

2024 Progress Report

OPERATIONAL STRATEGY FOR CLIMATE RESILIENCE AND ENVIRONMENTAL SUSTAINABILITY 2022-2025



**Habiba Djida, 44, walks with her children, Kajeeta, Ramsay, and Edi, along a dyke she is helping build at the Guilmei refugee site near N'Djamena, Chad. Her family fled climate-related conflict in Cameroon three years ago. Now, rising floodwaters from the Chari River threaten the site despite efforts to contain them with sandbags. November 2024.*

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INTRODUCTION

Out of the over 120 million forcibly displaced people in the world, 90 million are living in countries with high-to-severe exposure to weather-related hazards. As the frequency and intensity of extreme weather events increases, so too will their impacts on forcibly displaced people, on the communities that host them, and on our own humanitarian operations, where preparedness and resilience are not sufficiently strengthened and risks reduced.

Continuing implementation of the [Operational Strategy for Climate Resilience and Environmental Sustainability \(2022-2025\)](#) addresses this problem. Furthermore, the Operational Strategy has been reinforced by the launch of the [Focus Area Strategic Plan for Climate Action 2024-2030](#) that provides a global roadmap for prioritized and immediate actions in support to the High Commissioner's [Strategic Directions for 2022-2026](#).

2024 also saw multi-stakeholder pledges, launched at the Global Refugee Forum (GRF) in December 2023, being taken forward, that promote synergies, partnerships, good practices, and mobilize resources that support implementation of the Operational Strategy. All contribute to the objectives of the [Global Compact for Refugees](#) to ease pressures on host countries, enhance refugee self-reliance, increase access to third-country solutions and improve conditions in countries of origin under pledge topics including Climate Action; Climate Resilient and Sustainable Settlements; Durable Solutions Through Secure Housing, Land and Property Rights; and the Humanitarian-Development-Peace Nexus.

This report highlights key achievements in 2024 through responses set out in the Operational Strategy to:

- 1 **Improve the predictability of UNHCR's engagement, working with a wide range of stakeholders, to anticipate, prepare for and respond to emergencies brought on by climate-related and other natural hazards.**
- 2 **Incorporate climate and environmental considerations into sectoral operational responses, work with refugees, IDPs and communities in the most climate vulnerable countries, and develop innovative sustainable energy and reforestation programmes for refugee-hosting areas.**
- 3 **Improve the sustainability of the end-to-end supply chain, including planning, sourcing, contents, manufacturing processes, procurement, delivery and lifecycle management of core relief items and other goods.**



I. PREPARE AND RESPOND

SUMMARY OF KEY OUTCOMES

- Enhanced preparedness for natural hazards with stronger risk analysis, participation in the Early Warning for All Initiative, and strengthened collaboration with the World Meteorological Organization.
- Launch of an Early Warning Innovation project, in partnership with the Luxembourg Institute of Science and Technology.
- Expanded partnership with the African Risk Capacity, to cover refugee settlements against drought risks.
- WEM participants trained on emergency response for disasters and environmentally friendly assistance and response.



I. PREPARE AND RESPOND

HIGHLIGHTS

At the **country, regional and global levels**, UNHCR ramped up its risk analysis and preparedness activities to enhance resilience to weather-related hazards:

- UNHCR continued to undertake global monitoring of situations at high risk of an emergency. Country operations are increasingly identifying risks related to extreme weather-related events – like flooding and drought – that may lead to forced displacement and escalating humanitarian needs. This increased focus during the risk monitoring and analysis stage results in increased preparedness by country operations.
- Through partnership with Consortium of International Agriculture Research Centers (CGIAR), formalized with a Memorandum of Understanding in April 2024, analysis was developed to address current and future risks related to extreme weather (such as heat, drought, floods and cyclones), particularly in fragile and conflict-affected contexts. The resulting maps and evidence have been used to inform strategic planning for climate action, as well as the IGAD Climate Adaptation
- Strategy (2023-2030), briefing of the UN Security Council and States in climate action-related policy processes, and innovative finance initiatives, such as with the African Union's African Risk Capacity for climate-related risk insurance.
- Almost 35% of the new emergency declarations issued by UNHCR for preparedness and response in 2024 addressed the impact of weather-related hazards in displacement contexts, covering flooding in Brazil, Burundi, Cameroon, Mali, Niger, Nigeria, Republic of Chad, and South Sudan, as well as the drought in Zambia. Weather-related disasters affected areas already hosting refugees and people displaced by conflicts, worsening disease outbreaks and destroying livelihoods and critical infrastructure.
- UNHCR launched a Risk Management Tool on Climate Change to guide its country operations in better managing related risks (May 2024). A methodology for climate risk analysis in specific displacement settings was piloted in Ethiopia to assess and inform preparedness measures and sustainable responses to climate-related risks.

