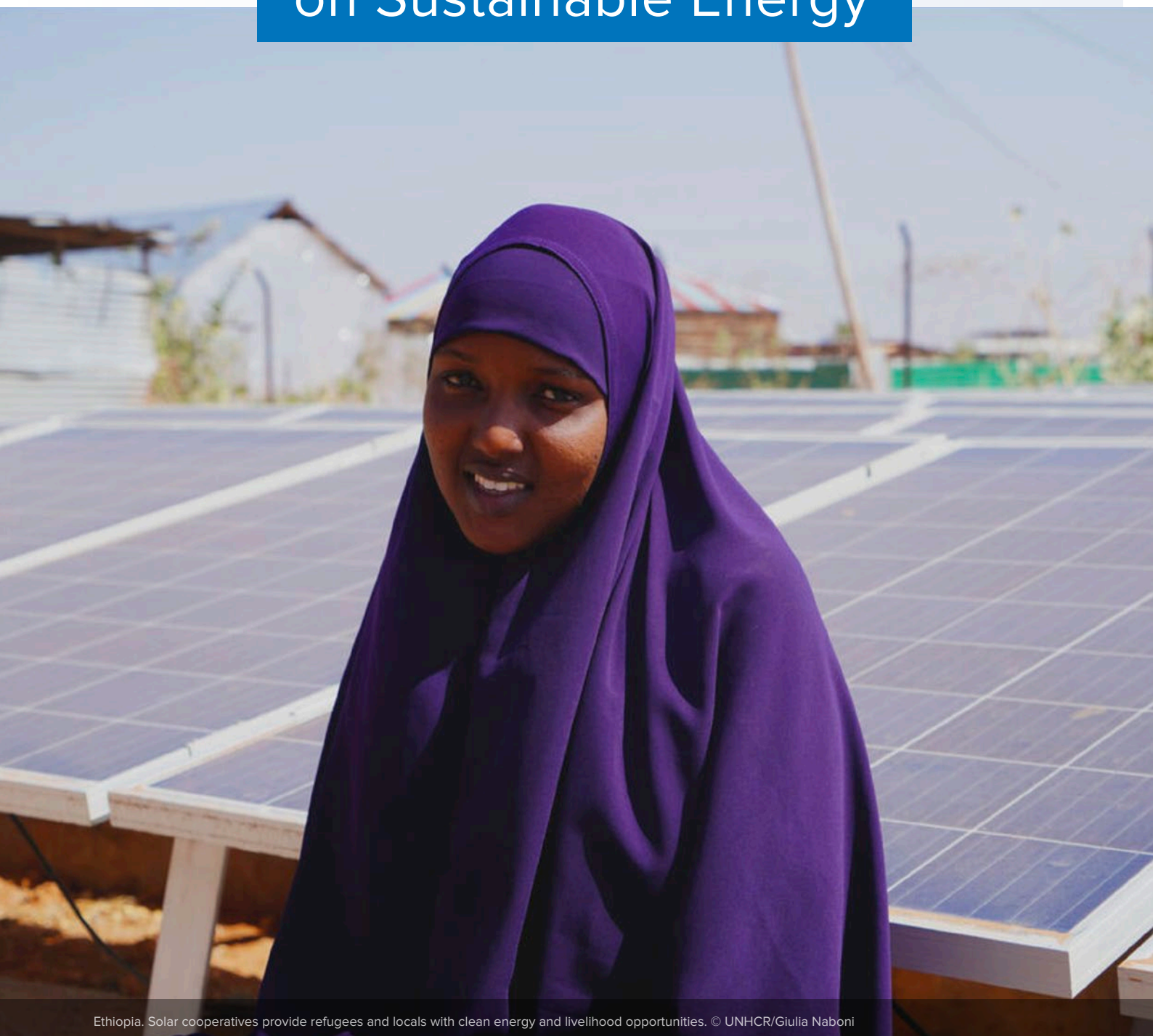


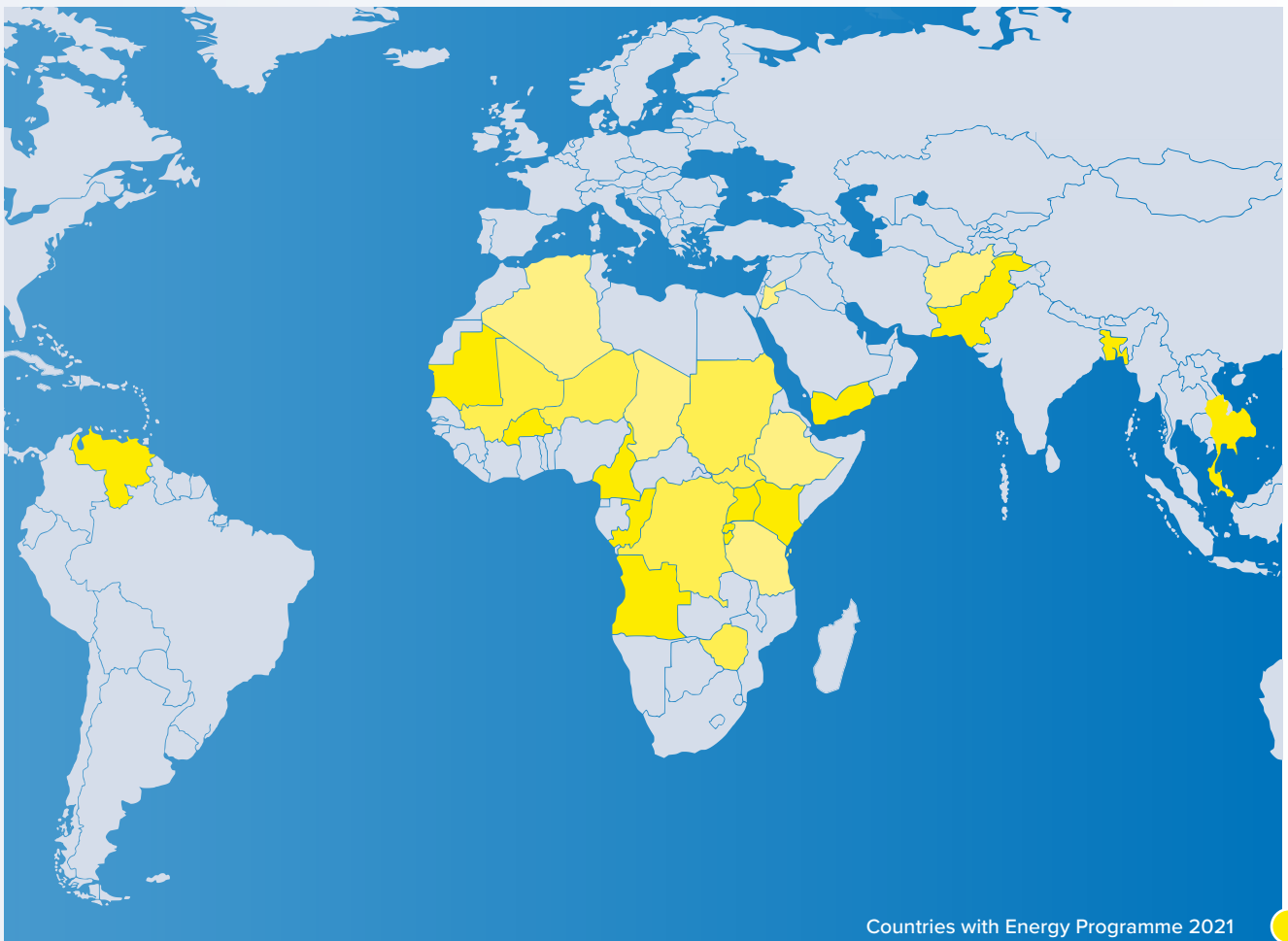
ANNUAL REPORT 2021

on Sustainable Energy



OVERVIEW

This report highlights UNHCR's progress in expanding sustainable energy access for refugees in-country operations against the outcomes of the [Global Strategy for Sustainable Energy 2019 - 2025](#). In line with the [Global Compact on Refugees](#) and to protect the most vulnerable, energy programmes in UNHCR focused on "scaling-up capacity development for smart, affordable and appropriate technologies and renewable energy in developing and least developed refugee hosting countries".



Disclaimer:

Absolute and relative figures shown are estimations based on available reports and data from country operations. The availability of information can vary from year to year and from country to country and comparisons with past reports might not be meaningful.

KEY HIGHLIGHTS

In 2021 UNHCR delivered energy access for cooking, lighting, and communal facilities in **26 countries** serving up to

2.7
million people 

 More than
1.3

million solar lanterns

Have been distributed by UNHCR to assist people of concern with basic lighting needs in **more than 30 countries**



In **14 countries**, UNHCR programmes provided basic lighting and connectivity access, while in **7 countries**, initiatives focused on enhancing the access to electricity for refugees

in **18**
countries 

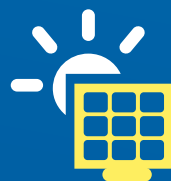
UNHCR has implemented cooking access programmes, **enhancing clean cooking in 9 countries**, improving the quality of life and health of refugees and reducing the impact on the environment

363
out of **540**



UNHCR offices worldwide installed Green Boxes to track energy use and CO2 consumption

In **14 countries**, UNHCR provided access to **sustainable energy for community facilities** and



solar streetlights to improve the quality of basic services provided to refugees and their hosts



Workshops and training sessions were delivered to **more than 24 countries globally**, in collaboration with development and academic partners, and through 10 Communities of Practice and 4 global workshops



