

OVERVIEW OF THE GENEVA TECHNICAL HUB



Kutubdia, Bangladesh @ UNHCR 2020

The Geneva Technical Hub (GTH) brings together Swiss academia and expert practitioners to tackle complex technical problems, share learnings, and find solutions that can be applied in diverse UNHCR operational contexts. GTH strives innovative change through new, practical, and trialled approaches, while advancing operational practices through an agile and solutions-oriented approach. Interventions are based on field demand, and solutions proposed will be contextualized and scaled up to promote horizontal learnings between operations.

Background & Context

GTH was officially launched in June 2021 under UNHCR’s Division of Resilience of Solutions (DRS), Technical Support Section (TSS). GTH consists of eight Swiss technical experts¹ with diversified experience in humanitarian relief, academic research, and direct work with development and private sector.

GTH also works in close collaboration with specialized Swiss universities including the Swiss Federal Institute of Aquatic Science and Technology (eawag), the two Swiss Federal Institutes of Technology: École Polytechnique Fédérale de Lausanne (EPFL) and the Eidgenössische Technische Hochschule Zürich (ETHZ).

Environmental considerations will be streamlined throughout, together with protection considerations, while also enhancing preparedness and Disaster Risk Reduction. GTH aims at enhancing institutional capacity and enable UNHCR and partners to better protect and assist our Persons of Concern (POC). GTH is a resource available to support all UNHCR Bureaus and Operations to strengthen comprehensive responses and to deliver capacity building initiatives.

GTH delivers targeted and timebound interventions through the following:

- Provision of operational guidance, tools and best practices trialled, tested, and replicated;
- Operate as a think tank as expert practitioners collaborate with academia to analyse, explore, develop, and test new methods, products, and solutions;
- Promotion of capacity building to jointly learn and strengthen staff capacity.

GTH will improve the lives of refugees, internally displaced persons, and their host communities by enhancing the quality of technical programming in:



Advanced Settlement Planning;



Shelter and Housing;



Hydrogeology, Water System Optimization and Sanitation;



Renewable Energy.

¹ GTH experts are SDC deployees but do not perform the same functions of a regular Stand-By Partner deployment. Coordination, generic technical programming and regular emergency response are out of scope of GTH, unless a clear problem statement for highly complex technical problems are identified, and GTH added value is clearly proven.

GTH and the Strategic Framework for Climate Action

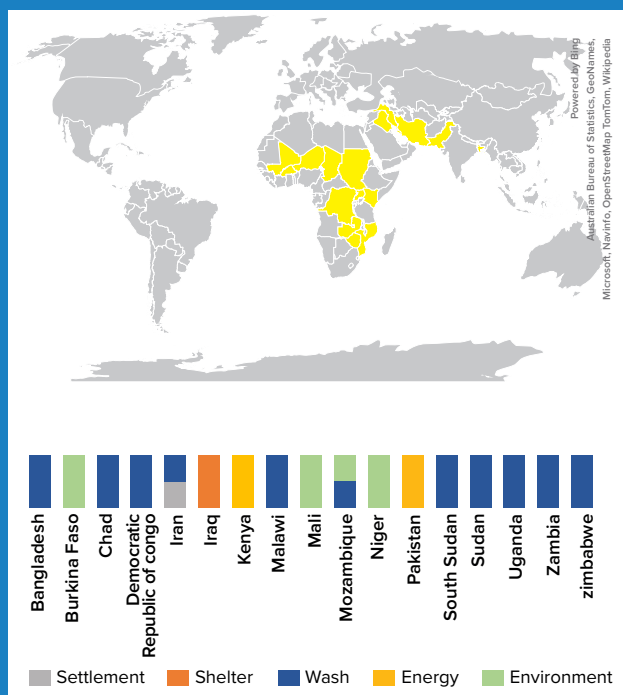
The work of the GTH contributes to the Second Pillar of the UNHCR’s [Strategic Framework for Climate Action](#) and its recently launched [Operational Strategy for Climate Resilience and Environmental Sustainability 2022-2025](#) by studying solutions to support the conservation of the natural environment and mitigate environmental degradation. The provided technical support, jointly with TSS, will further the resilience of the displaced and host communities to climate-related risks and strengthen preparedness and early action.

