, https://reliefweb.int/sites/reliefweb.int/files/resources/Regional%20BDI%20RRP%202021_MY%20Report.pdf.

Box 7. Introducing an LPG market in Nyarugusu

Following the influx of 150,000 Burundians in 2015, cooking fuel became a renewed concern for both UNHCR and the government of Tanzania, with various reports of sexual and gender-based violence linked to wood fuel collection. This prompted UNHCR to finance a three-month pilot scheme to distribute LPG fuel to 3,000 households. Since this was not a financially sustainable solution, UNHCR invited UNEP Copenhagen Climate Centre (UNEP-CCC) to study the economics of clean cooking in Nyarugusu and explore opportunities for commercial supply.⁸⁶

UNEP-CCC research revealed that 95 per cent of refugees stated a willingness to pay for LPG, reflecting the high value placed on access to cleaner, modern energy technologies and a latent market demand. The research revealed that refugee households were bearing high financial and non-financial costs for fuel procurement. More than half of the households (53 per cent) were buying their fuel, and they spent on average \$12 a month per family. (The capped monthly salary in the camp was \$27.) They also spent 19 hours a week collecting firewood in the forest, and more than six hours a day cooking with traditional cookstoves.

The LPG pilot programme and follow-up research thus revealed significant latent commercial demand for the fuel, and how an affordable supply of it could create a virtuous circle of time savings and income generation. The proposed intervention stood to accelerate an already emerging market-based and development-oriented agenda, helped by WFP's shift to cash payments in place of food rationing, and a number of income-generating opportunities. This included job creation projects implemented by NGOs such as Oxfam, the 'common market' set up in 2015 as a place where refugees and the host community could trade, and a flow of remittances from friends and family living abroad.⁸⁷

While Tanzania has a relatively mature and extensive LPG market outside urban centres, a successful LPG market creation plan for Nyarugusu was deemed to require short-term donor funding to help overcome the capital barriers to LPG market access, plus a long-term policy commitment to support the common markets that are a crucial source of income. Further, the market creation plan was central to efforts in moving to a market-based set of solutions for the supply of goods and services. This would both require and drive a better integration of refugees into the local economy. If refugees are to sustain themselves and buy their own fuel, they need to have a stable disposable income, which depends on employment opportunities, and in turn their legal status and right to work.

Despite the suspension of the 'common market' in 2019, the timeline below shows how the LPG market creation plan moved ahead during 2018. In early 2019 the Ministry of Home Affairs (MoHA) issued a letter endorsing the international community's efforts to secure funding for the project.

⁸⁶ Rivoal, M. and Haselip, J. A. (2017), *The true cost of using traditional fuels in a humanitarian setting*. Rivoal, M. and Haselip, J. A. (2018), *Delivering market-based access to clean cooking fuel for displaced populations the Kigoma region, Tanzania: a business plan*, Copenhagen: UNEP DTU Partnership, https://backend.orbit.dtu.dk/ws/files/144864187/LPG_market_creation_plan_for_refugees_in_Tanzania.pdf.

⁸⁷ The market place operated on Monday, Wednesday and Friday every week, and attracted numerous traders selling food, animals, clothes and electronics from across the region.

Timeline: Creating a market for clean cooking technology

- **Jan. 2017:** UNHCR finances pilot LPG distribution programme
- **Aug. 2017:** UNEP-CCC conducts cost–benefit analysis and research into the economics of household cooking
- **Feb. 2018:** UNEP-CCC and UNHCR design a market creation plan for LPG access for refugees and host community households
- **Jun. 2018:** UNHCR includes clean cooking as a priority concern in the national Tanzania Country Refugee Response Plan 2019–20
- **Mar. 2019:** Market creation plan endorsed by the MoHA
- **Jul. 2019:** Government of Tanzania suspends the ‘common market’
- **Oct. 2019:** Common market reopens temporarily following pressure from local host community
- **Apr. 2020:** Global LPG Partnership develops full proposal for kick-starting a commercial LPG market, with a \$3.4 million intervention targeting 128,000 beneficiaries (88,000 refugees and 40,000 host community members)

At the time of writing, the project remained under active consideration by UNHCR and the MoHA. While lack of donor funding appears to be the proximate cause of delay, the government of Tanzania is pursuing a repatriation policy for refugees, which is having a more practical impact on the development of new projects. Nonetheless, at the end of a visit to Tanzania in August 2022, the UN High Commissioner for Refugees, Filippo Grandi, called on donors to boost funding and investment to support provision of services in Tanzania.

Summary reflection: did policy matter?

In Tanzania, the restrictive environment for NGOs and humanitarian groups has made humanitarian energy programming difficult. The governing Chama Cha Mapinduzi (CCM) has overseen bans on political gatherings, and put in place restrictions on media freedoms and the ability to post information online.⁸⁸ More broadly, under the Julius Magufuli presidency (2014–21), civil society was treated with hostility, with the government restricting the registration of new NGOs and undertaking a process of verifying existing ones. This has introduced complex new requirements for NGOs (including authorization letters from the districts in which they work; declaring planned expenditure within 14 days of obtaining funds, etc.).⁸⁹ Since 2019, the government of Tanzania has introduced at least four further laws that restrict the operations of NGOs.⁹⁰

⁸⁸ Pertinent legislation includes the 2015 Cybercrimes Act, and 2016 Media Services Act.

⁸⁹ Jerving, S. (2019), ‘Repressive laws in Tanzania stifle the work of NGOs’, Devex, 28 October 2019, <https://www.devex.com/news/repressive-laws-in-tanzania-stifle-the-work-of-ngos-95913>.

⁹⁰ Harris, M. (2021), ‘Unfinished Business: Magufuli’s Autocratic Rule in Tanzania’, Commentary, Center for Strategic and International Studies, 5 February 2021, <https://www.csis.org/analysis/unfinished-business-magufulis-autocratic-rule-tanzania>.

In the context of humanitarian energy, these factors have also come to the fore in the policy shift around the operation of the common market described in Box 7. The new rules, which limit engagement between refugees and host communities and restrict the ability of refugees to access remittances, have created an overarching policy environment that makes it harder for energy operations to thrive. While the government remains in favour of greater LPG use among refugees and the host community, and this is aligned with the national environmental policy agenda, it is clear that Tanzania's policy and regulatory environment is less welcoming towards the type of partnerships and experimentation that are taking place in some of the other case study sites. At the time of writing, it remains to be seen whether the administration under President Samia Suluhu Hassan, who took office in March 2021 following Magufuli's death – will address the status quo.⁹¹

Uganda

As of June 2022, Uganda was host to more than 1.5 million refugees and asylum seekers, across 13 districts and six rural electrification service territories. Numbers have increased by nearly 40 per cent over the last five years, and the refugee population in Uganda is currently the largest in Africa.⁹² As with the host communities in which they are embedded, refugees in Uganda face low levels of access to affordable, reliable, sustainable and modern energy. A multi-sector needs assessment undertaken in 2018 suggested, for example, that around 95 per cent of refugee and host community households were reliant on firewood or charcoal as their primary fuel source, and on average, host community households owned 1.5 light sources per household while refugees owned 0.7 per household – far below the minimum levels established as a baseline.⁹³

Uganda was among the first countries to implement the CRRF, aiming to shift from delivering short-term humanitarian aid to implementing longer-term developmental solutions, in partnership with the international development sector. The CRRF brought the promise of significant additional funding for the country's humanitarian response, where enhanced coordination of programmes and projects aims to ensure that priority areas are being addressed in a sustainable way while avoiding duplication, gaps or stranded investments:

The ultimate goal of the CRRF is therefore to enhance the capacities, funds and skills of the government, especially in refugee-hosting districts, including different authorities concerned at national and district levels to address these challenges. This will enable the government to respond and integrate the new arrivals for the benefit of both refugee and host communities. To this end, the application of the CRRF is aligned with local, national and international development plans.⁹⁴

⁹¹ Kell, F. and Awami, S. (2021), 'Tanzania sees only glimpses of change by new president', Chatham House Expert Comment, 1 July 2021, <https://www.chathamhouse.org/2021/07/tanzania-sees-only-glimpses-change-new-president>.

⁹² UNHCR (2022), 'Uganda Comprehensive Refugee Response Portal', <https://data.unhcr.org/en/country/uga>.

⁹³ UNHCR (2018), *Uganda Joint Multi-Sector Needs Assessment – August 2018*, <https://data.unhcr.org/en/documents/details/65982>.

⁹⁴ Government of Uganda via Reliefweb (2018), *Uganda's Revised CRRF Roadmap 2018-2020*, <https://reliefweb.int/report/uganda/ugandas-revised-comprehensive-refugee-response-framework-crrf-road-map-2018-2020>.

Uganda has gained both attention and acclaim for its progressive approach to refugee hosting. Although the country hosts a sizeable number of urban refugees – largely in Kampala⁹⁵ – the majority of refugees live in informal settlements, on parcels of land provided by the local communities who sign an agreement with the Office of the Prime Minister (OPM) allowing refugees to settle on their land for a fixed period of time, usually 15 years. As well as this, Uganda offers refugees a high degree of freedom of movement and access to primary education, healthcare and other basic social services, as well as the right to work and own a business. Much emphasis is placed on ‘peaceful coexistence’ between refugees and locals, which by and large is the reality.

