

# SHELTERING IN THE CLIMATE CRISIS



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## ANNEX A

Collection of resources

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This annex presents a collection of resources relevant to Shelter and Settlement practitioners interested in climate change adaptation. This list is not exhaustive but was put together for the Climate Change Adaptation Learning Event in 2025, both from resources gathered during the event's preparation and from interviews with practitioners working in this space or suggested by participants as part of the Mural board exercise during the event. There is a [live Google version of the resources in this section](#) and users are encouraged to add to it via comments and the resource will be updated by the Global Shelter Cluster Environment Community of Practice. Alternatively, please send resources to [environmentoperations@sheltercluster.org](mailto:environmentoperations@sheltercluster.org).

### Climate change and humanitarian action

The following are a few key resources on climate change and humanitarian action. The list is not exhaustive - for a full list of resources see the [Guidance section](#) of the Climate and Environment Charter's website.

**The Climate Charter:** Many INGOs, including CARE and the Global Shelter Cluster lead agencies, have signed the Climate Charter and have committed to addressing the climate and environmental crises in their humanitarian work. The Charter website contains [guidance, tools and resources](#) for operationalising each of the 6 commitments.

**OCHA 2024 World Humanitarian Overview:** States that climate change and conflict are the main drivers of increasing humanitarian needs.

**IASC 2024 IASC Climate Crisis Roadmap:** Identifies six priority areas (informed by the Climate Charter) and includes recommendations under each priority area. One priority area is: "Help people to adapt and build resilience to multiple risks and the impacts of disasters, climate and environmental crises, especially in crisis and fragile settings"

**ALNAP 2021 Adapting humanitarian action to the effects of climate change:** ALNAP commissioned a review of evidence from previous humanitarian interventions to identify lessons and examples of best practices that might be applied when designing humanitarian action in response to future climate-related disasters. These include lessons related to shelter (e.g. Lesson 35 on page 52: "Humanitarian actors should support and play their part in multisectoral approaches across shelter, urban planning, WASH and public health to help communities improve their capacity to withstand and respond to the effects of heatwaves.") The paper also suggests effective actions for shelter actors to manage heat waves.

**ADAPT 2021 Climate Change and Humanitarian Action:** Considers the relationship between climate change and humanitarian action. It asks how climate change will affect humanitarian needs; outlines the current state of readiness to meet these needs; proposes changes required to improve readiness and response capacities; and suggests a series of activities that would support these changes.

### Climate change information, guidance and training for humanitarians

#### Information

**Red Cross Red Crescent Climate Centre 2023 Climate Fact Sheets** are available for 20 countries. These

include **Climate Centre StoryMaps** which include climate projections. The profiles are designed to make climate science more meaningful, scientific storylines support the integration of climate risks into humanitarian decision-making. Each fact sheet has two to three climate storylines developed by the Climate Centre's science team through in-depth scientific analyses based on climate model projections (scientific data-based estimates of future climate change).

**United Nations Climate Change Nationally Determined Contributions Registry:** A registry of national contribution statements, with climate profiles and climate change impact analyses.

**World Bank Climate Change Knowledge Portal:** provides global data on historical and future climate, vulnerabilities, and impacts. Data can be explored via Country and Watershed views. Includes many **country climate risk profiles**.

**IPCC Regional Factsheets:** Provide an entry point for information relevant to regions and sectors. They are traceable to the underlying Working Group Contribution to the IPCC Sixth Assessment Report and **Interactive Atlas**.

**ND-GAIN Country Index:** a measurement tool that helps governments, businesses and communities examine risks exacerbated by climate change, such as overcrowding, food insecurity, inadequate infrastructure, and civil conflicts. Free and open source, the Country Index uses 20 years of data across 45 indicators to rank over 180 countries annually based on their level of vulnerability, and their readiness to successfully implement adaptation solutions.

**NOAA, Climate Data Online (CDO):** provides free access to NCDC's archive of global historical weather and climate data in addition to station history information. These data include quality-controlled daily, monthly, seasonal, and yearly measurements of temperature, precipitation, wind, and degree days as well as radar data and 30-year Climate Normals.

## Tools, Guidance and Frameworks:

**International Federation of Red Cross and Red Crescent (RCRC) Societies and RCRC Climate Centre 2023 Guide to Climate-Smart Programmes and Operations:** Supports National Red Cross and Red Crescent Societies and the IFRC in making their programmes and operations climate-smart. Includes examples, resources and tools that can be applied easily to make work climate smart and is also relevant for non-RCRC programming. There is a 10-page **summary of the IFRC guide on climate-smart programmes and humanitarian operations**. Annex 2 includes sectoral impact checks. For shelter and settlements, see **Section E: Guiding section for checking shelter, housing and settlements** (p 94ff). This includes a table of questions designed to help think through how climate risks can affect choices in relation to shelter, housing and settlements.