In 2024, the impact or risk of emergencies related to natural hazards (mostly floods & droughts) featured in:

9 out of 26

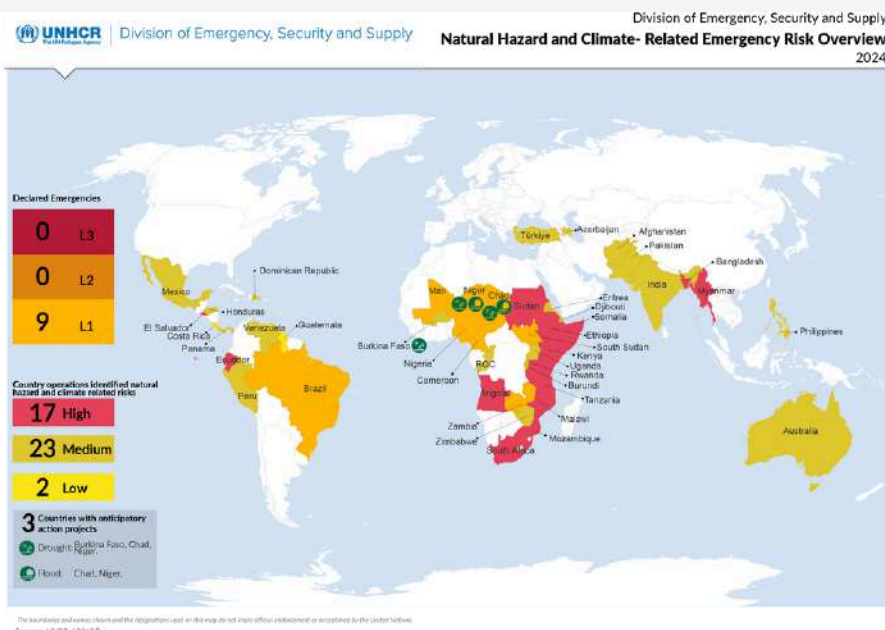
UNHCR emergency declarations.

14 out of 41

country operations at high risk of an emergency.

9 out of 60

country operations being monitored for the potential to develop high risk of an emergency.



I. PREPARE AND RESPOND

In 2024, UNHCR also enhanced emergency preparedness and response through **engagement with external actors and partners**:

- UNHCR reinforced its engagement in risk monitoring, analysis and preparedness at the inter-agency level for potential emergencies brought on by weather-related hazards by contributing to the Inter-Agency Standing Committee Early Warning, Early Warning and Analysis Group (EWA) and to the Inter-Agency Preparedness, Early Action and Readiness Group (PEAR). UNHCR joined the [Early Warning for All Initiative \(EW4A\)](#) as a member under Pillar 1 (Disaster risk knowledge) led by UNDRR along with IFRC, Microsoft, Save the Children, and other UN agencies. UNHCR operations also participated in national-level events held in Bangladesh, Ecuador, Liberia, and Sudan.
- UNHCR activities under the Operational Strategy also contribute to the implementation of the Sendai Framework through the UN Plan of Action on Disaster Risk Reduction for Resilience, including its continuing engagement as a member of the UN inter-agency Senior Leadership Group and Focal Points groups. To inform and promote inclusive DRR strategies, UNHCR with UNDRR and the Platform on Disaster Displacement produced a report on [“Mapping human mobility in national and regional disaster risk reduction strategies and related instruments”](#), which was launched at the Asia-Pacific Ministerial Conference on Disaster Risk Reduction in October 2024.
- UNHCR expanded its partnership with the African Risk Capacity (ARC), a specialized agency of the African Union, to cover support to refugee settlements in Malawi and Mali against drought risks. UNHCR held a capacity-building workshop for personnel at regional and country level, co-organized with CGIAR, Start Network, ARC, and WFP in Pretoria (May 2024). ARC's parametric insurance coverage of the Dzaleka refugee settlement in Malawi under UNHCR's insurance policy provided for a payout of over USD400,000 to address the needs of refugees and their hosts most affected by the drought.
- UNHCR and the World Meteorological Organization (WMO) further strengthened collaboration on weather forecasting, through the [HydroMet scans](#) (a total of 189 scans covering global and 8 situations) and outlook briefings, which cover potential extreme meteorological events which may affect displaced and stateless persons, as well as UNHCR operations. These engagements continue to enhance UNHCR's capacity to anticipate the potential impact of adverse weather events and conditions, make informed decisions on emergency preparedness and response, and implement activities to reduce their impact. UNHCR joined the [WMO Coordination Mechanism \(WCM\)](#)'s Advisory Group, launched in October 2024, alongside the European Commission Joint Research Center, IFRC, UNICEF, WMO, and national meteorological institutions.
- UNHCR successfully launched a multi-year, cutting-edge project: Early Warning and Effective Response System with Forced Displacement Forecast, in collaboration with the Luxembourg Institute of Science and Technology. The project, supported by the Government of Luxembourg, uses predictive artificial intelligence to develop an institutional, systematic, integrated, and data-driven system that uses early warning indicators to detect the escalation of emergency risks that may cause forced displacement, including weather-related hazards, and delivers displacement forecast ahead of emergencies. The aim is to anticipate humanitarian needs, optimize resource mobilization, and support communities to strengthen their resilience and capacity to prepare for and take early action ahead of extreme weather events.