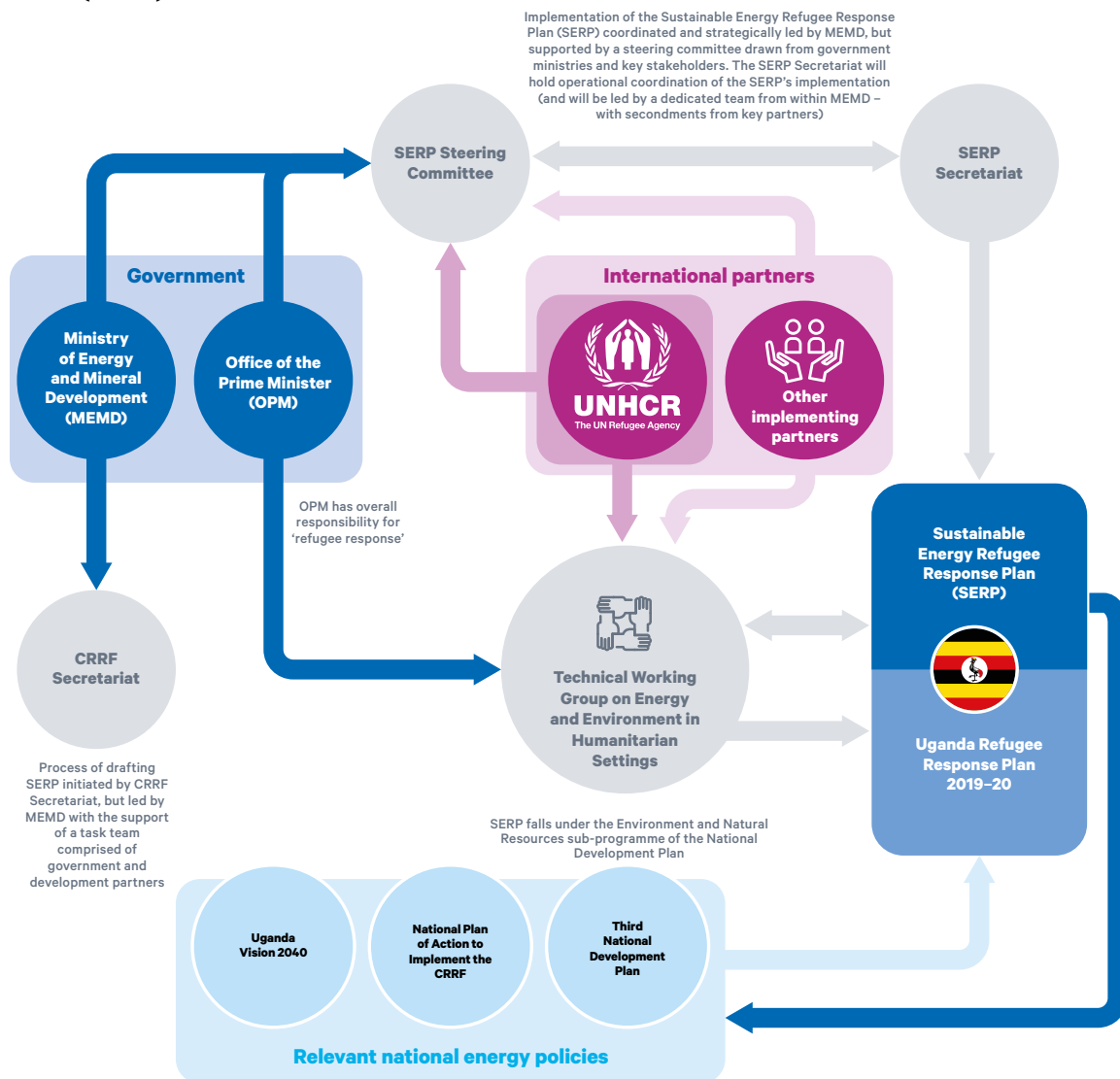
As the number of refugees has increased, the size of allocated plots has diminished from 100 square metres to sometimes less than 30 square metres.

However, as the number of refugees has increased, the size of allocated plots has diminished from 100 square metres to sometimes less than 30 square metres. These plots are insufficient to supply timber or firewood as well as other food resources. The host communities own the land and control the resources. This forces refugees to travel further to collect wood for construction and cooking, and to pay or barter for these resources. The poorest households, who cannot afford to pay or barter for fuel, are most affected by fuel poverty, and are also exposed to the risk of conflict.

As highlighted in Figure 6, prior to the introduction of the SERP, the OPM Department of Refugees has traditionally been the lead agency responsible in administrative matters concerning refugees, and it has coordinated inter-ministerial and non-governmental activities.

⁹⁵ The urban refugee population in Uganda, mostly based in Kampala, stood at just under 118,249 as at 30 June 2022. UNHCR (2022), ‘Uganda Comprehensive Refugee Response Portal’, <https://data2.unhcr.org/en/country/uga> (accessed 7 Aug. 2022).

Figure 6. Humanitarian energy policy landscape in Uganda, prior to the Sustainable Energy Refugee Response Plan (SERP)



Source: Based on interviews and the authors' own analysis.

For some time, the primary bodies overseeing energy projects within refugee settings have been the OPM and UNHCR. Their primary coordination mechanism has been the technical working group on energy and environment in humanitarian settings (which has operated at field level and in Kampala). The groups have been referenced by all stakeholders as an important forum for information exchange, and are complemented by an array of national policies that provide a progressive and structured base for progress on sustainable energy access across Uganda. The group has helped to raise the profile of humanitarian energy projects in the country – and it has laid the groundwork for the Sustainable Energy Refugee Response Plan (SERP) (discussed below). This is partly because the group signalled some measure of stability for refugee populations. It is also partly because the group has been co-led by the OPM, UNHCR and the Ministry of Energy and Mineral Development (MEMD), and this has helped to achieve high-level buy-in. Nonetheless, as in other countries

considered in this analysis, the technical working group has rarely served the purpose of setting an agenda for future cooperation: instead, it has largely focused on understanding the ‘who, what and where’ of existing projects.

This coordination role is crucial in Uganda because, as Table 1 highlights, there are a vast array of ongoing humanitarian energy projects:

Table 1. A selection of past and ongoing energy interventions in refugee settlements in Uganda

Activity	Lead organization(s)	Timeline	Short overview
Smart Communities Coalition Innovation Fund (SSCIF)	USAID Power Africa, EnDev GIZ, Mastercard	Ongoing	SSCIF is a financing mechanism of the Smart Communities Coalition, a network of more than 60 public and private sector organizations co-chaired by Mastercard and USAID seeking to advance market-based solutions to energy and connectivity needs in displacement settings. The SSCIF funded 3 energy interventions in Ugandan refugee camps in 2021 and recently released a second call for proposals in May 2022.
Energy Solutions for Displacement Settings (ESDS) programme	GIZ	Ongoing	The ESDS programme works closely with MEMD and UNHCR to bring about energy solutions in displacement settings. This includes advisory services to government and UNHCR, conducting energy audits of offices, developing market based approaches for replacement of diesel generators and developing clean cooking solutions.
Accessing Markets through Private Enterprises for Refugees’ Energy Access (AMPERE)	Netherlands Enterprise Agency (RVO), Mercy Corps, SNV, Response Innovation Lab, D.Light, Village power	2020	The AMPERE project aimed to test, prove and build evidence for quality, affordable, and reliable market-driven energy access solutions for humanitarian response programming in Bidibidi refugee settlement.
Solarization of existing boreholes in Bidibidi refugee settlement	Davis & Shirtliff	2020	The project has solarized over 45 existing boreholes in Bidibidi refugee settlement.
Village Energy	Village Energy, SENDEA & Signify Foundation	Started June 2020	The project is supporting the electrification of refugee camp institutions. Village Energy installed three custom PV systems (two in Bidibidi refugee settlement and one in Nakivale refugee settlement). The systems power lighting, laptops, internet routers and tablets that will be used in the schools and training centres.
Activity	Lead organization(s)	Timeline	Short overview
De-Risking Pay-As-You-Go Solar Home Systems in Uganda Refugee Settlements	GPtech, Energy 4 Impact (E4I), USAID/Power Africa	2020–21	USAID provided grants to Fenix, SolarNow and Brightlife to boost energy access and accelerate off-grid energy access by establishing sales of SHS under PAYGO in Kiryandongo and Rwamwanja settlements and host communities.
Journey 2 Scale grant: Promotion of Electric Cooking	Humanitarian Innovation Fund, Elrha, Mercy Corps, Pesitho	Ongoing	Pesitho and Mercy Corps are supporting the development and sale of electric cookstoves in Bidibidi refugee settlement area. This includes local production, refining the business model (including the establishment of a carbon credit scheme) and strengthening the value chain.
Solar water pumping in Palabek, Bidibidi and Rhino refugee settlement	HEKES/EPER/ Assen Venture Limited	2020	The project designed and installed solar water pumping projects in Palabek, Bidibidi and Rhino refugee settlements.