The UNHCR Compendium on Access to Clean Cooking was published to help develop clean cooking programs with an integrated protection perspective



UNHCR launched the **Project Flow**, a revolving financing mechanism to support the **conversion of facilities powered by diesel generators to solar energy**



The Refugee Environmental Protection (REP) Fund was launched to **invest in impactful long-term reforestation and cleaner cooking programs in climate-vulnerable refugee situations**

KEY ACHIEVEMENTS AGAINST

THE STRATEGIC OUTCOMES OF THE UNHCR GLOBAL STRATEGY FOR SUSTAINABLE ENERGY 2019-2025

This report outlines progress made against [UNHCR's Global Strategy for Sustainable Energy](#) strategic outcome areas and strategic approaches, whereby vulnerable populations under UNHCR mandate are to meet the following needs.

1

Addressing energy needs during refugees' emergency response

Energy access for cooking, heating, and lighting was key in the emergency responses. **In 8 countries, part of the energy programme budget was allocated to respond to the energy needs during an emergency.** More than **1.3 million solar lanterns to cover basic refugee lighting needs** were procured and distributed in 30 countries. Options to provide energy access during emergencies are as well provided by UNHCR's **cash-based multi-purpose assistance** programmes to cover the **cost of domestic energy access and utilities**, especially those related to winterization support in several situations, including Afghanistan, Iran, Iraq, Jordan, Lebanon, and Syria.

Box 1: UNHCR Meeting basic energy needs of people affected by the Tigray situation

As the violence in Ethiopia's Tigray region aggravated in 2021, UNHCR provided life-saving assistance to the thousands of Ethiopian women, children, and men arriving in search of refuge in Sudan: to enhance access to energy, **15,000 portable solar lamps** were provided to about **45,000 Ethiopian refugees in Gedaref region**. In the Shire region of Ethiopia, UNHCR installed **8 electrical communal kitchens**, allowing the internally displaced persons (IDPs) to access clean cooking.