Impact

Through the interventions of GTH, the technical support will foster informed decision-making and contribute to country operations multi-year plans, including enhancing overall sustainability of technical programs. This impact includes improved capacity of operations to respond to disaster preparedness. Field colleagues will be better equipped with stronger technical skills through learning opportunities and tailor-made support.

Beyond improving technical programs, these enhanced capacities will ultimately contribute to broader outcomes, enhancing POCs’ protection, safety, dignity, health, self-reliance, resilience, inclusion and their peaceful coexistence as it also relates to local integration with host communities, leaving no one behind.

Countries and sectors supported by GTH in 2021



Advanced Settlement Planning

The main strategic document of UNHCR that guides settlement planning efforts is the Master Plan Approach (MPA). Among other key principles, the MPA outlines the importance of spatial integration of displaced populations’ settlements and emphasises the importance of climate mitigation and environmental mainstreaming.

In addition to site planning country operation support provided in July 2021, GTH expertise is further operationalising the MPA through the development of two technical guidelines on advanced settlement planning, in collaboration with Swiss universities. These publications will aim to improve the liveability of sites and strengthen the resilience of settlements to climate change and related hazards. The first guidance will analyse the potential to optimize settlements’ layouts and essential services, based on case studies in Rwanda, Tanzania, and South Sudan. The second publication will focus on flood hazard mapping and mitigation measures, through an in-depth study of Mahama’s settlement in Rwanda.

Shelter and Housing

There is an urgent need to address the environmental impact of shelter and housing programs in humanitarian operations. Today, the construction sector is responsible for around 35% of CO2 emissions worldwide. Shelter solutions provided during emergencies maintain a high content of plastic materials and usually entail long, international supply chains. While cement, steel, tiles, and lime account for about 75% of the emissions generated during construction, the share of other building materials such as earth, straw and clay is practically zero. However, it is not only CO2 emissions that are of interest in the choice of building materials, but also their toxicity and environmental damage caused by the extraction of raw materials, production, and transport of these materials.

GTH interventions provide support in identifying the availability of local materials for shelter solutions, promoting appropriate building materials and construction techniques, optimising low-cost durable shelters and housing solutions that reduce POC vulnerability and support disaster-affected people and communities.

As part of greening the response, GTH supported the field office and the Shelter Cluster in Dohuk-Iraq in their efforts to find suitable and sustainable shelter solutions to provide safe and dignified housing for the residents of the IDP camps. In addition to the current cement block shelter solution, two other construction techniques, Interlocking Stabilized Soil Blocks (ISSB) and mud brick (adobe) construction have been provided as additional options.

Hydrogeology, water system optimization and sanitation

Many humanitarian operations face a range of technical and environmental challenges when providing water, sanitation and hygiene (WASH) services. Due to the multisectoral nature of WASH services, these challenges are often complex and cross-sectoral, and solving them in a sustainable manner requires specialized expertise and collaboration. GTH provides technical support on issues related to hydrogeology, water resources and sanitation in order to increase the sustainability and resilience of WASH responses in UNHCR operations in line with its [Public Health Strategy](#) and the [Strategic Framework for Climate Action](#).

GTH has supported several operations on a range of technical topics, both remotely and through field missions. Chad operation has been supported significantly by GTH to ensure the successful planning and implementation of a major solarization campaign that includes borehole camera inspections, training of local partners and the establishment of a Solar Hub. GTH has also supported WASH colleagues in Uganda, Bangladesh, Sudan, South Sudan and DRC on hydrogeological investigations, pumping tests and solarization pre-feasibility by remote support.

In Sudan, GTH supported the operation with assessments, and technical designs of water supply and sanitation services for ~50,000 refugees. Through two field support missions, GTH supported the operation and partners to scale sanitation coverage following a Hepatitis E outbreak, while making considerations for the longer-term sustainability of services.