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Solar PV mini-grid in Nakivale refugee settlement	Infrastructure for Sustainable Development (i4SD)	2021	i4SD constructed and passed ownership of a 10.8-kW solar mini-grid project to the OPM in Rubondo-Nakivale settlement in March 2021. The system supplies power to the offices of partners, to the health centre and to OPM accommodation buildings.
Sustainable Use of Natural Resources and Energy in the Refugee Context in Uganda	GIZ and World Agroforestry (ICRAF)	2017–18	The project aimed to create sustainable solutions for improving access to energy, water and other ecosystem goods and services for refugees and host communities in and around Imvepi and Rhino Camp settlements.
PROSPERS	African Clean Energy (ACE), CARE International, Karabole Research and Resource Centre	Ongoing	The project piloted a user-referral scheme model for the distribution of affordable high-end cooking technologies in Kyangwali refugee settlement.
LPG distribution with urban refugees	Raising Gabdo Foundation (RGF), UNHCR, DanChurchAid (DCA), OPM	2021	The programme is piloting the sale of LPG to urban refugees in Uganda. The partnership will provide a subsidy of up to 50 per cent to 422 refugee and host community households.
Mini-grid development in Rwamwanja refugee settlement	USAID, Power Africa	2022	Aptech Africa and Winch Energy are installing three mini-grids – and promoting productive uses of energy – in Rwamwanja refugee settlement. These mini-grids are intended to deliver 1,300 new electricity connections to homes and businesses.
Briquette production in Adjumani refugee settlement	Mandulis Energy, UNHCR	2020	Mandulis are working with UNHCR to run a briquette factory in Adjumani. They have a larger programme in Palabek focusing on clean cooking and utilizing a circular economy model.
Stove distribution in Palorinya, Adjumani and Palabek refugee settlements	Lutheran World Federation (LWF), UNHCR	2020	LWF has been disseminating the fixed rocket Lorena stove as well as other locally made firewood and charcoal and heat retention baskets in Palorinya, Adjumani and Palabek refugee settlements. Local artisans are trained in how to produce and install the stoves and are paid per stove installed through a cash for work arrangement.
Production and use of briquettes and more efficient stoves, as well as environmental restoration	Dan Church Aid, Danida, UNHCR	Started in 2019	This project has focused on the promotion and use of briquettes, heat-retaining baskets and more efficient stoves. DCA formed groups made up of host and refugee community members who were trained in how to produce briquettes and supported to obtain briquette machines.

Source: Compiled by the authors.

Notwithstanding this crucial coordination role, Uganda is also undertaking a range of policy measures that will fundamentally change the way that the government interacts with humanitarian partners on energy issues. The SERP (see Box 8), which was officially launched in August 2022, is a unique policy tool that has an overall objective of providing a clear roadmap for increasing access to sustainable energy for refugees and their host communities. It aligns closely with the objectives of Uganda Vision 2040, the third National Development Plan, and the National Plan of Action to implement the Global Compact on Refugees and the CRRF, in addition to ongoing CRRF Sector Response Plans, strategies, programmes and projects in the energy sector.

Box 8. The emergence of the SERP

The SERP, which was formally launched in August 2022, grew out of a multi-stakeholder secretariat that was established by the OPM to consider how best to implement the CRRF. The process of drafting the SERP was initiated by the CRRF Secretariat, but has been led by the Ministry of Energy and Mineral Development (MEMD), with the support of a task team comprised of government and development partners including the OPM, UNHCR, GIZ (through the Energy Solutions for Displacement Settings (ESDS) Project) and the World Bank (Energy Access Scale-Up Project). The SERP provides a medium-term costed plan to align humanitarian energy ambitions with National Development Plans. To achieve large-scale and sustainable impacts, the costed plan is intended to reflect what will be realistically achievable, from both resource and time perspectives. The activities will be carefully prioritized and phased, so that targets and objectives can be realistically achieved. There will be an annual progress evaluation and report, and a comprehensive SERP review in 2024 that will inform the preparation of the fourth National Development Plan.

While MEMD will lead both the strategic direction and the coordination of the implementation of the SERP, strategic-level support will come from a Steering Committee selected from government ministries and key stakeholders. MEMD will report on a regular basis to the CRRF Steering Group on the SERP implementation. A SERP Secretariat, directed by, and reporting to, the Steering Committee, will look after operational coordination. This new entity will be led by a dedicated team within MEMD that will work exclusively on SERP coordination and implementation. The core team of the secretariat will be recruited by MEMD with secondments from key partners.

Where there are overlaps and linkages, the SERP will align with existing sector response plans, in particular the Water and Environment Response Plan and the Jobs and Livelihoods Response Plan. As such, the SERP aligns with the overall objectives of the CRRF to support government policy and ensure resilience and self-reliance of refugees and host communities. It falls under Pillars 2 (Emergency Response and Ongoing Needs) and 3 (Resilience and Self-reliance) of the CRRF. For the energy sector, the main change is a shift away from limited in-kind support provided by humanitarian actors, towards sustainable service delivery. Targeting both refugees and host communities, the SERP includes investment to kick-start market-based solutions. A later phase aims to mainstream provision for refugees and host communities in national renewable energy and rural electrification strategies, interventions and projects. If implementation runs as planned, the SERP will boost both public and private energy access programmes in humanitarian settings, and enhance coordination across the key stakeholders, providing government and UNHCR with improved oversight of programmes that promise to increase access to energy for host communities and refugees.

The SERP is also integrated into the country's humanitarian response plan. Notably, the Revised Uganda Country Refugee Response Plan 2020–21 explicitly declares the publication to be a joint work of UNHCR and the OPM (i.e. not solely a UNHCR publication), and highlights that:

While seeking to meet humanitarian needs, the RRP also serves as a transition plan towards sustainable refugee response programming in Uganda. As such, this plan contributes to the implementation of the Global Compact on Refugees (GCR) and its Comprehensive Refugee Response Framework (CRRF), in complement to interventions carried out by government institutions.⁹⁶

Summary reflection: did policy matter?

The formulation of the SERP is a striking example of how government and the international community can combine to create a progressive policy response to the ongoing energy challenges facing Uganda's refugees and hosting communities. It is crucial that the international community supports the efforts being undertaken in Uganda and rewards the well-thought-out and well-costed plans of government and humanitarian groups to better align priorities and programming.

More broadly, while the progressive Ugandan policy environment has encouraged a wide range of innovative humanitarian energy projects, the key issue for Uganda, as the SERP launches, will be translating good policy into practice. At field level, resources (staff, tools and finance itself) will be required to make sure implementation is effective. Importantly, given the current very wide range of actors and projects, this will need to include strong information management systems that allow administrators and policymakers to understand who is doing what, and where. Furthermore, the structural changes that are created by the launch of the SERP (such as the changing role of MEMD and its relationship with OPM) will result in changes to existing power structures. It will therefore be crucial that internal disagreements between government ministries do not result in tension or power plays that would undermine the effectiveness of the new structures. In the longer term, such tensions may also emerge between central and local government.

⁹⁶ UNHCR and OPM (2020), *Revised Uganda Country Refugee Response Plan July 2020 – December 2021*, August 2020, <https://reliefweb.int/sites/reliefweb.int/files/resources/Uganda%20Revised%202020-2021%20Refugee%20Response%20Plan%20%281%29.pdf>.

03

Observing common challenges: what are the key policy barriers?

A number of policy barriers to effective implementation of humanitarian energy projects are starting to crop up regularly; this means grappling with knotty issues, including around the likely permanence of a displacement setting or the likelihood of grid extension.

The case studies set out in Chapter 2 highlight a range of policy barriers and obstacles, some of which are specific to the energy and environmental sector, and some of which are encountered much more broadly across the humanitarian sector. This chapter identifies five key challenges that emerge from the case studies – as well as from the broader humanitarian energy community.

‘Permanence’ of camps: a fundamental risk factor

While in situations of displacement permanence can never be regarded as a goal or an ambition in its own right, the medium- or long-term existence of refugee camps does underscore the imperative to deliver energy investments that can improve the lives and livelihoods of those in camps, and save money

for those delivering humanitarian support.⁹⁷ Many development-oriented plans in humanitarian settings have been dashed by worsening security problems or restrictions. For example, Goudoubo camp in Burkina Faso, which was one focus for humanitarian energy projects in 2018–19 under the UK DfID-funded Moving Energy Initiative, has now effectively closed due to militant attacks.⁹⁸ Similarly, plans to introduce a market-based solar pilot to the Dadaab camps in northern Kenya, following an initial assessment in 2015, had to be shelved, given government warnings of insecurity and imminent closure and the UNHCR decision not to pursue such projects there.⁹⁹

Within the case studies, the security situation in Ethiopia has fundamentally changed the landscape of humanitarian energy projects there. The conflict in Tigray had led over 60,000 Ethiopians to cross into East Sudan in early 2021, with the International Organization for Migration (IOM) also recording more than 3.6 million internally displaced people across the country at the end of 2021.¹⁰⁰ The crisis has led organizations working in refugee camps near Ethiopia's border with Eritrea to abandon a range of projects – including some specific to energy and the environment. The Alianza Shire project, described in detail in the Ethiopia case study (Box 1), has subsequently been relocated to other refugee settlements in different parts of the country.

The example of Gihembe in Rwanda (described in Box 9) also illustrates that a hosting government may determine, with minimal notice, that accommodation arrangements for refugee communities will change.

Box 9. Gihembe camp closure: an ambivalent energy access legacy for refugees

Gihembe refugee camp was established in December 1997. In January 2021 it was hosting just over 12,000 refugees – predominantly from the DRC. In September of that year, in collaboration with UNHCR, the Rwandan government began relocating refugees from Gihembe to Mahama camp – roughly a five-hour drive away, on the eastern border near Burundi, ahead of the planned closure of the camp in late 2021.

Officially, the reason for the closure was the safety and well-being of refugees. Gihembe camp was located along a treacherous clifftop and was consequently at risk from environmental hazards caused by erosion and steep ravines.

⁹⁷ Lahn and Grafham (2015), *Heat, Light and Power for Refugees*.

⁹⁸ UNHCR (2020), 'UNHCR warns chronic lack of resources contributing to new crisis in Burkina Faso', 7 April 2020, <https://www.unhcr.org/news/briefing/2020/4/5e8c3b614/unhcr-warns-chronic-lack-resources-contributing-new-crisis-burkina-faso.html>.

⁹⁹ The Kenyan government has been keen to close the Dadaab and Kakuma refugee camps for some time. In March 2021, the Kenyan government issued a 14-day ultimatum to UNHCR to develop a plan to close the Kakuma and Dadaab refugee camps in the country. This was later extended to 30 June 2022 but – at the time of writing in June 2022 – both camps were still operational.

¹⁰⁰ Internal Displacement Monitoring Centre (2022), Ethiopia Country Profile, <https://www.internal-displacement.org/countries/ethiopia>.