2

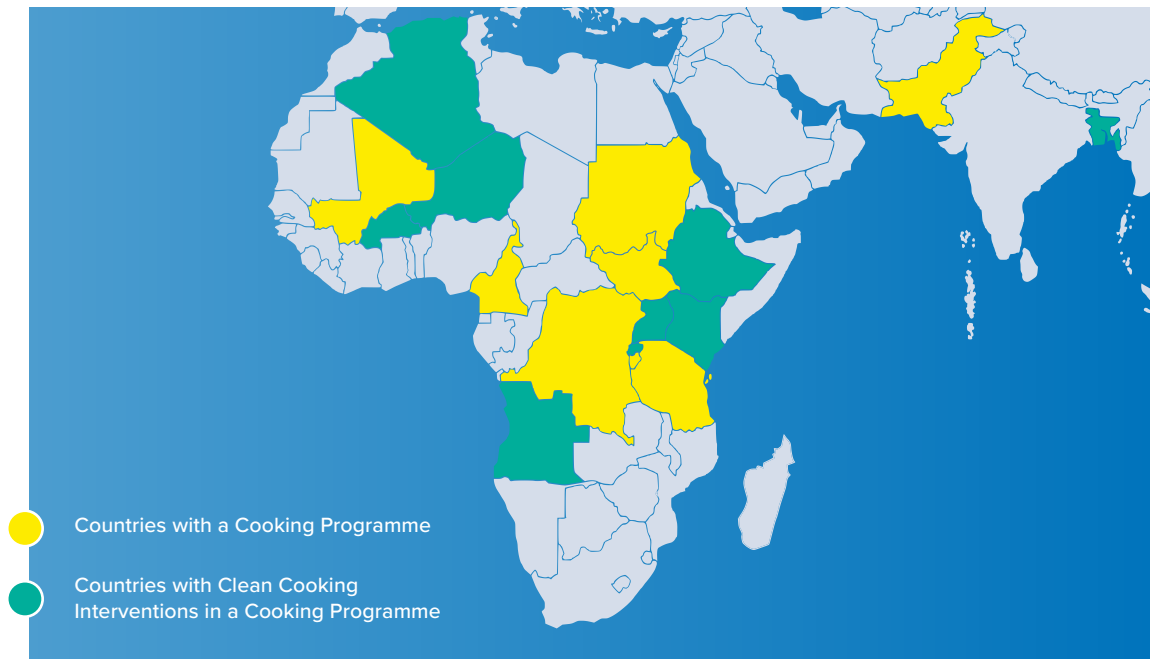
Improving access to sustainable, safe, affordable, and clean¹ household cooking energy

In 2021, **18 UNHCR country operations provided cooking solutions²** to refugees, following context-specific needs in line with cultural preferences, existing resources, environmental considerations, and supply availability. UNHCR and partners implemented activities focusing on local production of fuel-efficient cookstoves and refugee manufactured briquettes. This was to reduce pressure on the natural environment, mitigate the risk of conflict with the local population and improve refugees' health conditions while promoting livelihood activities and self-resilience.

In line with the [Strategic Framework for Climate Action](#), progress toward clean cooking access was made in **9 countries** (see map below), mostly by distributing Liquefied Petroleum Gas (LPG) and piloting innovative solutions. For example, bio-ethanol fuel and cookstoves were distributed to 1,400 households in Kenya. Several countries, including Bangladesh, Kenya, Pakistan, South Sudan, Tanzania, Sudan, and Uganda, also provided **awareness-raising campaigns to refugees on energy-saving** practices to further increase the adoption of energy-efficient cookstoves and alternative cooking fuels.

In Cox's Bazar refugees' camps *in Bangladesh*, UNCHR and partners provided nearly 100% of refugees access to clean cooking fuel. *In Rwanda*, **60% of refugees' households have access to clean fuels such as LPG and more sustainable solutions, such as pellets**. The provision of clean cooking fuel not only supported refugees in complying with COVID-19 restrictions and limitations on gathering firewood but also improved health conditions and reduced risks of gender-based violence.

Selected programmes for the enhancement of access to clean cooking fuel and technology



¹ WHO definition of clean and transitional cooking fuel

² In country operations with a reported energy programme

Box 2: UNHCR Refugees Environmental Protection Fund

Transitioning to cleaner and sustainable sources of fuel and technology for cooking is key to fighting climate change and reducing pressure on the hosting environment, especially in climate-vulnerable refugee hosting areas. **Climate change and environmental crises such as deforestation are critical problems in refugee situations.** Environmental degradation also heightens the risk of conflict between refugees and hosts. The [Refugee Environmental Protection \(REP\) Fund](#), launched in December 2021, aims to **invest in impactful long-term reforestation and cleaner cooking in climate-vulnerable refugee situations.** The fund aims to empower refugees and host communities to be part of the global climate solution by generating the **first-ever large-scale refugee-produced carbon credits.**



Cameroon. Minawao, the green refugee camp. © UNHCR/Xavier Bourgoi

Box 3: Bangladesh: Clean cooking for refugees and hosts

Responding to refugee protection risks, environmental degradation, and climate change action in Cox's Bazar, UNHCR and partners continued delivering a clean cooking programme initiated in 2018. In 2021, 89,461 Rohingya refugees' households (97%) and 13,952 host community households were provided with Liquified Petroleum Gas (LPG) to cover their primary cooking energy needs. Additionally, in 2021, 394 families started the adoption of pressure cookers, increasing fuel efficiency by up to 30% and further decreasing greenhouse gas emissions. The adoption of gas for cooking in the refugee camps has significantly reduced the demand for firewood by an estimated 533,630 tonnes per year, and 655,000 tonnes of carbon dioxide emissions abated. The reduced reliance on biomass for cooking has also enabled environmental rehabilitation of the camps, contributing to enhanced climate resilience and reduced risks associated with landslides and flooding thanks to preserved vegetation cover.