UNHCR worked to enhance resilience and sustainability through **capacity development and deployments**:

- CGIAR seconded two experts on risk management to UNHCR's regional bureau for the East and Horn of Africa and the Great Lakes, and to the regional bureau for Southern Africa to support the ARC partnership.

I. PREPARE AND RESPOND

- UNHCR's stand-by partners continued to provide essential technical support on energy and environment. UNHCR operations were supported by 21 experts, deployed by NORCAP (15), Swiss Agency for Development Cooperation (3), MSB – The Swedish Civil Contingencies Agency (2), and CANADEM International Civilian Response Corps (1). Six of the deployments were based in headquarters to support field operations, with others deployed to Chad, DRC, Ethiopia, Kenya, Mauritania, Mozambique, Niger, Tanzania, Venezuela and Zambia.
- Participants of the Workshop on Emergency Management (WEM) were trained in emergency response in disaster situations as well as environmentally friendly assistance and response. In addition, a Situational Emergency Training workshop took place for the South Sudan El Niño situation, providing tailored support to relevant country operations, local partners and government officials.



II. RESPOND AND DELIVER

SUMMARY OF KEY OUTCOMES

- Feasibility studies and detailed designs completed for solarization projects for 21 water systems and 4 health systems in 4 countries through Project Flow.
- 30 displaced sites in some of the most climate vulnerable countries have completed integrated spatial planning and climate resilient studies.
- For the 10 displacement sites at greatest risk of flooding, detailed infrastructure management plans are ongoing.
- Improved solid waste management programmes supported in 6 countries.
- E-waste management programmes supported in 4 countries.
- 27% of people supported by UNHCR with shelter assistance in 2024 live in sustainable shelters.
- 37% of communal facilities were built in an environmentally sustainable manner.
- 11 countries invested in improved groundwater management.
- Three additional countries confirmed for feasibility studies for Refugee Environmental Protection Fund.
- Clean cooking for more than 551,000 people supported through LPG distributions.
- 51% of water boreholes running on diesel generators were solarized.
- 42% of UNHCR-supported health centers powered by solar energy.



II. RESPOND AND DELIVER

HIGHLIGHTS

Climate-Resilient People, Communities, and Settlements

Under the [Geneva Technical Hub \(GTH\)](#), and in partnership with ETH Zurich, in 2024 the [Flood Risk Mitigation Toolbox](#) was finalized and field-tested. The toolbox aims to support UNHCR personnel, partners, and other practitioners with an overview of adequate risk mitigation measures against flooding in humanitarian settings. The toolbox includes a compendium of risk mitigation measures, together with a Risk Mitigation Strategy GIS Tool and a Participatory Risk Mapping Methodology.

The methodology for the field testing was based on a two-week assessment mission during the peak of the rainy season in the Republic of Congo, in collaboration with GTH experts, researchers from ETH Zurich and UN-Habitat, to assess the risks and damages caused by recurring floods in the city of Betou.



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Participatory mapping workshops were conducted to gather information from affected populations. Betou, Republic of Congo.

In 2024, UNHCR, in collaboration with partners, strengthened surveillance of epidemic-prone diseases and responded to several significant outbreaks in regions heavily impacted by displacement and increased health risks related to the impacts of weather-related hazards, such as floods. Together with lack of access to safe water and unsanitary conditions in many refugee settings, the risk of water and vector borne diseases was amplified. Malaria remains the leading cause of

mortality (9%) and morbidity (18%) in the 22 countries where the integrated refugee health information system is used. In 2024, dengue outbreaks were reported in 10 country operations compared to 5 countries in 2023, according to the annual public health surveys conducted in 52 countries. Dengue is endemic in the refugee camps in Bangladesh. However, in the past five years there has been a significant upsurge in cases, partly attributable to improved reporting of cases, but also linked to the increasing effects of floods, storms and other weather-related hazards. Additionally, cholera outbreaks exacerbated by flooding and unsanitary conditions posed a significant concern with cases reported in 15 country operations in 2024. For instance, in Sudan, over 100 cholera cases were reported among refugees.

Activities undertaken to reduce these risks in 2024 included early detection, case management, awareness and sensitization sessions, vector control, hygiene promotion, coordination and collaboration with government and other key stakeholders. In Thailand, for example, improved preparedness and joint responses to fluctuating dengue incidence reduced the number of cases between 2023 and 2024 by 28%.

Environmentally Friendly and Sustainable Shelter and Housing

In 2024, UNHCR supported around one million forcibly displaced people with over 205,000 shelter and housing units – 9.4% of which were environmentally friendly or sustainable, more durable and constructed using locally sourced materials. Challenges to providing sustainable shelter solutions included the lower levels of funding received, resulting in a lower budget allocated to shelter programming, and the major emergencies in Chad, Lebanon, South Sudan and Sudan, which required the provision of emergency shelter solutions which are non-durable. When excluding operations with a significant emergency response, the percentage of sustainable and environmentally friendly shelters reaches 27%.