The closure theoretically provides the opportunity for refugees to benefit from newer and larger-scale infrastructure that would enable greater energy access. For example, Mahama refugee camp has a solar PV mini-grid system with a substantial distribution network across the camp, offering opportunities for businesses to connect to renewable energy solutions.

The closure of Gihembe has necessitated complex negotiations to safeguard a range of energy access interventions that had taken place in the camp. Gihembe is one of three refugee camps that benefited from the NGO Practical Action and UNHCR's RE4R Programme that has been operating across Rwanda since 2018. As part of this, 1,131 solar home systems have been sold to households in Gihembe. Clean cookstove companies were also serving 254 households by September 2021. Solar street lights were installed throughout the camp.

Implementing partners and refugee households have tried to minimize losses from the move. Most households have taken their solar home systems and/or clean cookstoves with them to their new locations, maintaining the current supplier and financing arrangements. Practical Action is also supporting companies that provide these by establishing outlets for continued engagement and after-sales services in Mahama camp. The solar street lights are partly being moved to a different camp (44 are being relocated to Nyabiheke), and partly being taken on by local government on the existing site (17 will remain at the existing site and pass to ownership of the local district authorities).

Nonetheless, Practical Action, UNHCR and Energy 4 Impact had spent considerable resources on developing and supporting productive use of energy in Gihembe camp. Considerable uncertainty hangs over the future of the 40 entrepreneurs who were supported to encourage the productive use of this new energy supply. It is not known whether the entrepreneurs will be able to transition their businesses to new locations; it seems unlikely that such businesses will automatically be connected to a reliable and renewable electricity supply.¹⁰¹

Although Gihembe was established for almost a quarter of a century, the camp's closure underscores the fundamental issues of time and transience that are often the greatest challenge for investment by businesses and private sector enterprise in refugee settings. How can the humanitarian sector provide the right guarantees or conditions that allow businesses to be happy with the balance of risk and reward? In the case of Gihembe, the focus on transportable assets such as cookstoves and solar home systems proved valuable, given the relatively short notice of closure. Such a focus does however limit the scope for genuinely transformative infrastructure.

¹⁰¹ Energy 4 Impact (2022, unpublished), 'Productive Use of Energy for Enterprise Development, RE4R lessons learned from working with entrepreneurs in displaced settings'.

Grid extension and policy uncertainty

In several countries around the world, proposed (and partially funded) mini-grids have had to be abandoned. The Moving Energy Initiative was unable to proceed with a mini-grid project in Kakuma refugee camp in Kenya, partly because of the newly established diesel mini-grid that was inaugurated in Kakuma town in 2018, and partly because of the proposed extension of the national grid to Kakuma camp (discussed in 2018 but still not done). In Rwanda, the RE4R project was forced to move away from the idea of a mini-grid in Nyabiheke refugee camp because of proposed grid extension plans (described in more detail in Box 6). In Ethiopia, NRC have been unable to install solar street lighting in camps in the north of the country due to suggested grid expansion plans (which have also not been forthcoming).

In all of these examples, governments have been supportive of the off-grid sector and have rural electrification strategies that embrace off-grid approaches, but policy uncertainty about when – and whether – grid expansion will take place has caused significant delays, and has discouraged private capital that could have achieved results faster. In Rwanda, the electrification plan is clear in showing how the grid is reaching areas with refugee settlements; however, agencies and companies considering solar mini-grid roll-out have been unclear as to whether the grid will be connected to settlements, and under what time frame.

Clean cooking: the highest-hanging fruit

Many projects begin with the idea of tackling the lowest-hanging fruit – i.e. the task that a team or employee can easily and quickly complete. Successful projects that deliver verifiable impacts are a powerful means to inspire governments in other countries, along with humanitarian and/or development partners, to understand and replicate this success. But in the area of humanitarian energy, sustainable clean cooking projects have proved among the hardest to execute, deliver and scale. While the humanitarian community has been working on this issue longer than on any other energy problem, addressing it in an economically sustainable manner is complex and fraught with pitfalls – as the experience with Inyenyeri shows in Rwanda.¹⁰²

Although cooking appears less reliant on public infrastructure or approvals, local policy, the price of fuels and government willingness to support clean cooking initiatives may be even more important to project success. If governments hosting displaced persons have, for example, a clear ambition to expand the market for LPG, then it makes sense for the humanitarian sector to work with this. In Niger, UNHCR set up a partnership with the country's government and SONIHY (a private Nigerien gas distribution company) in the Diffa region that brought LPG to the refugee population. The SEED project (Soutien Energétique et Environnemental dans la région de Diffa) reduced air pollution impacts, reduced deforestation

¹⁰² Also see the experience of the Moving Energy Initiative in attempting to create a large-scale cooking concession in Kakuma refugee camp in Kenya: Patel, L. and Gross, K. (2018), *Cooking in Displacement Settings: Engaging the Private Sector in Non-wood-based Fuel Supply*, Moving Energy Initiative, London, Royal Institute of International Affairs, <https://www.chathamhouse.org/sites/default/files/publications/2019-01-22-PatelGross2.pdf>.

caused by a reliance on wood fuel, and drew on supply chains and local businesses that were already well established in the region. Furthermore, 70 per cent of the 25,000 UNHCR-supported households continued to purchase LPG with no subsidy or other support after the programme formally closed; and in the first 15 months alone, the full amount of EU funding for SEED (around €2 million) was recovered in savings from fuel purchases by people living in the region.

In Tanzania, by contrast, the implementation of a government-endorsed LPG market creation project has been beset by policy contradictions; among these has been the suspension of the common market that is crucial to establishing the links between host and refugee communities that are necessary to the success of any energy intervention. A more fundamental uncertainty has been created by overall government policy on hosting refugees, which has grown more hostile since Tanzania's withdrawal from the CRRF.

Creating access to clean cooking technologies is the main energy-related challenge in low-income countries, with multiple social and environmental impacts that are often more pronounced in humanitarian settings. It is also the most protracted issue, generally approached and treated as a separate and unrelated issue to electricity access by policymakers and project developers. However, advances in PV and battery technology now make the prospect of solar e-cooking an increasingly viable option, which could disrupt the market and deliver solutions for both access to electricity and clean cooking.¹⁰³ For example, the Modern Energy Cooking Services (MECS) programme, based at Loughborough University, is working with SNV Netherlands Development Organisation (SNV) and UNHCR to deploy electric pressure cookers in schools and health centres in Kakuma refugee camp in Kenya.¹⁰⁴

Understanding what, when and where

The case studies reveal very different contexts and approaches towards exerting control and coordination over energy and environmental projects. Nonetheless – much as in the wider humanitarian sector – a lack of interagency (and sometimes intra-agency) coordination has led to policy pressures, tensions and contradictions.

Jordan, Rwanda, Tanzania and Uganda all have policies in which the national government exerts relatively tight control over the humanitarian energy projects taking place within the country. Such systems may seem clearer and easier to navigate for would-be implementers of humanitarian energy projects, but the bureaucracy involved in creating these systems can inhibit bottom-up initiatives and engagement.

In Ethiopia, however, there is greater interaction between humanitarian organizations and provincial and local authorities, which have greater autonomy over energy access policy and projects. Having national policies requires capacity, finance and will – and in cases of overstretched or under-resourced governments,

¹⁰³ Batchelor, S., Brown, E., Leary, J., Scott, N., Alsop, A. and Leach, M. (2018), 'Solar electric cooking in Africa: Where will the transition happen first?', *Energy Research & Social Science*, 40, pp. 257–72, <https://doi.org/10.1016/j.erss.2018.01.019>.

¹⁰⁴ Bisaga, I. et al. (2022), 'Can electric cooking meet off-grid (humanitarian) institutional cooking needs?', Modern Energy Cooking Services (MECS) blog, 2 February 2022, <https://mecs.org.uk/blog/can-electric-cooking-meet-off-grid-humanitarian-institutional-cooking-needs>.

international organizations often take a bigger role in decision-making and oversight of humanitarian energy projects. In Ethiopia, many decisions are taken by UNHCR and other camp-level managers. This allows humanitarian and development agencies (and partnerships like Alianza Shire) to take the lead in pushing forward progressive policy. At the same time, the policy environment has also led to confusion and delay when action is needed from government bodies.

Paying for better solutions

UNHCR and other lead humanitarian agencies have limited technical capacity on issues related to energy and environment. Funding for such issues is often absent or extremely limited. Short-term, politically oriented humanitarian funding is poorly suited to financing longer-term energy solutions in protracted crises and recovery situations. Humanitarian agency planning and budgets are generally annual, with few incentives to make longer-term investments. No formal cluster of agencies is responsible for energy provision in emergencies, in contrast to other basic needs such as food, water, shelter and health. As a result, donors are not presented with energy as a strategic priority. This restricts funding opportunities and impairs energy programme prioritization and coordination.¹⁰⁵ All of the case studies had response plans that seek to address the lack of focus on sustainable energy by drawing out a coherent narrative on the projects and issues they would like to address, but – as examined in Chapter 4 – the success of such response plans is still open to question.

In rolling out its Global Strategy for Sustainable Energy¹⁰⁶ in the context of the COVID-19 pandemic, UNHCR is prioritizing operations where there are plans to strengthen health infrastructure and/or where existing power supplies are insufficient, unstable or overly expensive, and where governments have already prioritized plans for investment in energy access for refugee-affected areas. Specifically, UNHCR is pursuing work that will lead to the development of new energy access projects that are:

- Aligned with the objectives of UNHCR’s Clean Energy Challenge,¹⁰⁷ which seeks to produce a pipeline of clean energy access projects for investment;
- Empirically informed, with underlying fact-based analysis;
- Private sector-led, or demonstrating clear economic sustainability;
- Co-designed by end-users, target beneficiaries and local authorities.