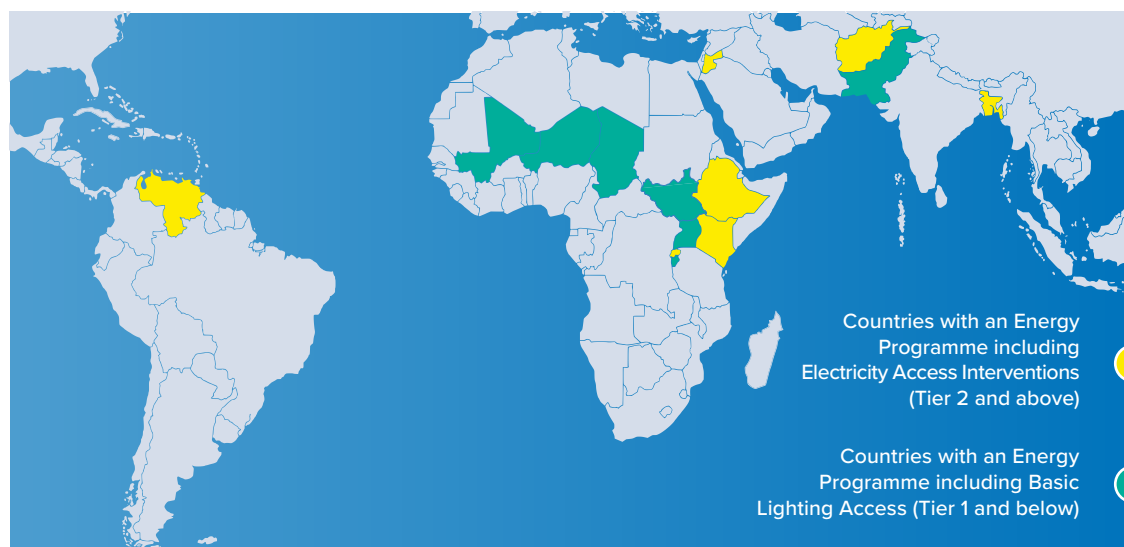


3

Expanding sustainable household access to lighting and connectivity

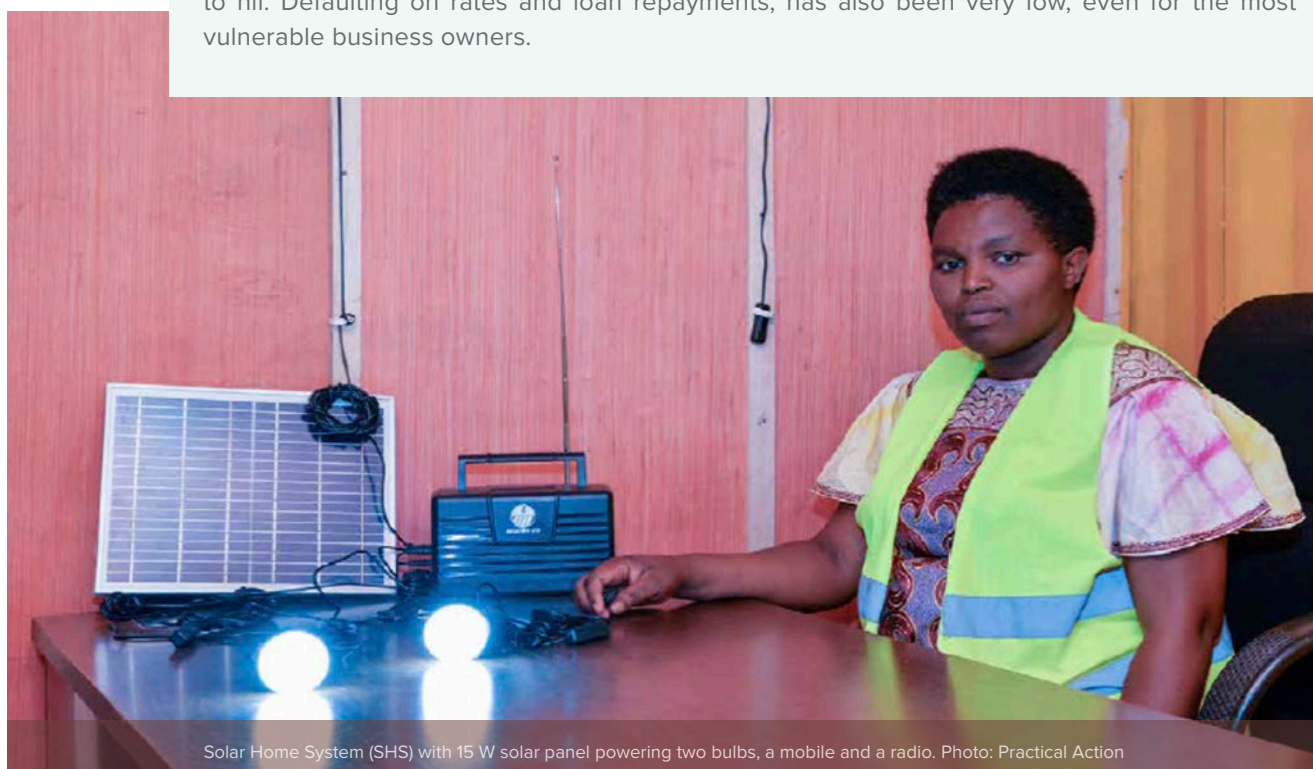
In 2021, **14 countries hosting refugees in camps focused on lighting and connectivity access.** Household basic lighting and connectivity access solutions were mainly achieved through solar lanterns and solar home systems either by in-kind distribution, as *in Afghanistan*, where UNHCR provided stand-alone solar home systems to about **3,600 families**, or through market-based approaches implemented in Rwanda. Beyond basic access to lighting and in line with the [Global Compact on Refugees](#), UNHCR played a catalytic role in optimizing refugees' options to access reliable electricity in several countries, including Ethiopia, Kenya, and Jordan. Furthermore, UNHCR coordinated interventions with other partners to facilitate refugees' connection to national electrical grids or local mini-grids.

In Kenya, for example, **500 households, 144 enterprises and 15 social institutions** have access to electricity from the mini-grid operated in the Kalobeyei settlement. The mini-grid is part of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)-UNHCR Energy Solutions for Displacement Settings (ESDS) programme that is planned to be scaled up in 2022 to extend the connection to more than **3,000 refugee households**. Furthermore, *in Ethiopia*, UNHCR provided technical assistance to support **5 solar mini-grid cooperatives** providing electricity to more than **7,000 refugees and hosts** and contributing to livelihood opportunities. *In Jordan*, where refugees have access to more than 9 hours of electricity every day in Azraq and Zaatari camps, the **COVID-19 lockdowns** created additional electricity needs to facilitate remote learning and access to online services facilitated by the Ministry of Education. The number of hours of available electricity was increased from 9 to 12 to accommodate the demand.