GTH provided remote support on sanitation designs to the Sudan emergency response and on the relevance of a potential toilet technology to Mali. Through a mission to Malawi, Zambia and Zimbabwe, GTH supported WASH colleagues on assessments and pre-feasibility studies for solid waste management, toilet designs, household sanitation services uptake, and biogas and composting plants, with further support taking place remotely.

Renewable Energy

In UNHCR's vision, access to energy should be sustainable, with the least environmental impact and without risks to health, well-being, or security. Energy solutions require a holistic view and in addition to providing access to energy, optimising energy efficiency is a cornerstone of sustainability.

UNHCR recently launched its Global Strategy for Sustainable Energy (GSSE) 2019 – 2025. In the area of energy, GTH is supporting field operations in these aspects of the global strategy:

- Provision of sustainable access to energy in emergencies and protracted situations (GSSE 2019-2025 Outcome Areas 1, 2 and 3)
- Optimization of access to renewable energy for community facilities (GSSE 2019-2025 Outcome Area 4)

GTH has supported field and country offices through the following activities: validation of specifications and elaboration of Fair Market Value (FMVs) for goods to support monitoring and optimization of energy supplies; provision of tools to assess and plan energy supplies, and to improve energy efficiency.

In Kenya GTH has supported Kakuma refugee camp through the installation of energy meters provided by SDC. The meters enable tracking of energy consumption in real-time and through a software to optimize renewable energy systems tailored to energy needs of facilities.



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Environmental Conservation and Preservation

Protecting POCs through environmental protection is a multi-sectorial and comprehensive effort. It requires minimizing impacts of refugee and IDP settlements on the living environment through impacts on water, soil, air, and natural habitats, and requires interventions from a multitude of technical domains. This comprehensive approach expands to a broad range of thematic subjects: environmental assessments, access to clean cooking, sustainable management of natural resources, waste management, use of renewable energy, climate change

adaptation and mitigation measures.

GTH supports UNHCR in implementing holistic, sustainable and environmentally friendly approaches. GTH environmental interventions have included the support on evaluation of cooking fuels, market research on clean cooking technology, analysis of solid waste collection and transport, and guidance on the development of a greenhouse gas emissions estimation tool.



Collaboration with Academia

To complement the eight experts, [eawag](#), [EPFL](#) and [ETHZ](#) bring academic expertise to sectors such as Energy, WASH, Shelter and Settlement. Among other support, these leading institutions are providing expertise in:



Advanced Settlement Planning: Greening UNHCR's response with an emphasis on protecting ecologically sensitive areas, defining blue-green corridors, enhancing carrying capacity, fostering sensitive land usage and planning, conducting hazard mapping as well as capacity building. Forthcoming interventions will include for example optimisation of infrastructure and facilities and guidance on environmental considerations.



Shelter and Housing: In-depth research on the use of local and traditional building techniques and the use of more sustainable materials in all phases of the response, with the aim of developing Standard Operating Procedures, learning materials as well as a digital Shelter Sustainability Calculator. As increasingly complex issues around shelter arise, GTH will work to continually identify sustainable approaches that support climate-friendly humanitarian interventions.



Hydrogeology, water system optimization and sanitation: A Rapid Groundwater Potential Mapping (RGWPM) tool for supporting planning and set-up of sustainable water supply in emergencies has been established. The methodology was originally piloted in Uganda and further refined allowing the development of rapid groundwater potential maps for 13 refugee operations in 2021. GTH will also provide expertise on water supply treatment and safe water promotion, sustainable sanitation planning and design, R&D technology for waste to value solutions as well as behaviour change and hygiene promotion.



Renewable Energy: Development of an access planning tool to support country operations to develop standard designs and preliminary budgeting of energy projects in displacement situation.



Environment: Environmental considerations are mainstreamed throughout the work of GTH in all sectors. Forthcoming interventions include development of a Green House Gases emissions tool to enable estimation of environmental footprint of UNHCR programmes in all technical areas.