Systematic and large-scale financing for these projects is the crucial last leg in the journey from ‘assessment to investment’, and replaces a more ad hoc set-up that has largely failed to deliver change on the ground, despite a long history of global humanitarian energy strategies and targets.¹⁰⁸

¹⁰⁵ Lahn, G. and Grafham, O. (2015), *Heat, Light and Power for Refugees*.

¹⁰⁶ UNHCR (2019, 2020), *Global Strategy for Sustainable Energy 2019–2025*, <https://www.unhcr.org/partners/projects/5db16a4a4/global-strategy-sustainable-energy-2019-2025.html>.

¹⁰⁷ Bourbon de Parme and Haselip (2020), ‘The UNHCR Clean Energy Challenge: setting up the global structures and processes for implementation’.

¹⁰⁸ *Ibid.*

Global sources of climate finance would help to enable implementation of humanitarian sustainability strategies alongside the ambitions of progressive refugee-hosting countries. At present, however, most agencies do not have accreditation with the main climate finance institutions, as shown in Table 2:

Table 2. Climate finance accreditations among GPA partners

	GCF	GEF	Adaptation Fund
UNHCR	×	×	×
IOM	×	×	×
WFP	✓	×	✓
FAO	✓	✓	✓
UNEP	✓	✓	✓
UNDP	✓	✓	✓
UNITAR	×	×	×
SEforAll	×	×	×
Practical Action	×	×	×
MercyCorps	×	×	×
GIZ	✓	×	×
SNV	×	×	×
Clean Cooking Alliance	×	×	×

Sources: Compiled by the authors from Green Climate Fund (<https://www.greenclimate.fund/about/partners/ae>), Global Environment Facility (<https://www.thegef.org/partners/gef-agencies>) and Adaptation Fund (<https://www.adaptation-fund.org/apply-funding/implementing-entities/multilateral-implementing-entities>).

Active collaboration with UN agencies supporting nationally driven climate change policy and planning will allow UNHCR and other humanitarian agencies to plug into these processes, and will create an operational bridge to the world of climate finance. In Rwanda, for example, reducing biomass usage for cooking and scaling up the deployment of renewable energy are both embedded in a range of country strategies prioritized by the country’s NDC and the National Fund for Environment (FONERWA) – one of Africa’s first green investment funds – and opportunities should exist to take advantage of mutually beneficial investments.¹⁰⁹ (Rwanda was, in May 2021, the first African country to submit an updated NDC, and has been described as a ‘pioneering force for green investment in sub-Saharan Africa’.¹¹⁰) Another example outside the case studies is the early discussions taking place in Colombia through the NDC Action project implemented by UNEP, which also operates in other major refugee-hosting countries including Bangladesh, Jordan and Uganda.

¹⁰⁹ Samo, J. et al. (2021), *Consistency case study: actions supporting Article 2.1c of the Paris Agreement in Rwanda*, San Francisco and London: Climate Works Foundation and ODI, https://www.climateworks.org/wp-content/uploads/2022/02/iGST_21c_Case_Study_Rwanda.pdf.

¹¹⁰ Ibid.

04

The significance of policy and governance: enabling, inhibiting or irrelevant?

Clear, integrated national energy policies and ambitions need to be accompanied by frameworks that support integration and self-reliance for displaced people, including through rights to work, move and participate freely in host economies.

In order to tackle the challenges set out in Chapter 3, humanitarian agencies and host-country governments have deployed a range of different policy instruments. Have these enabled or inhibited better outcomes, or have they proved irrelevant?

The CRRF and humanitarian energy programming

Broadly, all of the countries considered in this paper can be said to be at the forefront of innovative and novel approaches to integrating energy in humanitarian response. But there are important differences in how all of the focus countries incorporate refugees within their overall policy frameworks and commitments.

Ethiopia, Rwanda and Uganda are all CRRF pilot countries, but each country's interpretation of the CRRF differs, and this means that the design and implementation of energy projects also differ in how they fit into national priorities. In Ethiopia, the CRRF offers a broad policy direction, mentioning rights and regulations but not making specific requests for investment in infrastructure such as energy. In Uganda, refugee self-reliance has been a formal objective in the government's partnership with UNHCR since 1999, yet policy has in practice been focused more on maintaining large camps. Uganda, whose CRRF is more advanced than Ethiopia's, adopted a CRRF roadmap in January 2018, with implementation underpinned by the government's Refugee and Host Population Empowerment Strategy (ReHoPE). The strategy seeks to incorporate refugees in the country's development agenda, with energy access being a key part of this. In Rwanda, the Ministry of Emergency Management released a five-year Strategic Plan for Refugees' Inclusion, amounting to a smaller CRRF national roadmap, funded by the World Bank. A significant proportion of the World Bank funding pledged to Rwanda as part of this roadmap is earmarked for 'environmental management (rehabilitation of natural environments and an environmental sustainability review)'.¹¹¹

As previous self-reliance strategies promoted by UNHCR have demonstrated, greater economic independence cannot be achieved without the right to work, generate income and access local markets.

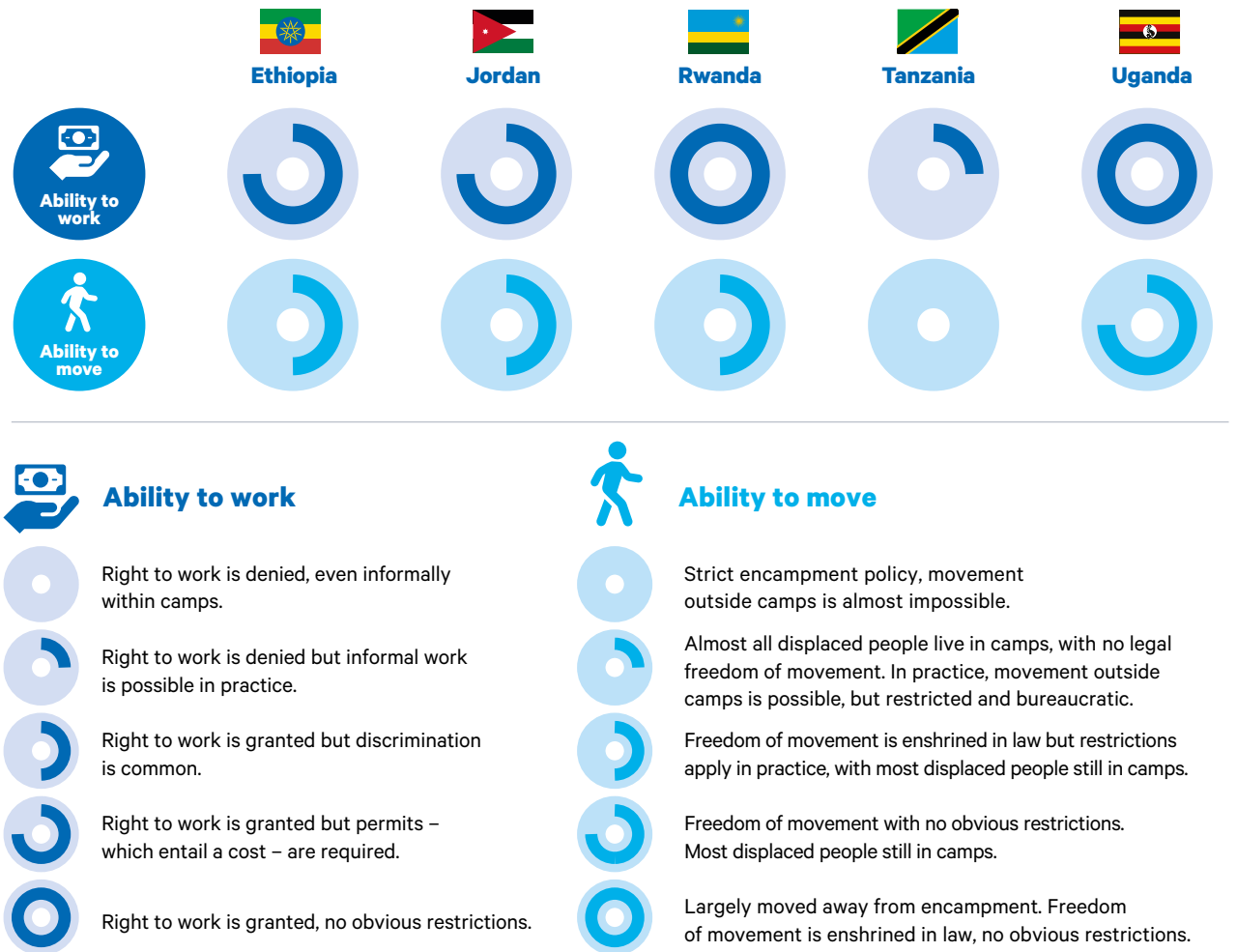
The ability to work and move freely are two further aspects of the overall CRRF vision, and are significant in determining the way energy projects can work and operate. Market-based project interventions in particular are contingent on, and aim to stimulate, greater household-level income generation. Figure 7 compares the five countries studied in terms of how policies affect refugee freedom in this regard. As previous self-reliance strategies promoted by UNHCR have demonstrated, greater economic independence cannot be achieved without the right to work, generate income and access local markets.¹¹² It is also important to note that the focus on energy as part of 'access to services' and 'self-reliance' may detract from the potential for fairer options for refugee-hosting among countries, and of integration and citizenship as a long-term goal.¹¹³

¹¹¹ Some \$9 million of \$60 million total. Notably, however, the World Bank's renewable energy fund for Rwanda (window 5) and the Clean Cooking Results Based Financing programme launched in 2020, both managed by the Energy Sector Management Assistance Program (ESMAP), were not designed to include refugees. Crawford and O'Callaghan (2019), 'The Comprehensive Refugee Response Framework: Responsibility-sharing and self-reliance in East Africa'.