Box 4: A market-based approach for solar home systems in Rwanda

In 2021, two national solar companies delivered household renewable energy access for refugees and their hosting communities. The [Renewable Energy for Refugees \(RE4R\) programme](#), in partnership with Practical Action and supported by the IKEA Foundation, enabled UNHCR to facilitate refugees and their host communities to access 3,978 Solar Home Systems (SHS). The local market was upgraded with two different SHS sizes to give the customers the choice to access the best option based on their needs and willingness to pay. A loan scheme from one to three years was proposed for refugees and host community members to allow flexibility in purchasing the system. During the annual monitoring survey, 93%³ of respondents were satisfied with the solar home system. Their energy expenditure on non-renewable sources was reduced to nil. Defaulting on rates and loan repayments, has also been very low, even for the most vulnerable business owners.



Solar Home System (SHS) with 15 W solar panel powering two bulbs, a mobile and a radio. Photo: Practical Action

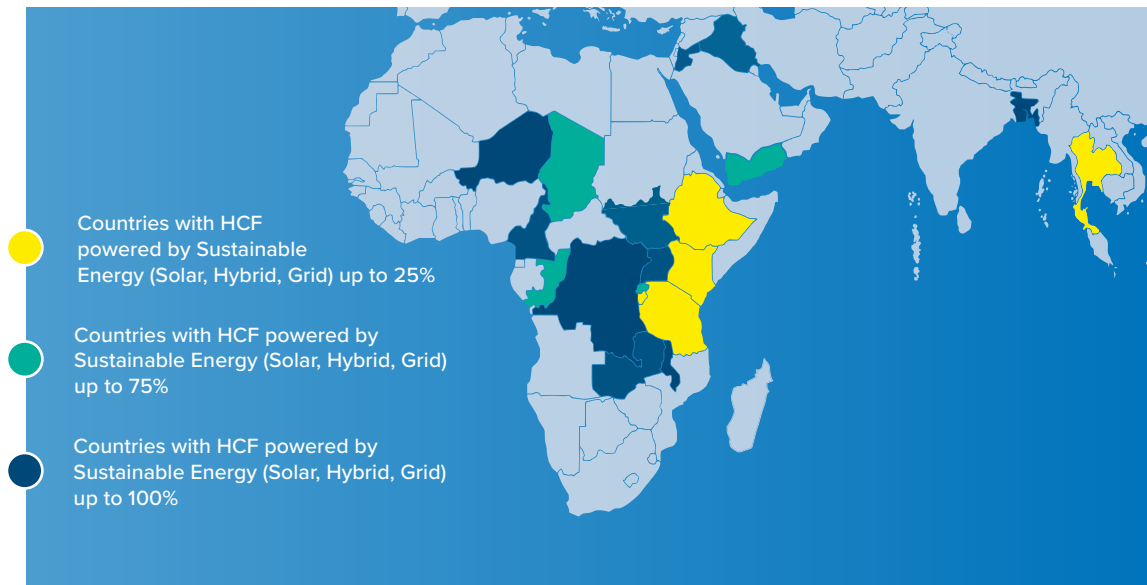
4

Expanding sustainable electrification of community facilities while limiting overall consumption

In 2021, UNHCR surveyed more than **1,700 communal facilities**, including education and health centres (HCF), **in refugee camps in 23 countries**. From the survey results, an estimated **37% of facilities rely on a sustainable energy source**, including solar systems, the national grid or a hybrid system. Additionally, UNHCR and partners carried out energy assessments for **more than 200 communal facilities** in refugee camps and settlements in several country operations. These energy assessments inform program design and procurement to convert diesel generators to solar energy systems or to provide electricity for the first time.

In Kenya, for example, a renewable energy system scale-up programme has started with the potential to provide 31 schools and 7 health facilities with improved access to electricity for the benefit of up to **69,000 students and 150,000 patients**, respectively. *In Bangladesh*, a solar mini-grid has been installed to power a health facility serving over **7,000 refugees, including providing electricity to 200 refugee households**, streetlights and latrines, an additional step toward sustainable and reliable access to electricity in the camps.

The proportion of health care facilities accessing sustainable energy in the countries surveyed in 2021, including connection to the national grid, solar and hybrid systems



Box 5: UNHCR Green Energy for Water: Project Flow

To overcome the often-prohibitive initial capital investment of solar systems, UNHCR has set up the Green Energy for Water: Project Flow, an innovative revolving fund mechanism to advance the up-front capital expenditure to invest in solar systems. UNHCR country operations would "payback" this advance over multiple years using the savings from current diesel power expenditures. These replenishments allow the Green Energy for Water: Project Flow to support the solarization of additional sites.

Furthermore, it allows the same funding to benefit more refugees and host communities while reducing carbon emissions and creating livelihood opportunities in the renewable energy sector.



Kenya. Refugee-owned company supplies clean energy to camp residents. © UNHCR/Samuel Otieno 2021

5

Transitioning UNHCR global office infrastructure to renewable energy sources⁴

UNHCR has an institutional priority under the [Strategic Framework for Climate Action](#) Pillar 3 to be carbon neutral and reduce its CO₂ emissions by at least 45% by 2030. The 2021 Greening the Blue Report details the UN's environmental footprint – UNHCR falls into the average among our fellow UN agencies.

UNHCR has invested in data collection systems such as the Green Box, which remotely monitors electricity use through the Internet of Things (IoT). UNHCR can also use satellite data tracking information to calculate emissions from vehicles. UNHCR is focussing on collecting **CO₂ data, and for this purpose, Green Boxes are already installed in 363 out of 540 UNHCR offices worldwide.** For the biggest CO₂ emitting offices, UNHCR is working on solarizing offices through the Green Finance Facility, which uses innovative financing to enable the transition of our offices to renewable energy. UNHCR plans to award the first agreement to an energy provider in 2022, serving as a model for other offices. Electric vehicles (EV) are already used in UNHCR offices in Jordan and Nepal. Moreover, UNHCR has added an electric vehicle to the Global Fleet Management (GFM) product list and hopes to start the delivery of more EVs in 2022. UNHCR issued a travel policy in early 2022, helping UNHCR staff choose more direct flights and favouring train travel.