The [UNHCR Shelter Sustainability Assessment Tool](#), developed by the GTH, supported the design

II. RESPOND AND DELIVER

and procurement of shelters, based on 42 completed data entries. These entries indicated the different shelter types used around the world, with an equal distribution of emergency, transitional and durable shelters. The East and Horn of Africa has the highest number of the data entries (15), followed by Asia and Pacific (12). The Dignified Shelter in Syria's Dar Alkiram camp; the Melkadida Transitional Bamboo Shelter, the HCB Wall Durable Shelter, and the Emergency Standalone Shelter in Ethiopia; as well as the Permanent Rakhine Shelter and semi-permanent shelters in Myanmar, among others, have the highest habitability and technical performance. [Figure 1]

In 2024, UNHCR Ethiopia, in partnership with the Refugees and Returnees Service (RRS) and Action for the Needy in Ethiopia (ANE), supported 293 refugee families in Nguenyiel and Pugnido I camps with transitional shelters. Key stakeholders, including refugee community representatives, collaborated on all project stages—from needs assessment and beneficiary selection to implementation. UNHCR provided funding, designed layouts, and coordinated efforts through

the Shelter Working Group, ensuring adherence to disaster risk reduction standards.

The culturally and environmentally adapted shelters, chosen by refugee representatives, feature a 4.2m x 4.2m square design with an internal floor area of 17.64m². Constructed using local materials such as bamboo, eucalyptus poles, grass thatch, and UNHCR plastic sheeting, these shelters are designed to endure over five years when maintained, mitigating the impact of the region's extreme temperatures exceeding 45°C. Community participation was vital to fostering ownership, with beneficiaries contributing labour.

In the Maratane Refugee Settlement in **Mozambique**, UNHCR provided 23 resilient shelters, that are better equipped to withstand extreme weather events, such as cyclones and severe winds. Ten of these shelters are reserved for vulnerable women's groups, who were prioritized after initial protection assessments. The Climate Resilient Shelters project in Nampula is emblematic of UNHCR's strategic shift from reactive humanitarian interventions towards longer-term, sustainable responses.

[Figure 1] - Shelter and Sustainability assessment results



II. RESPOND AND DELIVER

To support this pivot, UNHCR Mozambique invited CGIAR's research initiative on Fragility, Conflict and Migration (FCM) to conduct mixed-methods research. The evaluation, entitled 'Examining Contributions to Resilience Across the Humanitarian-Development-Peace Nexus in Destination Areas', explores how the project—through its contribution to the resilience of host and displaced communities in Corrane and Maratane—contributes to humanitarian, development, and peace objectives and how it can do so more effectively. The FCM team identified key results and set out evidence-based recommendations for strengthening similar interventions going forward.

Climate-Smart WASH Services

During the year, UNHCR solarized 41 boreholes, meaning that by the end of 2024, 51% of water pumps operated by UNHCR and partners had been solarized (336 out of a total of 659 borehole pumps).¹ Thanks to the solarization of these boreholes, an estimated additional 4,500 tonnes of carbon dioxide (CO₂) emissions are mitigated annually. Beyond the positive environmental effects, solar solutions have a lower operating cost and ensure that remote field locations are less dependent on fuel deliveries.

[Project Flow](#) signed agreements with Ethiopia, Mauritania, Rwanda and Sudan country operations and initiated procurement to solarize 21 water systems and 4 health facilities, which are serving approximately 1.2 million people. Based on the solar designs for these systems, the project is expected to mitigate approximately 1,400 tonnes of CO₂ emissions annually and lead to significant efficiencies and cost savings.

UNHCR continued implementing [Smart Water Sensors \(SWS\)](#) – a digital innovation for real-time monitoring of water supply services – in 10 countries (**Angola, Bangladesh, Cameroon, Kenya, Iraq, Malawi, Nigeria, Tanzania, Uganda and Zimbabwe**). Remote support through online engagements with field teams resolved several site-specific issues. For instance, malfunctioned gateways were reinstated in Iraq, and validation of sensors data was resolved in Bangladesh.

With about 42% of the planned SWS installed in the 10 aforementioned operations, SWS facilitate timely identification of technical issues related to water supply systems. The online dashboard and the alerts sent to designated staff, reduced the response time and led to improved water services for the people we work with and for.

[Groundwater monitoring](#) was strengthened through GTH missions to water-scarce locations such as **Algeria**. Thanks to the detailed technical investigations of the existing groundwater extraction activities and the rehabilitation activities conducted – such as cleaning the boreholes and installing plain casings – the cumulated water productivity from the eight boreholes in Layoune was approximately doubled. Further, sand content dramatically decreased, contributing to a sustainable exploitation scheme in an overall vulnerable context of aged infrastructure.