¹¹² The concept of self-reliance itself has been critiqued as a way 'to create cost-effective exit strategies', which can leave refugees more vulnerable if they are not accorded rights and access to services at the same time. Easton-Calabria, E. and Omata, N. (2018), 'Panacea for the refugee crisis? Rethinking the promotion of 'self-reliance' for refugees', *Third World Quarterly*, 39(8), pp. 1458–474, <https://doi.org/10.1080/01436597.2018.1458301>.

¹¹³ Hovil, L. (2018), *Uganda's refugee policies: The history, the politics, the way forward*, Rights in Exile Policy Paper, International Refugee Rights Initiative, <https://reliefweb.int/sites/reliefweb.int/files/resources/IRRI-Uganda-policy-paper-October-2018-Paper.pdf>.

Figure 7. An overall assessment of refugee freedoms defined by policy in the case study countries



Source: Adapted by the authors from Shell, Dalberg and Vivid Economics, July 2020, 'Access to more: Creating Energy Sources for Refugees', https://www.shell.com/sustainability/_jcr_content/par/text_over_image_caro_395647644/text_over_image_caro_237760834/buttonUrl.stream/1595953271615/db4946328e61328b1001fd5534929aa47dfe3db6/shell-enter-energy.pdf. Analysis based on interviews and discussions with staff in country rather than formal policies. More detailed analysis of de jure and de facto policy freedoms towards refugees can be seen at Refugee Access to Work Rights (2022), 'The Global Refugee Work Rights Scorecard', <https://refugeeworkrights.org/scorecard>.

Overall, Figure 7 shows that all three of the CRRF countries are moving towards a framework that supports refugee integration and self-reliance with generally lenient policies towards 'refugee freedom to work' and freedom of movement. In all three, these relatively progressive national policies have coincided with new energy access innovation and financing to enable and respond to externally financed humanitarian energy access projects. Despite this, there are differences in how policy is applied. For example, while refugees in Rwanda have the right to freedom of movement and work, in practice it is difficult for them to move around because of bureaucracy as well as the remote location of some camps. Officially they must receive permission to leave the camps, which alone can take up to a month. Refugees must return to camps regularly to renew their permits

and register a minimum presence in order to receive cash and access benefits.¹¹⁴ Tanzania – which withdrew from the CRRF in 2018 – recognizes the importance of investment to boost access to clean cooking technologies, as part of efforts to solve the environmental problems to which it (with justification) sees refugee communities contributing. Limiting the economic freedoms of refugees undermines these efforts. It also has negative consequences for the local host community, whose own economy depends on the (mostly informal) exchange of labour, goods and services with refugees (including firewood and charcoal where scarcity has driven up prices). Numerous initiatives have shown that when refugees have vulnerable incomes and restricted livelihood opportunities, sales of energy are unlikely to scale or be sustainable. If rights to work are restricted, refugees may not be able to benefit from the training and job opportunities that energy projects offer.

National response plans

The cases discussed in this paper illustrate how a number of governments with long-term refugee populations have supported some form of humanitarian response strategy that aims to facilitate sustainable energy access by coordinating between government agencies and donors. All the focus countries have developed their own response plan, although the timelines, funding and ultimately the success of the plans have differed. At their heart, response plans can allow humanitarian agencies and governments to jointly identify thematic priorities, allow various actors to streamline their work, and actively bring on board funding for these priority interventions. This is particularly crucial for energy and environmental issues where there is no central agency with responsibility (or funding) for the issue. Used wisely, humanitarian response plans allow agencies and governments to expressly fundraise for large-scale energy programming in humanitarian settings. Chatham House analysis of existing humanitarian response plans¹¹⁵ suggests that such plans are already being used in this way, with the total energy and environmental funding requirements listed in current response plans estimated at \$300 million for 2021. Assuming a similar level of investment would be needed for refugees not covered in existing response plans, scaling this figure to cover all refugee populations globally would mean an investment of over \$1 billion for 2021. And assuming similar funding needs would also be required in the coming years, a reasonable estimate is that the cost of refugee energy and environmental needs across the world will amount to more than \$10 billion between 2022 and 2030.¹¹⁶

¹¹⁴ Easton-Calabria, E. via Reliefweb (2019), 'How Rwanda can do a better job of supporting refugees', <https://reliefweb.int/report/rwanda/how-rwanda-can-do-better-job-supporting-refugees>.

¹¹⁵ See also GPA (2022), *The State of the Humanitarian Energy Sector: Challenges, Progress and Issues in 2022*.

¹¹⁶ The figures listed above are derived from humanitarian response plans developed for Ethiopia, Jordan, Kenya, Lebanon, Rwanda, Tanzania, Sudan, Uganda and the Sahel (encompassing Burkina Faso, Chad, Mali, Mauritania and Niger). Together, these countries host some 28 per cent of the world's refugees (of an estimated total of 26.6 million refugees as at mid-2021, according to UNHCR Global Trends). It should be noted that the estimates for energy and environment funding requirements are often developed locally, and are not always based on precise data or energy plans. They can also be inflated in the knowledge that response plans are often not fully funded. This 'back-of-the-envelope' approach to scaling funding requirements to 2030 assumes a similar financial requirement would be needed each year, and does not take account of the potential for savings once initial capital outlay on infrastructure has been committed.

At the country level, Jordan has the longest-running experience with response and coordination processes; and the response plan format has proved effective, enabling the government to shape support to meet national priorities that included addressing energy. In Uganda, similarly, the response plan format has provided another important avenue for fundraising on the carefully defined energy and environment agenda that has been crafted as part of the transition to the SERP. But the format has failed to have the same impact in other countries discussed in this paper. For example, Ethiopia's OCHA-led Humanitarian Response Plan makes no real place for energy or environmental issues; and this sits awkwardly alongside UNHCR's Country Response Plans for 2020–21 and 2022, which do set out an energy and environmental agenda. In Rwanda, as well as Ethiopia, humanitarian organizations have struggled to meet the extremely ambitious targets set out for energy and the environment. In these cases, there seems to be little correlation between the activities planned and the budgets proposed. Future response plans could be improved with a more rigorous costing of specific activities, as well as more realistic ambitions. Tanzania's Energy and Environment Plan (as contained within the overall response plan) focused heavily on the distribution of stoves and afforestation programmes to reduce forest loss in the regions around the camps. These interventions are important and necessary, and align strongly with government ambitions, but as a package they are unlikely to be truly transformative, with little focus on bringing power to the camps or surrounding host communities.

Enabling private sector participation and crowding-in of innovation actors

There are precious few examples of true private sector participation in the humanitarian energy sector, though where they exist the state has had an indirect influence in enabling partnerships.

In Uganda, although progress on the ground remains slow, the government has created an overall policy environment that is conducive to private sector humanitarian energy project delivery. In this context, a range of novel and exciting projects and partnerships – such as the Smart Communities Coalition – have chosen to use Uganda as a 'testing ground' for new approaches. The country still faces a daunting array of challenges – with widespread poverty and developmental problems, a huge need for investment in infrastructure and basic facilities (particularly in the historically marginalized north), and one of the largest refugee populations in the world. But the approach taken in this context – to grant refugees rights and freedoms, and to encourage cooperative models for humanitarian delivery – seems to have succeeded in the 'crowding-in' of new ideas, approaches and suppliers, as highlighted in the Uganda case study. A key challenge remains to turn pilot schemes and short-term grant-funded activities into longer-term, more sustainable action. But the range of activity on the ground suggests progress and a move towards more durable

solutions – particularly as host communities are taken account of in almost all refugee-focused energy interventions.¹¹⁷

In Rwanda, there is evidence of an evolving government appetite for private sector engagement in refugee settings, although programmes tend to be more tightly controlled and subject to governance structures requiring UNHCR endorsement or collaboration. In Ethiopia, Tanzania and Jordan, while research reveals latent market demand for clean energy products and services among displaced communities, there has been less government-level attention to encouraging market-based solutions that might promote longer-term sustainability of new technology options.

Humanitarian technical working groups and local coordination

In some settings, attempts to improve the coordination and effectiveness of energy interventions have included setting up working groups. As a low-cost initiative that can be deployed quickly and easily, such groups have proved popular, and all of the case studies presented in this paper have a mechanism that serves this function: take for example the Technical Working Group on Energy and Environment in Uganda, or the Energy and Environment Working Group in Tanzania. For project developers or energy businesses, groups of this kind are often the key entry point to understanding the novel barriers, challenges and regulations for energy and environmental interventions in humanitarian settings.

In all of the case studies, working groups have also included government representatives. In Uganda, for example, the group has been co-led by the Office of the Prime Minister, UNHCR and the Ministry of Energy and Mineral Development. Government representation has helped to achieve high-level buy-in for energy projects in Uganda, partly because it signals some measure of stability for refugee populations and makes clear what the government needs, thus providing the framework under which projects can be packaged, and partly because it provides an open channel of communication. In Uganda, the group has helped to raise the profile of humanitarian energy projects in the country, and it has laid the groundwork for the SERP (discussed in the case study). Tanzania's stakeholders similarly describe the addition of dedicated new field officers from government as a positive step that has helped camp commanders to make informed decisions about energy issues.