KEY ACHIEVEMENTS AGAINST

THE STRATEGIC APPROACHES OF UNHCR GLOBAL STRATEGY FOR SUSTAINABLE ENERGY

PARTNERSHIP AND COORDINATION

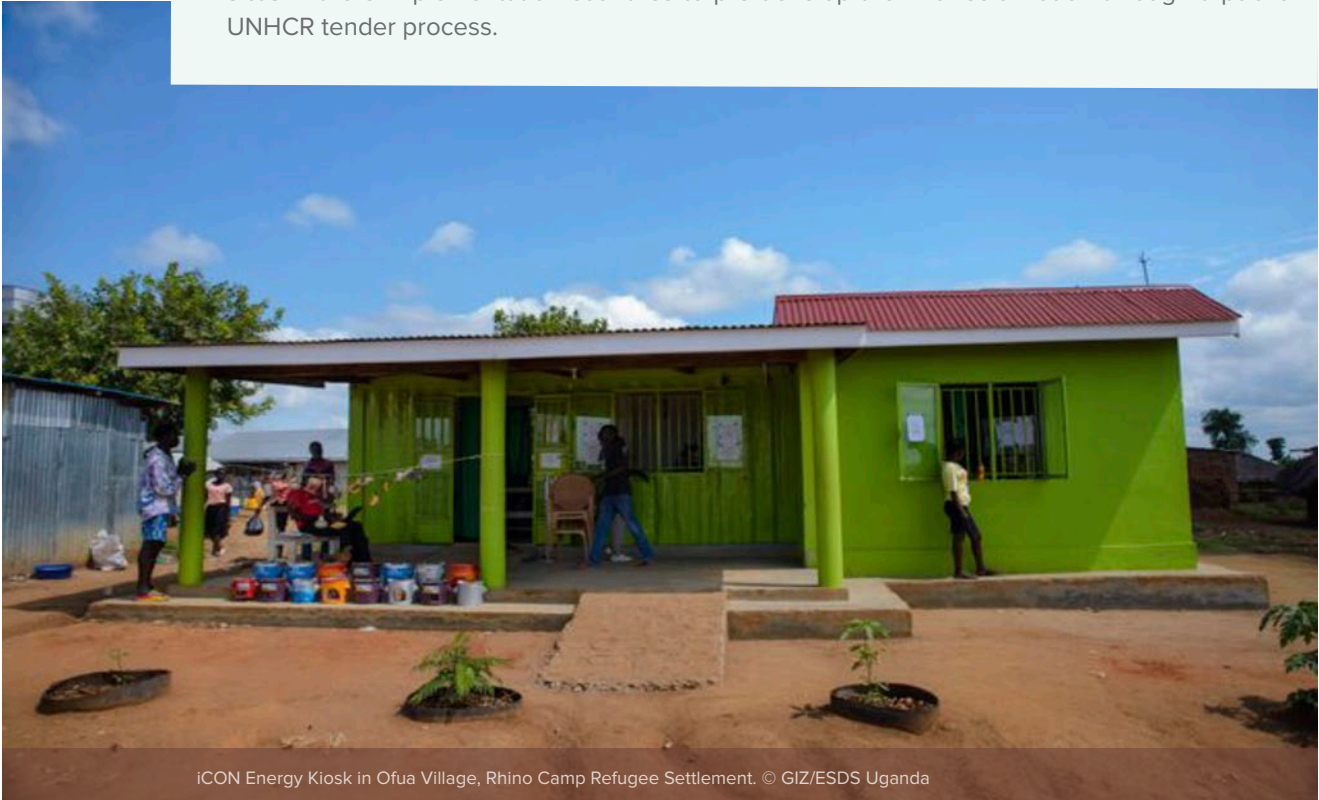
- In the Implementation of the [Global Compact on Refugees](#) and Comprehensive Refugee Response Framework (CRRF), **UNHCR and GIZ** are partners in the [Energy Solutions for Displacement Settings \(ESDS\) programme](#), providing access to sustainable energy for refugees.
- UNHCR collaborates with WFP *in Chad*, on the "Modern cooking solutions in Chad and beyond" programme, funded by SIDA. In 2021, a desk review and field study of the current energy access situation was completed, with the plan to potentially develop pilot-scale clean cooking solutions incorporating market-based considerations.
- In 2021, NORCAP deployed **9 Energy Experts in 8 UNHCR country operations** (Burundi, Djibouti, DRC, Kenya, Niger, Tanzania, Uganda, and Zambia) EHAGL regional bureau, providing technical capacity and complementing UNHCR resources in support of the sustainable energy program development and implementation.
- The [Geneva Technical Hub](#) was established in 2021 to improve the lives of refugees by enhancing the quality of technical programming in all technical sectors, including energy. **Two experts** provided field support and remote support to more than 5 country operations. In Kenya, for example, 2 energy smart meters were installed to track the energy consumption of refugees' support facilities running on diesel generators and support planning for solarization.

Box 6: UNHCR and GIZ: Humanitarian Development Peace Nexus

Collaboration between UNHCR and GIZ in the SUN-ESDS programme has enhanced access to energy through various market-based approaches in Ethiopia, Kenya, and Uganda and provided technical support at a global level.

- In Ethiopia, market-based measures were adopted to ease the burden on host communities and enhance the self-reliance of refugees, including the production of alternative cooking fuels, the establishment of market structures through an energy kiosk, and income generating opportunities through productive uses of energy.

- In Uganda, as part of the COVID-19 response, local and national authorities were supported with the **solarization of 3⁵ health centres**, providing them with **electricity 24 hours a day**. **60,000 refugees and over 10,000 host community people** have seen the quality of basic services improve beyond the immediate COVID-19 response.
- In Kenya, the local government and UNHCR were supported in connecting **3 health facilities and 4 learning institutions** to higher tier electricity, benefitting an estimated **40,000 refugees and 2,000 host community members**. In the intervention area on greening infrastructure, SUN-ESDS continued to carry out **comprehensive feasibility studies for 10 UNHCR project sites** in the 3 implementation countries to pre-develop them for solarization through a public UNHCR tender process.



iCON Energy Kiosk in Ofua Village, Rhino Camp Refugee Settlement. © GIZ/ESDS Uganda