**International Committee of the Red Cross, 2024 Framework for the integration of climate risks into ICRC Operations:** Introduces climate action within the organization and outlines the aims of this framework. It outlines the pathways that ICRC delegations can take to integrate climate risks and related objectives and is relevant for both management teams and coordinators. Section 3 describes the cross-cutting steps, tools and approaches needed to create an enabling environment for climate risk integration within a delegation. It is particularly relevant for management teams. The annexes provide technical guidance.

**International Federation of Red Cross and Red Crescent Societies (IFRC) and Climate Centre Climate Training Kit:** an interactive set of training materials prepared by the IFRC and the Climate Centre. Designed to provide innovative tools to trainers and facilitators within the Red Cross Red Crescent Movement and its partners. It aims to strengthen capacities across the world, without having to fly experts around the globe. Includes information on areas of humanitarian work, including technical aspects of climate risk management, climate-related policy dialogues, climate finance and much more. No specific shelter and settlements section.



## Donor policy and guidance

**DG ECHO, 2022 Guidance on the operationalisation of the minimum environmental requirements and recommendations for EU-funded humanitarian aid operations**: The most comprehensive series of donor requirements for the environment in humanitarian action.

**Climate Action Accelerator and the Joint Initiative, 2024, Operationalizing and Scaling-up Donors' Climate and Environmental Commitments: an analysis of progress, gaps and opportunities**: provides a high level summary of where the donor community stands on these issues, and an annex, which describes the individual greening approaches of 14 donors. The findings are based on desk research, interviews, and correspondence with focal points from the donor agencies listed in the annexe. It focuses on institutional (public) donors, not on private sector donors.

## Information and guidance on climate change adaptation

### General

**CARE and GIZ 2021 Gender-responsive Ecosystem-based Adaptation**: aimed at development contexts, rather than humanitarian.

**Red Cross Red Crescent Climate Centre Resources on Locally Led Adaptation**: includes the RCRC Climate Action Journey and links to training and resources.

**IFRC 2024 The Importance of Scaling Up Locally Led Adaptation**: a short document that sets out the ambition, principles, and roadmap for scaling up locally led adaptation and the steps of the Climate Action Journey. No specific mention of shelter. Includes eight principles for locally led adaptation, endorsed by over 100 donors, governments and intermediary organizations, including the IFRC, established by the Global Commission on Adaptation in 2021.

**IFRC 2024 Manual for the establishment of community cooling centres in cities**: This community cooling centre manual aims to support RCRC National Societies' preparedness efforts for heatwaves while contributing to the global RCRC Movement targets to better protect 250 million people from heat by 2025. Complements the City Heatwave Guide for Red Cross Red Crescent Branches, and the Heatwave Guide for Cities developed by the RCRC Climate Centre.

**Global Land Tools Network (GLTN) 2019 Land Tenure and Climate Vulnerability**: examines the inter-relationships between land tenure and climate vulnerability. The analysis has been framed according to peoples' exposure to climate-related hazards, the sensitivity of different elements at risk in both urban and rural contexts and an understanding of how insecure land tenure influences the adaptive capacity of communities and individuals. Potential feedback loops from climate adaptation measures that may act to undermine peoples' security of tenure have also been considered.

### Nature-based solutions

**Sphere 2023 Nature based solutions Sphere unpacked guide**: emphasises the value and co-benefits of NbS for resilience-building in humanitarian contexts and provides practical guidance for using the Sphere standards when implementing NbS to address societal challenges in humanitarian action. It explores links between NbS and Sphere's four technical chapters – including shelter – while stressing the cross-cutting nature of NbS and its contribution to restoring, protecting and fulfilling human rights, dignity, and agency. The Guide also provides useful tools and resources and illustrative case studies.

**UNHCR Guidelines for integrating nature-based solutions in settlement planning**: supports efforts to integrate NBS into current settlement planning, development and management practices. It provides a general overview of NBS and technical guidance regarding the integration of particular forms of NBS into settlements.

This information can support initial considerations about the potential integration of NBS into settlement planning prior to more detailed feasibility assessments and design.

**IFRC Global Climate Resilience Platform:** A multi-year initiative to significantly improve and expand the community-based climate action work of Red Cross and Red Crescent Societies around the world. One of its 4 targets, Resilience, has a focus area of **NbSs, with a technical explainer doc.**

**UN Habitat, 2025 Designing for Displacement: A Spatial Guide for Planning Along Seasonal Rivers in Drylands:** this guide aims to establish a knowledge repository of spatial planning and design strategies. These strategies are intended for adoption by humanitarian and development practitioners, national and local governments, and other stakeholders. Specifically, it introduces a collection of Nature-based Solutions (NbS) tailored for use in the context of protracted displacement in dryland regions marked by intermittent or seasonal rivers, notably within the arid and semi-arid land (ASAL) territories of East Africa.

**Re-alliance Case Studies:** a series of case studies showcasing the restoration and revitalisation of social and ecological systems which integrate the needs of society with the integrity of nature. Includes case studies on **eco-building**.