Jordan's coordination landscape is even more complex, but the Energy Taskforce (which will now be covered by the Public Services Taskforce) has functioned effectively in setting the priorities for the JRP in energy. It has enabled key ministry input and has brought together some of the main humanitarian

¹¹⁷ See, for example, the recent grant window of the Smart Communities Coalition Innovation Fund (SCCIF), which refers to displaced populations and crisis-affected host communities: <https://www.usaid.gov/powerafrica/sccif>.

actors engaging with energy to try to avoid duplication. On the ground, a number of more specific committees and working groups have helped to serve the needs of particular projects in Jordan.¹¹⁸

National processes and regulations

Host governments have a range of context-specific processes that determine how energy projects in humanitarian settings will be approved, regulated and evaluated. In some cases, these processes can be relatively simple to navigate, while in others a complex array of negotiations – and diplomatic skills – are needed to bring projects to fruition.

In the project to put a solar water heating system in Al-Mafraq public hospital to improve conditions for both Jordanians and Syrians, there was a six-month delay while approvals were sought from five separate government ministries.

In Jordan, the JRP provides a formalized process for approvals, beginning with the Ministry of Planning and International Cooperation, which oversees the JRP and which will then coordinate with the relevant ministry and the JREEEF for further approvals. The implementation of two solar plants at the main refugee camps has proved successful, reducing bills for UNHCR and establishing a piece of legacy infrastructure that helps with Jordan's renewable energy targets. These projects benefited from a law and clear regulation on solar and grid connection (the 2012 Renewable and Energy Efficiency Law). However, lengthy government approvals did delay implementation and increase costs. In the case of the Azraq solar plant, for example, where ownership sat with UNHCR, approval for the connection delayed the project by 18 months as a number of other ministries needed to sign off on the project. However, ownership can make a difference. In the case of the KfW-funded Zaatari solar plant, where ownership sat with the Ministry of Energy, approvals were streamlined and costs kept down. Smaller, novel projects on public infrastructure may by their nature even require more levels of approval. For example, in the project to put a solar water heating system in Al-Mafraq public hospital to improve conditions for both Jordanians and Syrians, there was a six-month delay while approvals were sought from five separate government ministries.

In Uganda, approvals of mini-grids is the purview of the Rural Electrification Agency based on established master plans. On approval, developers would then seek licences from the Electrical Regulatory Authority, which would in turn set the tariff for the utility. The process has been successfully navigated in refugee contexts by several developers that have either been involved in previous

¹¹⁸ For further details, see Lahn et al. (2022, forthcoming), *Scaling up sustainable energy in Jordan's public facilities* [working title].

projects throughout the country or have made themselves fully aware of the requirements and followed up accordingly. Ad hoc humanitarian projects that are not anchored in the institutional processes and designed at commensurate scale have and will continue to face sustainability challenges. Successful projects are those where approval by the relevant agencies and regulators precedes funding, and where development partners have worked closely with government to design the projects before calling for proposals or announcing grants.

The success and sustainability of energy access projects also depends on the quality of the technologies accessed. Poor quality products, as well as being ineffective and costly, can be unsafe and can damage user confidence in energy technologies whether for cooking, lighting or power. The logical mitigation for these challenges is to follow recognized international or national standards. In the case of household solar products, adherence to VeraSol (formerly Lighting Global) is a familiar and widely accessible option. However, standards for cookstoves are less straightforward, and this can introduce challenges in humanitarian contexts where low funding levels mean that significant numbers of the people who are dependent on biomass for cooking cannot be reached.¹¹⁹ In Uganda, in an attempt to regulate the vast array of cookstoves intended to reduce wood fuel consumption and increase safety in and beyond refugee settlements, the Uganda Bureau of Standards developed and published standards for cookstoves and declared that all implementing partners should adhere to those standards when providing improved cookstoves in refugee settlements. The first challenge was a lack of clarity on whether this standard would apply to handmade stoves, and a second challenge was that a large majority of stoves failed to meet the standard. The lack of market availability of qualifying stoves created both confusion and incongruence in a sector where compliance was mandatory but largely unachievable.

¹¹⁹ Haselip, J., Chen, K., Marwah, H. and Puzzolo, E. (2022), 'Cooking in the margins: Exploring the role of liquefied petroleum gas for refugees in low-income countries', *Energy Research & Social Science*, 83, <https://doi.org/10.1016/j.erss.2021.102346>.

05 Conclusions and next steps

To fully attain the ambition of SDG 7 requires systemic integration of displaced people into policy and planning for governments, and systemic integration of sustainable energy provision into programming for humanitarian agencies.

Through case studies, this paper has explored what difference, if any, host government and humanitarian organizational structures (governance) have made to energy access projects in displacement-affected areas. The analysis identifies constraints and enablers regarding the large-scale uptake of energy access projects in situations of displacement.

Beyond the basic conditions of adequate security, ability to work and ability to move, our research highlights four key enabling factors, linked to host-country policy and governance for clean energy access:

1. A coordinated crisis-response approach: thinking long term from the beginning

Of the countries examined in this paper, Jordan has gone furthest in government-led, multi-stakeholder engagement as regards moving from short-term humanitarian relief towards fostering long-term resilience. The three-year rolling JRP, whereby the Jordanian government works with humanitarian agencies to integrate refugee welfare with national development needs, is a key example. Here, for example, energy, water and housing needs have been specified and have attracted funding. The JRP has overseen some of the most ambitious humanitarian energy projects in the world, as well as innovations in the municipal space. In Irbid, where more than 137,600 Syrian refugees are hosted, NRC integrated a project under the JRP that expanded energy efficiency and solar water heating systems to reduce bills and rents for refugee tenants, while adding

value for Jordanian homeowners who rent property to refugees. This fits with both the government of Jordan's specification that projects outside camps must demonstrate at least 30 per cent benefit to host communities and the country's energy efficiency targets.

Uganda is not far behind, and its creation of the SERP is also reflective of this movement towards governments taking active ownership of the energy agenda in displacement settings.

Nationally developed governance structures that create operational bridges between the humanitarian and energy policy and planning realms within host countries can facilitate durable sustainable energy investments. Host government commitments at the international level, as with the CRRF and response plans to the Syria crisis, provide political mandates for such structures to emerge. Multi-stakeholder processes involving government, donors and development and humanitarian actors also require multi-year funding. In these cases, interaction is taking place between high-level global humanitarian policy and country response plans, including the relatively recent focus on sustainable energy access.

However, experience to date indicates that ad hoc individual and bottom-up initiatives make up the vast majority of humanitarian energy interventions. Such approaches can miss opportunities to receive government support, and to coordinate and build on existing national plans, in ways that would reduce costs and contribute to scale-up. In most countries with large internally displaced and/or refugee populations, there is an opportunity to better integrate them into national energy and climate change policy and targets, including a country's rural energy access plans and its NDCs in line with the Paris Agreement. This offers the potential to meet the large funding gaps currently evident between the stated support required for response plans and what is actually obtained. It also provides for continuity when aid dwindles or if funding for the response plan process is cut. Addressing the funding gap will require dedicated support for host governments from relevant humanitarian and development agencies and partners to address barriers to scaling up. In this way, humanitarian energy projects can inform and lay the foundations for a pipeline of national projects, with an eye to unlocking the promised billions in climate financing and other forms of green finance to accelerate the transition to clean and sustainable energy systems in lower-income countries.

In the past, short-term relief-focused thinking, combined with a lack of interagency collaboration and coordination, has tended to obstruct the installation of anything that could be perceived as permanent. So, are crisis-response plans helping to incentivize better energy solutions? In several countries, these policy documents have provided a space for energy and environmental interventions that has previously been lacking. In theory, a coordinated government–UN–NGO response to a humanitarian crisis, which attempts to make sure that host-country populations also benefit from humanitarian efforts, should provide some of the stability of tenure for refugees that is needed to pursue development-oriented projects. Such processes should also make sure that energy access projects are actually wanted by the host government, which will need to approve infrastructure deemed to be permanent, and by the local community (nationals and refugees) in which they will take place. Governments will be interested in the legacy value

of energy-related projects where they bring benefits for both host and displaced communities and foster wider national objectives, such as growing the clean cooking or renewable energy markets.

However, the effectiveness of these response plans has differed considerably. The example from Tanzania shows that a response plan alone cannot suffice: funding, ambition and a supportive enabling environment are all crucial components of an effective crisis-response plan. Moving towards longer-term planning (i.e. beyond the current one- and two-year plans in Tanzania, Rwanda, Uganda and Ethiopia) will also allow such response plans to be more realistic: in the case of Ethiopia, for instance, providing more time to attract sufficient funding; for Rwanda, having more time to achieve ambitious targets. The two most effective response plans considered (Jordan and Uganda) have both received external funding (in Jordan's case from UNDP, in Uganda's from GIZ and others) in order to provide humanitarian agencies and governments with the time and space to define the agenda they wish to pursue. This model can be considered by other donors looking to incentivize progress within specific countries in the future. But it is crucial that local ownership is embedded in the decision-making process. Failure to make sure this happens means that national strategies can be either resisted or rejected, and/or deemed to be a foreign imposition.

2. Building the right partnerships

To increase and enable sustainable energy access in any displacement situation requires a **clear in-country coordination mechanism that can organize, mobilize and advocate for improvements to sustainable energy that overlap with the humanitarian space**. As the case studies in this paper show, having sustainable energy detailed as a priority area in national response plans is an important first step, but to implement them with optimum value for both development and humanitarian aims requires greater coordination. Building structures and processes for coordination can take time, given the differing incentives of the necessary actors.