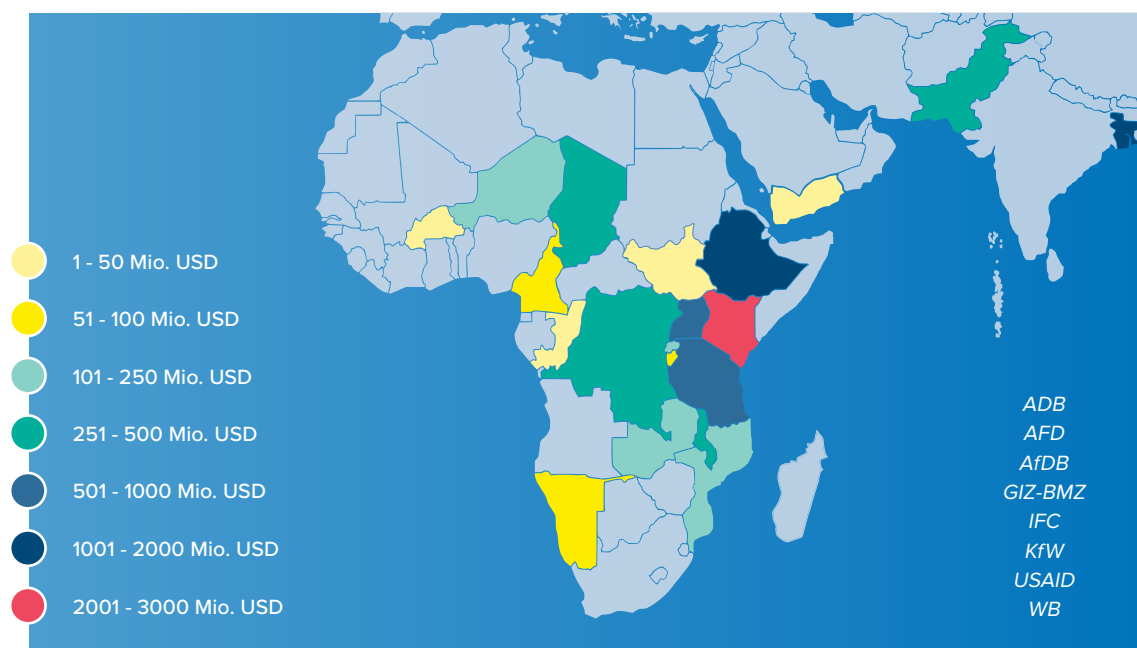
CAPACITY DEVELOPMENT

UNHCR, under the "[Safe from the Start Initiative](#)", continued its capacity building efforts with the launch of the [Cooking Compendium – Protection-sensitive access to clean cooking \(2021\)](#). In collaboration with GIZ, in 2021, UNHCR delivered a series of **3 workshops** on "[Cooking Access in Displacement Setting](#)" to promote clean cooking access and humanitarian-development-peace nexus, with **more than 340 participants from UNHCR, partners and other humanitarian and development actors from 15 countries**. A reference in the development of clean cooking access programmes in displacement settings, **with 10 communities of practice**, knowledge sharing sessions and technical training on renewable energy systems, including operation and maintenance best practices of off-grid solar systems, were **provided to 25 country operations**.

INTEGRATED APPROACHES

In 2021, UNHCR mapped energy programmes of the major development actors and international financial institutions in 25 refugee-hosting countries (see map below). This research sets a milestone to potentially enable the identification of pathways to and advocating for greater inclusion of refugees' energy needs into energy development programmes.

All Actors: Active and planned budgets in energy programmes with high relevance for refugee settings



UNHCR AND THE AFRICAN DEVELOPMENT BANK

Following advocacy by UNHCR, the African Development Bank (AfDB) approved a USD 80 million Mozambique Energy for All Programme (MEFA)⁶ to enhance Mozambique's power exports and improve power quality both domestically and regionally, increase the number of electricity connections within the country. The programme provides nearly 49,000 new connections with plans to electrify refugee and IDP settlement areas in Nampula Province. The programme directly addresses affordability barriers in Mozambique as the lowest income quintile consumers pay as much as 1.5 times (USD 55) their monthly household expenditure for connection. The expected social impacts are significant as connections cover parts of the country affected by poverty and fragility and host refugees and IDPs.

ENERGY AND CASH ASSISTANCE

A majority (95%⁷) of UNHCR's cash assistance is provided through unrestricted cash assistance, granting refugees spending decisions to pay their rent and utilities and cover education and healthcare needs. In UNHCR's post-distribution monitoring (PDM) in 64 countries, **26% of the cash**

⁶ Source: [Mozambique Energie pour TOUS \(MEFA\)](#)

⁷ Based on cash volume

assistance recipients interviewed used cash for utilities and bills, and 24% reported having used cash for energy access, including firewood, other fuels, and gas. Utilities and bills were the fifth top expense, with firewood, fuel and gas being the sixth, after food, hygiene items, rent and health. In some places in Jordan, 44% reported using the cash for utilities and bills to satisfy their energy needs. In South Sudan, for example, more than 4,000 persons with specific needs were supported with unrestricted cash to satisfy cooking energy access needs.

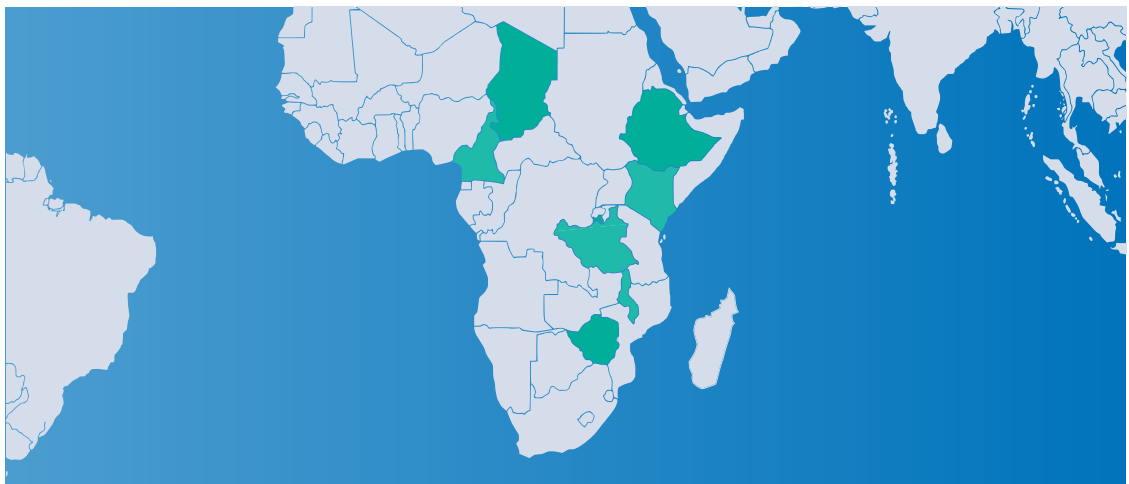


Winter assistance helps Syrian refugee families in Zaatar Camp – Jordan. © UNHCR/Yousef Alhari

SUSTAINABLE ENERGY PROGRAMMES - 9 FOCUS COUNTRIES

Targeted and scalable interventions were selected in nine focus countries to move toward using more sustainable energy sources to advance the Sustainable Energy Strategy.