A joint GTH mission to **Kenya** highlighted the opportunity for a strategic approach for groundwater extraction and management. This mission built on four previous hydrogeological missions since 2012 and made recommendations on safe yields and monitoring of boreholes, solarization of boreholes and technical and financial optimization for extraction of groundwater. In parallel, the water systems expert made recommendations to support the optimization of the water network to reduce energy consumption and minimize losses. The joint mission proposed a multi-agency workshop with government, development partners and implementing partners to prepare a roadmap and technical master plan to support the integration of WASH services into the national system in 2025.

Groundwater management was strengthened in **Chad** through private sector support from both BGC Engineering and Veolia Foundation. BGC undertook detailed groundwater assessments for the new settlements for refugees from Sudan, to identify safe water use rates. As a result, three boreholes were drilled in 2024 – with an average yield of 9 cubic meters per hour – and an additional three sites were identified for drilling in 2025. Veolia Foundation also supported through two separate missions to ensure the best use of the water resource.

¹ Data source: [WASH: Boreholes](#) [accessed 7 March 2025].

II. RESPOND AND DELIVER

Managed aquifer recharge, an anticipatory approach to protecting vulnerable groundwater resources, was initiated in **Malawi** and **Chad**. The aim is to distribute and slow down floodwaters to maximize infiltration to the groundwater aquifer, improve surrounding ecosystems, and enhance access to potable water.

In **Mozambique**, detailed studies were undertaken to understand the availability of groundwater and identify locations and safe rates of use of groundwater.

Groundwater monitoring is also being improved through SWS installed in 65 motorized boreholes in seven UNHCR operations (**Bangladesh, Cameroon, Iraq, Kenya, Malawi, Nigeria, and Zimbabwe**), to provide reliable long-term data to ensure safe extraction of water and contribute to environmental sustainability.

Sanitation: In **Zimbabwe**, the recently installed biogas reactor was scaled up in the Tongogara Refugee Settlement for the productive use of pig manure in a refugee-operated piggery while also aiming to eliminate the risk of its infiltration into the aquifer in the settlement. Using the manure, the reactor produces biogas and digestate bio-slurry for various income-generation purposes, such as heating for pig houses and henhouses, which promotes the self-reliance of refugees. In conjunction with this project, a behavior change initiative was launched to increase organic waste separation at the household in collaboration with the RANAS (a spin-off from Eawag, the aquatic research institute). It increased the availability of organic waste as food for pig farming, as well as for insect farming, in which black soldier flies serve as protein-rich feed for animal husbandry.

Similarly, in **Malawi**, organic waste separated at the household level provides valuable inputs to a black soldier fly farming project. This circular food economy project transforms, on average, 100 kg of organic waste into nutritious feed for poultry, pigs and fish and organic fertilizer.

In **Bangladesh**, through 11 composting systems, known as Material Recovery Facilities, more than 13,000 cubic meters of organic waste was collected and utilized, leading to an annual production of more than 300,000 kilograms of compost, benefitting residents' various activities. Also, four Plastic Exchange Centres were run through community participation to collect some 100kg of plastic waste every month in each camp, for recycling and overall waste reduction.

In **Lebanon**, through the Environment and Climate Action Innovation Fund (ECAIF), plastic sheeting from shelters is recycled locally, repurposing plastic for useful items such as doors. This reduces the volume of plastic disposed of in landfill. Three tonnes of plastic were collected in the initial phase. Similar waste recycling activities have been initiated through the ECAIF in **Colombia** and **Uganda**.

The GTH, in partnership with Eawag, developed guidelines and an evaluation tool for the use of biogas, to convert waste materials into energy: [Is biogas a feasible option? Assessing anaerobic digestion for humanitarian contexts](#). It explores the environmental, protection and livelihoods benefits, the types of waste that can be used, the technology and process for the use of biogas as a potential replacement for non-renewable sources.

To further reduce environmental and public health risks associated with inadequate solid waste disposal, GTH and Eawag also developed [Guidelines for the safe disposal of solid waste in humanitarian contexts](#) with a corresponding [Landfill area estimation tool](#).

Clean Cooking and Reforestation

Numerous initiatives were implemented to enhance access to clean cooking fuels. In **Bangladesh**, more than 93,000 households received Liquid Petroleum Gas (LPG) assistance, with the aim of fighting deforestation while looking for alternative, more sustainable solutions. In

II. RESPOND AND DELIVER

Rwanda, more than 75,000 people in three locations benefited from the provision of LPG. In **Tanzania**, nearly 5,500 people in four facilities (a hospital and three departure centres) are using LPG for communal cooking, aligning with the government's directive for institutions to transition to clean cooking solutions. The "cash-for-gas" assistance programme in **Mauritania** enabled approximately 1,200 households to purchase complete LPG kits. Additionally, the operation continued its Pay-As-You-Save (PAYS) LPG initiative, supported by the Innovation Fund.

In **Uganda**, more than 68,000 households received energy-efficient cookstoves. Energy-saving institutional cookstoves were also established in 131 institutions.