In Jordan, Rwanda and Uganda, it is relatively clear who governs and controls policy areas needed to advance humanitarian energy projects. Structures and governance models differ from country to country. In Uganda, for example, the technical working group on energy and environment is run by UNHCR and the Office of the Prime Minister; whereas in Rwanda all projects working in-camp need to secure buy-in from MINEMA (the government agency responsible for refugees), MININFRA (responsible for energy) and UNHCR, which together decide what projects will be implemented. In Ethiopia, however, it is often unclear who the primary decision-makers are, and – as some of the examples from Dollo Ado show – weak relationships with local administrations and leadership groups have hampered the effectiveness of projects. In the past, the strong leadership of humanitarian organizations has meant that humanitarian energy projects developed within the displacement setting have moved relatively quickly, but when projects extend beyond camp boundaries the lack of certainty around decision-making has held up decisions, sign-off and implementation. In Jordan, the bureaucracy is more thorough and the capacity for regulation is high. MoPIC

is supposed to be a single point of contact for project approvals; but in reality it will then field proposals to a number of other ministries for approval, which can take months, especially when these are overstretched. For solar projects, it is important to understand the protocol for engineering studies, grid capacity studies and connection. An issue such as a customer's unpaid bills can hinder connection to the grid, for example.

UNHCR and other lead UN agencies operating in this space (IOM, WFP, FAO) are used to dealing with government departments responsible for displaced people, but not those responsible for energy, the environment or development. The same is also true in reverse, with the development-oriented government ministries often regarding refugee settlements as outside their remit or somehow 'owned' by humanitarian agencies. **All cases point to the need for additional advocacy at government level to explain the value of the project to each body responsible for approvals.**

The humanitarian sector is not best placed to design and implement energy access projects. In general, it is technically poorly equipped and unprepared to handle long-term financing agreements. The sector has an organizational DNA based in emergency response, not long-term sustainability. Yet lead humanitarian agencies have the legal mandate to protect and manage forcibly displaced people, and energy is a key concern for protection and welfare. Displaced people themselves – and other people working on ground operations – will also be able to contribute the best knowledge of displaced people's circumstances, needs and capacities to inform energy project design. Attempts to address energy needs should avoid duplication by first learning from and potentially building on existing successful work with local partners. It makes sense to build partnerships with private companies or social enterprises to deliver solutions. However, there is minimal documented experience of such partnerships and how they can work for both parties over time, with a pervasive scepticism among humanitarian officials about engaging with the private sector.¹²⁰

While the global-level policy direction and ambition are clear, there is a disconnect between that and the level of field operations – the 'doers' working on the ground – who are responsible for designing bottom-up solutions. Overcoming technical knowledge gaps requires building the right partnerships, between qualified and legitimate agencies operating within a political mandate from refugee-hosting governments and the lead humanitarian agencies. Co-designed processes, potentially including committees of relevant bodies, can help to iron out critical issues at the outset concerning the ownership of assets, responsibility for maintenance, and legal and regulatory conditions for retail and procedures in the event of camp closure, for example.

¹²⁰ Bisaga, I. and Huber, S. (2020), 'Tips for Private Sector Engagement for Energy Access in Humanitarian Settings', Global Platform for Action, <https://www.humanitarianenergy.org/news/latest/humanitarianenergy-private-sector-tips>.

3. Strong, clear energy and environment plans and legislation for long-term, economically sustainable solutions

Humanitarian agencies work within the boundaries set by host governments. Where legislation is clear, humanitarian agencies can develop innovative and enterprising solutions. For example, Jordan's 'wheeling' regulation allows UNHCR operations to offset electricity costs by generating power to feed the national grid from the PV plants at two camps. These provide legacy assets for Jordan – which has a target of 31 per cent of electricity generation from renewable sources by 2030 – and makes the humanitarian operations more financially sustainable. In Rwanda, the government issued a directive to stop the distribution of firewood in camps, on the basis of concerns about deforestation. This sent a clear message to the humanitarian sector, sharpening the focus on finding solutions to access cleaner cooking technologies and pushing the sector to think more about a developmental rather than an emergency response.

Both examples provide evidence of how humanitarian agencies overseeing energy projects have responded to government policy signals. But responses to policy are not always sustainable. The experience in Rwanda is instructive: the solution that UNHCR adopted in Kigeme suppressed the nascent market in clean cooking fuels. Learning related to the interaction between policy and programming, and the unintended consequences of policy choices, is a key factor here, not least as project champions move on before project completion. It often takes years to build successful projects; and working on short-term contracts (for a year or two, for example) means that projects are often shifted 'back to square one' when new staff arrive.

4. Moving towards rational price-setting for local energy sources, reflecting their true social and environmental cost

It is important that humanitarian agencies and host governments alike should recognize the costs and negative externalities associated with current practices. Whether the costs and disadvantages relate to health (negative impacts of breathing polluting smoke from traditional fuels), time (i.e. time spent collecting firewood from ever greater distances), shortened work, education or social time (from lack of lighting), reduced potential for additional income (through inadequate access to power) or other factors, the traditional models of energy delivery in humanitarian settings are unacceptable and expensive.¹²¹ The benefits of access to energy outweigh the costs entailed. For every dollar spent on energy annually, around \$1.4 to \$1.7 in benefits can be achieved.¹²²

¹²¹ Lahn and Grafham (2015), *Heat, Light and Power for Refugees*.

¹²² Shell, Dalberg and Vivid Economics (2020), 'Access to More: Creating Energy Choices for Refugees'.

Lack of market incentives nationally can mean that clean cooking opportunities are missed due to the burden of subsidy involved, as can be noted from the experience in Tanzania. There, a successful LPG market creation plan for Nyarugusu was deemed to require short-term donor funding to help overcome the capital barriers to LPG market access, plus a long-term policy commitment to support areas where refugees and host communities could trade together.

Where diesel is subsidized or untaxed, it is difficult for a competitive market for efficiency measures and cleaner electricity generation technologies, including low-cost solar PV, to emerge. In Jordan, reforms to electricity and water tariffs provide clear incentives for efficiency and solar power applications, and a market in these services has emerged. This context has motivated government, humanitarian and development interest in solar for schools for example, where the Ministry of Education faced increased bills due to double shifts as Syrians entered the state education system. As UNHCR was also charged the commercial rate for electricity use in the camps, this provided a strong incentive to enter into partnerships for renewable energy systems that it did not have the capital to deploy itself.

Next steps

In plotting a course towards the 2030 SDG targets in countries with large internally displaced and refugee populations, the accumulated experience from humanitarian operations and partnerships should inform and enhance policy and governance frameworks. The case studies presented in this paper show that an enabling environment – in terms of policy, coordination and government capacity – is critical to humanitarian delivery and long-term sustainability gains for a host country. With an increasing focus on bridging the humanitarian–development gap in order to accommodate large vulnerable populations who cannot safely return to their homes for many years, interest in projects that help foster such an enabling environment will grow.

For countries – such as Uganda – that have put considerable effort into positively transforming their policy environment, it is crucial that donors and the wider institutional community recognize and support these efforts by backing programming that has been carefully planned and costed. But to fully deliver SDG 7 – access to affordable, reliable, sustainable and modern energy for all – requires systemic integration of displaced people into policy and planning for governments, and systemic integration of energy into programming for humanitarian agencies.

Refugee-hosting governments stand to benefit most from humanitarian support for sustainable energy when they integrate energy in their plans and targets, and engage with transitional plans for ownership, financing and maintenance. Humanitarian and development agencies cannot work alone; they must engage with and complement others with longer-term influence over a project, taking into account how they align with local needs and stated ambitions. ‘Anchoring’ projects within local decision-making processes adds to the costs but increases the chances of longer-term durability. In a context of stretched budgets and pandemic-related restrictions, undertaking these changes will not be easy, but the benefits would be transformative.

About the authors

Owen Grafham is assistant director of Chatham House's Environment and Society Programme. Since joining Chatham House in 2014, Owen has worked on a range of international energy and climate related projects, and he currently leads Chatham House's influential research on energy provision for displaced populations. He is the author of a range of publications on this subject, including (with Glada Lahn) *Heat, Light and Power for Refugees: Saving Lives, Reducing Costs*, and is the editor of the first book-length study of humanitarian energy, *Energy Access and Forced Migration* (Routledge: 2019). Owen has also served on advisory boards for a number of academic energy access projects, as well as Mastercard and USAID's 'Smart Communities Coalition'. He holds a BA from the University of York, and an MSc in African politics from SOAS, University of London.

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James Haselip is a senior researcher in the UNEP Copenhagen Climate Centre (UNEP-CCC), where he has worked as a staff member since 2010. He is interested in understanding, and then helping to influence, the processes of market creation for clean technology uptake in partnership with governments and wider stakeholders in the Global South, where UNEP-CCC implements donor-funded projects in support of NDC and SDG 7 ambitions. James led UNEP's involvement in the creation of the inter-agency Global Platform for Action (GPA) following research and consultancy completed for UNHCR in East Africa (2017–19). In 2020, James completed a one-year secondment to the energy and environment team within UNHCR's Division of Resilience and Solutions (Geneva) to help develop global guidance for creating a pipeline of clean energy access projects and drive forward GPA-led efforts to harmonize energy data collection, for both global SDG 7 tracking and new project design. He also helped design and promote the Clean Energy Challenge, a global campaign launched at the first Global Refugee Forum, aimed at raising broader awareness about the energy poverty of refugees and to gather and organize resources, both technical and financial, to design and implement clean energy access projects in low-income countries.

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Many of the case studies discussed in this paper reveal challenging scenarios and outcomes that are less than optimal. But all of the projects and plans discussed in this paper are seeking to make things better for refugees and displaced people on the ground and we hope this paper contributes to wider learning that supports better impacts across the sector. Any omissions or errors are the responsibility of the authors.

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Cover image: Gihembe (Rwanda) refugee camp's main square lit up at night. Prior to the camp's closure, in late 2021, energy access projects had enabled the installation of solar street lights as well as solar home systems and clean cookstoves for households there.

Photo credit: Copyright © Edoardo Santangelo (2019) for the Renewable Energy for Refugees (RE4R) project.

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