Sustainable energy intervention countries' map



East and Horn of Africa

- **In Kenya**, UNHCR and partners completed the energy needs assessment of over **50 facilities**, including health centres, schools, registration centres and field posts. This first phase informs the detailed design to convert diesel generators to solar energy and provide energy for the first time to schools, benefitting more than **200,000 refugees** and surrounding communities.
- **In Ethiopia**, UNHCR and partners delivered training to more than **2,500 households** in Aysaita camp on improved cooking practices, while more than **5,000 families** received improved fuel saving stoves. The scale-up of a briquette making machine, allowing the production of more than **20,000 briquettes** per day, increased the number of beneficiaries using this more sustainable cooking fuel and mitigated the risk of gender-based violence during firewood collection. The reduced use of firewood avoided the emission of **15,000 tons of CO₂-eq per year**.



Ethiopia training and distribution of improved cookstoves. © UNHCR/Getachew Muche

- In Maban, **South Sudan**, cleaner cooking and livelihood opportunities were created by providing skills training and installing 2 manually mechanical operated briquettes machines used in generating employment opportunities and income for **140 refugee women**. Some **6,000 households** received improved cookstoves. The programme also positively impacts the environmental footprint of cooking practices, with an estimated CO₂ emission reduction of **9,000 tons of CO₂-eq per year**.



South Sudan, Maban, women carrying clay-stoves locally produced, a step ahead of the current polluting 3-stone cooking practice to reduce environmental impact. © UNHCR/Ampurire Amias Aryampa 2021

- **In Burundi**, to respond to the COVID-19 pandemic and provide a sustainable and long-term solution for the treatment of drinking water, handwashing and the sterilization of medical devices, UNHCR and partners are completing the installation of **6 solar powered chlorine production systems** in 5 camps and one reception centre. Additionally, to support the reintegration of Burundian returnees from Tanzania, **20,000 multifunctional solar lamps** provide basic access to lighting and connectivity, mitigating gender-based violence issues and allowing returnees to communicate with their families.

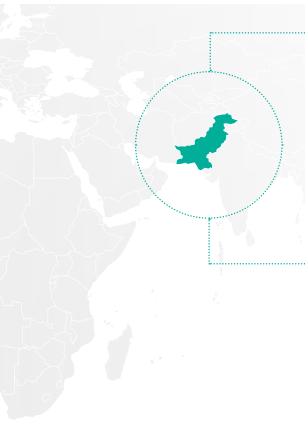
West and Central Africa

- **In Cameroon**, installing solar plants to power water pumping and distribution systems in Minawao, Gado and Mobile camps serve more than **150,000 refugees** and IDPs. The programme increases the proportion of boreholes solarized to **40%** while reducing fuel consumption by an estimated **35%**, improving water availability for refugees and the surrounding communities.



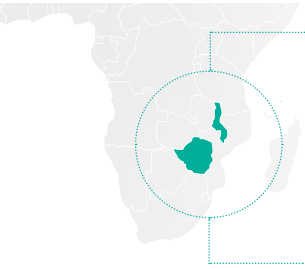
Cameroon, solarization of water pumping system. © UNHCR/Maazou Abdou

- To facilitate the conversion to renewable energy sources at scale **in Chad**, UNHCR set up one training centre to train at least **12 technicians on solar energy installation and maintenance**. The country-wide water sources assessment is ongoing for 300 boreholes to inform the solarization phase in 2022. Procurement is ongoing to solarize water systems in Djabal camp and the town of Goz Beida, a system that serves some 40,000 refugees and their hosting communities.



Asia

- **In Pakistan**, a comprehensive energy response programme was initiated in 2021, which can be considered the first phase of a larger multi-year programme that continues until 2023 in partnership with GIZ and is funded by BMZ. Solarization of more than **40 facilities** such as schools, health centres, and water pumping systems to improve the quality of education and health services is ongoing, as well as designs of solar micro-grids planned to provide access to electricity to **30,000 households** in 2 refugee hosting villages. In 2021, during the first phase, more than **1,000 refugees** and host community members received vocational training on improved cooking practices and renewable energy. Each trainee receives a solar school bag. Furthermore, **80,000 families**, including people with specific needs, received improved cookstoves and solar lanterns in early 2022.



Southern Africa

- In Karonga transit centre **in Malawi**, a health clinic servicing asylum seekers and the nearby host community has been equipped with a solar system to supply lighting and continuous service to the cold medical chain and support the conservation of vaccines and medicines. Three boreholes in Dzaleka are equipped with solar pumping systems, serving the primary school and students from the host community and the refugee camp. Furthermore, in Dzaleka, 10 biogas digesters were installed, of which 9 provide clean cooking fuel for households, and 1 provides clean cooking fuel to a refugee-owned restaurant; thus, supporting livelihood activities. Overall, the programme benefits some **17,000 refugees**, asylum seekers and nearby host community members.
- **In Zimbabwe**, the Waterfall Transit centre hosting about **50 refugees** in Harare was equipped with 2 biogas digesters in the shared dormitory kitchen. Solar powered lighting and water supply are installed to ensure reliable access to electricity during frequent blackouts of the national grid. Furthermore, at Tongogara Refugee Camp, **7 biogas digesters** have been installed in various contexts providing clean cooking fuel to refugees owned restaurants.