Established in late 2021, the [Refugee Environmental Protection \(REP\) Fund](#) is driving a transformative approach to reforestation and clean cooking in displacement settings. At the end of 2024, the Fund initiated the procurement process to identify partners for implementing pilot projects in **Uganda** and **Rwanda**, targeting approximately 20,000 hectares for reforestation and delivering clean cooking solutions to 45,000 households. These pilots will serve as a foundation for achieving the Fund's 10-year ambition of: restoring ecosystems by implementing nature-based solutions; providing clean cooking solutions to one million refugee and host community households; and supporting both the environment and livelihoods, in the process.

Following the initial pilots in Rwanda and Uganda, assessments were also initiated in **Bangladesh** and **Brazil**, and additional countries (including Cameroon, Kenya, Mozambique, and the Republic of Chad) also indicated their interest in 2024. By integrating community-led solutions with innovative financing, the REP Fund is creating a scalable, self-sustaining model to address both climate and humanitarian challenges.

Key Achievements and Upcoming Milestones:

- **Innovative carbon credit model:** the Fund intends to generate the first-ever large-scale refugee-driven carbon credits, linking environmental restoration with sustainable livelihoods. This involves testing innovative reforestation methods (e.g., agroforestry and ecosystem restoration) and clean cooking technologies tailored to local contexts. The programme aligns with Integrity Council for the Voluntary Carbon Market (ICVCM) frameworks and other high-integrity standards (e.g., Gold Standard) to attract private sector investment.
- **Women & girls and community empowerment:** the project reduces exposure to risks of sexual violence, that women and girls often face when forced to collect firewood, and creates green jobs – especially for women and girls.
- **Integration with national and global climate goals:** the REP Fund aligns with the [National Determined Contributions](#) (NDCs), National Adaptation Plans (NAPs), and National Biodiversity Strategies and Action Plans (NBSAP) of partner countries, contributing to reforestation targets, clean energy transitions, and biodiversity protection.
- **Private sector mobilization:** the initiative aims to catalyze USD150 million in private financing for reforestation and clean cooking projects, creating a scalable and financially sustainable model.
- **Collaborative partnerships:** strategic partnerships with other UN agencies, developers and local governments ensure alignment with broader climate resilience and development programmes while avoiding duplication of efforts and enabling scalability.

II. RESPOND AND DELIVER

Transition to Renewable Energy

Solar lanterns enhance protection, safety and security for refugees. As such, they are an integral core relief item in displacement settings. As part of its emergency response, UNHCR distributed more than 257,000 solar lanterns to 20 countries to meet the basic lighting requirements of refugees.

UNHCR continues to solarize communal facilities, as in **Pakistan**, where the solarization of more than one hundred schools and 16 health care facilities is ongoing. In **Zambia**, the assessment and design of systems for 10 health and education facilities was completed, with procurement, installation and commissioning to be finalized early in 2025. Similarly, in **Tanzania**, 14 healthcare facilities for refugees and host communities were solarized. In **Ecuador**, the move towards renewable energy sources continued with the solarization of a newly inaugurated community development centre and a reception centre.

These projects will significantly improve the lives of refugees and their host communities, ensuring access to reliable and sustainable energy solutions for essential education and healthcare services. Data collection in 25 countries showed that 42% of health facilities were accessing solar energy in 2024. By the end of 2024, a total of 215 facilities had been solarized, compared to 218 in 2023. Whilst a number of new facilities were solarized in 2024, other facilities returned to traditional power supply systems, owing to the cost of operations and maintenance, and lack of funding.

The Energy Solutions for Displacement Settings (ESDS) programme, a partnership with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) under the SUN Global Programme funded by BMZ, developed a range of solutions in four settlements in **Ethiopia, Kenya and Uganda**, throughout the seven-year collaboration. These included 3,000 mini-grid connections to households, businesses and social institutions, development of five energy kiosks and the sale of 17,300 improved cookstoves. As a result of this, up to 4,000 tonnes of CO₂ emissions were avoided annually. Lessons learned for addressing

challenges related to security, sustainability, and scaling private investments recommendations were identified. Guidance was subsequently developed to address these challenges, including for sustainable investment and operations and maintenance models, user-centred design, de-risking private investments and facilitating improved refugee access to market-driven energy systems.

In Cox's Bazar, **Bangladesh**, an e-waste programme was conducted in two camps, in collaboration between UNHCR, Global Platform for Action on Sustainable Energy in Displacement Settings (GPA), partners and Schneider Electric. Nearly 50% of households actively participated, leading to the collection of over 9.4 tonnes of waste from solar panels, electronic goods (fans, mobile phones, lights etc) and batteries, reducing the release of hazardous materials and negative impacts on environment and public health.

During the ESDS programme, activities included an e-waste collection system in **Uganda**, training e-waste technicians and entrepreneurs in **Ethiopia and Uganda**, e-waste awareness campaigns in **Kenya** and key recommendations for future e-waste activities. The assessments and learnings from the e-waste activities in **Kenya** contributed to financial modelling of options that GTH will consolidate in a comprehensive study in 2025.

III. SUPPLY AND DELIVER

SUMMARY OF KEY OUTCOMES

- Sustainability fully embedded in the new UNHCR Supply Strategy 2024-2030 and Supply Operating Model.
- Two new technical specifications developed and published for canvas rolls and plastic tarpaulins.
- Five existing specifications for solar lanterns, thermal blankets, buckets, jerrycans and sleeping mats revised to include sustainability considerations.
- 27 new frame agreements established for greener products such as blankets, buckets, jerrycans and canvas rolls.
- Two new tenders launched in the Americas and East & Horn of Africa Regions, resulting in three new contracts (proximity sourcing).
- UNHCR Regional Humanitarian Logistics Hub in Termez completely solarized.
- A general approach to developing tools for the calculation of Scope 3 emissions in Transport and Logistic developed.
- Product specifications and quality control processes aligned with inter-agency collaboration to provide better assistance to the people we work with and for.
- UNHCR Waste Management Programme developed and submitted for resource mobilization.



HIGHLIGHTS

Sustainable Supply Planning

In 2024, UNHCR launched its new [Supply Strategy 2024-2030](#), incorporating sustainability as one of the three strategic pillars and capturing the overall ambitions already set by the [Operational Strategy for Climate Resilience and Environmental Sustainability 2022-2025](#). The strategy commits UNHCR to enhancing the sustainability of its supply initiatives, namely by reducing its aggregate carbon emissions stemming from the procurement, delivery, and usage of goods by 30% by 2030.

- **Revision of CO₂ emissions baseline**

UNHCR, as a member of the *Inter-Agency Scope 3 Advisory Group* led by UNDP, continued to participate in the discussions to harmonize guidance on reporting on GHG emissions, according to the Greenhouse Gas Protocol standards.

In line with the general recommendations provided by the inter-agency group, UNHCR is committed to re-assessing and expanding its analysis of Scope 3 emissions categories related to supply chain activities. Building on previous assessments, this effort aims to refine estimates and establish a more comprehensive baseline.

- **Partnerships**

UNHCR continued to engage with the private sector and the broader humanitarian community to develop strategic and technical partnerships focusing on sustainable practices and innovative technical research. UNHCR continued engaging in business development discussions with Inditex and the Politecnico di Milano on transforming UNHCR's supply chain. Potential areas of collaboration include developing sustainable practices in manufacturing, logistics, packaging and inventory processes for humanitarian relief items, as well as the involvement of refugee communities in the design of such items. UNHCR engaged with strategic donors to receive their expertise and technical support in areas such as calculating Scope 3 emissions, life-cycle assessment and waste management.

- **Inter-agency collaboration**

At the inter-agency level, UNHCR promoted sustainability and provided technical advice in several fora. UNHCR shared information within various UN inter-agency groups about e-waste management, sustainable procurement, and UN Scope 3 initiatives.

UNHCR also participated in the working group led by the [Climate Action Accelerator](#) on the development of LCA methodology for humanitarian organizations. Finally, as a member of the Inter-agency Quality, Social and Environmental group, UNHCR actively promoted new product specifications and quality control processes to provide more durable and less expensive products for humanitarian assistance.

- **Training**

UNHCR increased its internal capacity-building, including conducting global webinars to enhance knowledge of sustainable supply chain processes. More than 100 participants engaged in learning discussions about environmental sustainability concepts, circular economy, Scope 3 emissions, Life-Cycle Assessment (LCA) and internal sustainable supply initiatives.

Market-shaping and Sustainable Sourcing

- **Procurement**

UNHCR incorporated specific criteria for different categories of goods and services, including core relief items, IT equipment, and digital services. This ensures that the procurement process integrates environmental, social, and economic considerations. The development of greener specifications ensured that sustainability criteria are integrated into the procurement process of the core relief items, while considering the [UN Sustainable Procurement Indicators](#).

- **Technical Specifications**

UNHCR continued developing new technical specifications to enable the broader humanitarian community to procure more sustainable items. This included publishing two new greener technical specifications, for canvas rolls and plastic

III. SUPPLY AND DELIVER

tarpaulins, and updating five existing specifications for solar lanterns, thermal blankets, buckets, jerrycans and sleeping mats.

In addition, the revised technical specifications for solar lanterns were finalized, and VerasSol-certified suppliers offering models with recycled content were identified.

At the inter-agency level, technical discussions and strategic collaboration targeted specifications for family tents, housing solutions, mosquito nets and kitchen sets, as well as assessments to improve the sustainability of other goods and services.

- **Tenders and Frame Agreements**

UNHCR launched new tenders to establish frame agreements for sustainable supply at global and local levels. A tender for high and medium thermal blankets was launched, as well as one for canvas rolls. Additionally, two new tenders for the provision of seven sustainable items were launched in Latin America and East and Horn of Africa. As a result, in 2024, 27 new frame agreements were established for greener products.

UNHCR has started procuring greener products, achieving an average price reduction of over 15% and expecting to reduce carbon emissions by an estimated 20-22%. By the end of 2024, UNHCR

began replenishing its stock with more than 3.5 million greener blankets and 1.7 million greener sleeping mats.

Logistics and Inventory Management

- **Solarizing warehouses**

UNHCR and LONGi Green Technology Co Ltd, a global leader in solar technology, completed a groundbreaking project to [solarize the UNHCR Regional Humanitarian Logistics Hub](#) Cargo Centre (now UNHCR Global Stockpile Termez) in Surkhandarya, Uzbekistan. With the installation of high-efficiency solar panels, the renewable energy generated each year will reduce the hub's reliance on the grid, significantly lowering its carbon emissions and leading to important cost savings.

- **Inventory Management**

To minimize excess stock and improve control over surplus levels and stock shelf life, UNHCR published an internal "Inventory Management Guidance" and other relevant inventory control tools outlining best practices that optimize on-hand inventory through proactive planning, procurement, and distribution.



Product Life Cycle Management

- **Supply Waste Management**

UNHCR developed the Waste Management Programme, building on the [Waste Management Concept Note](#) (2023). Following extended consultations, three operations in the sub-Saharan region were selected as pilot countries to participate in the initial implementation, planned for 2025. The programme aims to develop comprehensive tools and guidelines for country operations to manage solid waste generated by supply activities, including distribution, storage, maintenance and consumption. The programme will require a phased approach and a multi-year investment.

- **UNHCR supply chain emissions calculation**

UNHCR expanded its capacity to calculate Scope 3 emissions associated with transportation activities to better plan and assess more efficient and sustainable logistics solutions. Initial research has been conducted to develop a tool to map the existing warehouse network, enabling a precise assessment of distances between warehouses and

the proximity of logistics nodes to the points of humanitarian distribution. This exercise aims to estimate transport distances and related carbon emissions.

- **Packaging**

UNHCR developed a *Global Sustainable Packaging Guidance Note*, covering key principles, guidance on procurement and sample tender criteria. It also outlines recommendations for sustainable packaging materials to support informed decision-making and promote environmentally responsible practices.

UNHCR developed an internal document with recommendations and best practices for the palletization, labelling and cargo securing of main core relief items, to be shared with external suppliers and promote loading and delivery efficiency and sustainability.

Under current contracts, the solar lantern packaging has been improved by removing single-use plastics and introducing recycled, unbleached cardboard boxes.



Sustainability is now integrated into the new [UNHCR Supply Strategy 2024-2030](#) as one of its three strategic pillars. In 2024, UNHCR continued the positive trend to mitigate the environmental impact of its Supply Chain. UNHCR published 2 new greener specifications for canvas rolls and plastic tarpaulins, established 27 new frame agreements for greener CRIs and successfully started to replenish its stocks with greener blankets and sleeping mats (produced out of 100% recycled plastics), achieving an average price reduction of over 15% and expecting to achieve an estimated 20-22% reduction in carbon emissions resulting from the future procurement of these goods.

III. SUPPLY AND DELIVER

Communication and External Relations

In 2024, UNHCR promoted sustainability in several multilateral networking events, including [AidEx](#), and at the [UNHCR Pledging Conference](#) at the United Nations in Geneva. Samples of CRIs produced with recycled materials were showcased among the recent results and achievements while opportunities to develop durable supply chain solutions in the humanitarian sector were discussed with donors, partners and the private sector.

In addition, UNHCR participated in the kick-off event of DG ECHO Emergency Coordination Centre's Strategic Supply Initiatives (Brussels, December 2024). Participants endorsed the conclusions from the initial consultation process and the series of thematic workshops, and agreed to continue working inclusively for a more resilient, efficient, and sustainable supply chain. In recognition of its global leadership and pioneering role in sustainable supply chain management, UNHCR has been selected by ECHO as a co-lead for the Environmental Sustainability thematic area, alongside France's Crises and Support Center (CDCS).

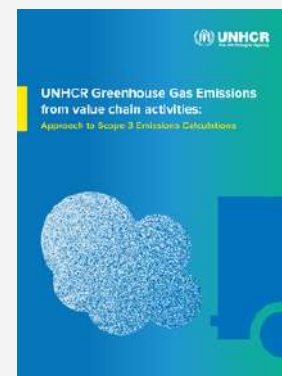
RECENT PUBLICATIONS



UNHCR, Greening Opportunities for Mosquito Nets, 2024



Climate Action Accelerator (Inter-Agency collaboration), Mosquito Nets: Reducing the Impact of Long-Lasting Insecticide-treated Nets (LLINs), 2024



UNHCR, UNHCR Greenhouse Gas Emissions from Value Chains Activities: Approach to Scope 3 Emissions Calculations, 2024 (updated)





2024 Progress Report

OPERATIONAL STRATEGY FOR CLIMATE RESILIENCE AND ENVIRONMENTAL SUSTAINABILITY 2022-2025

March 2025

*For more information, please contact DESS at hqep@unhcr.org
(Prepare and respond), hqsmcoms@unhcr.org (Supply and deliver),
and DRS at hqsl00@unhcr.org (Respond and deliver)*



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