**Yuva Project, Shelter and Rainwater Harvesting Case Study:** A national NGO in Türkiye has designed and delivered prefab wooden shelters in Hatay, including rainwater harvesting, good insulation, and positioning to take advantage of the sun.

## Shelter and settlement environment resources and guidance

**Global Shelter Cluster resources:** For an overview of all of the environment and shelter resources of the Global Shelter Cluster, visit the **Environmental Community of Practice Page on the GSC website**. Some key resources include:

- **Shelter and Settlement Country Environmental Profiles** (13, more to be completed in 2025)
- **Tools for environmental mainstreaming into the Shelter elements of the Humanitarian Programme Cycle** including Needs Analysis and Response Planning:
  - **Response Planning Tip Sheet for Environment, Climate Change and DRR Mainstreaming**
  - **Needs Overview Tip Sheet for Environment, Climate Change and DRR Mainstreaming**
- **Entry Points for DRR Mainstreaming in Shelter and Settlements** (UNDRR and GSC, 2024)

**GSC, USWG, IMPACT, 2024, Settlements Approach Environmental Thematic Annex:** Supplements the Settlements Approach Guidance Note, published by the Urban Settlements Working Group of the Global Shelter Cluster in 2020. The Thematic Annex emphasises the need to consider environmental factors early in the programme cycle. It focuses on integrating environmental considerations into: settlement identification and delineation, and context analysis and needs assessment. The Annex is accompanied by **Tools and Resources for Mainstreaming Environmental Considerations in the Settlements Approach**.

**Shelter Projects 2024 Lessons from Floods, Compendium of case studies:** Compendium of case studies specifically on floods, taken from the last decade of Shelter Projects editions.

**Disaster Ready online training, 2024, Humanitarian Shelter and Settlements Course.** Module 5 on Environmental and Climate Concerns covers the concepts of climate change impacts and environmental sustainability in S&S assistance, various approaches, and tools adopting sustainability, resilience, and adaptation across three levels - mainly household, settlements, and ecological.

**UNHCR, 2021, Shelter and Sustainability - A Technical and Environmental Comparative Overview of Common Shelter Typologies Found in Settlements across UNHCR Operations:** a comparative overview of different shelter typologies, which were recently implemented in various field locations and in different stages

of a humanitarian response to forced displacement. Using established criteria to determine the technical performance, habitability, affordability and the environmental impact of each shelter design, this study outlines the real costs of shelter interventions considering the specificities of each context and material used. Climate resilience was not a criterion included in the comparative overview.

**NRC 2023 Housing, land and property in the context of climate change, disasters and displacement:** This 'policy brief' presents NRC's knowledge and experience in addressing HLP issues associated with climate change, disasters and displacement, including those often aggravated by conflict. It is not a comprehensive catalogue of HLP issues, nor does it present the full breadth of NRC's operations. Rather, it reflects the organisation's experience in delivering information counselling and legal assistance (ICLA), shelter and settlements and other programmes, and draws on its role as lead and co-lead of inter-agency coordination. It includes examples from Afghanistan, Iraq, Mozambique, Somalia and South Sudan.

## Environmental Assessment Tools

### Climate-specific tools

**Deltares Climate Resilient Cities tool:** free software to support urban design and planning for climate adaptation.

**CARE Climate Vulnerability and Capacity Analysis (CVCA). CVCA Handbook** (2nd edition 2019). **Summary handbook**

**CRISTAL Tool:** a project-planning tool that helps users design activities that support climate adaptation (i.e., adaptation to climate variability and change) at the community level. CRISTAL stands for "Community-based Risk Screening Tool – Adaptation and Livelihoods."

### Broader environmental assessment tools

**Swiss Development Cooperation, Climate, Environment and Disaster Risk Reduction Integration Guidance (CEDRIG):** a practical and user-friendly tool developed by SDC. It is meant to systematically integrate climate, environment and disaster risk reduction (DRR) into development cooperation and humanitarian aid to enhance the overall resilience of systems and communities.

**Nexus Environmental Assessment Tool (NEAT+):** a free and open-source tool designed to aid humanitarian actors in identifying issues of environmental concern and mitigation measures and to make emergency and recovery interventions more sustainable.

**CAFOD Environmental Stewardship Tool (EST) tool:** this Excel-based tool is similar to NEAT+ and was developed to facilitate CAFOD's environmental stewardship in program activities and complement other environmental impact assessment tools. The tool helps teams screen for environmental risks as they design programs and activities, ensuring we not only do no harm, but also support environmental outcomes, restoration, and regeneration efforts. The main objective is to ensure that the preservation of natural resources is done sustainably alongside all activities involving the natural and built environment (such as shelter and infrastructure construction). It also includes guidance on reducing potentially negative environmental and climate impacts from our work.

**REH Environmental Assessments Working Group, MERA (Multi-sectoral Environmental Risks Analysis) matrix:** helps humanitarian and development project developers and technical advisers be aware of the environmental risks of the projects they are developing and to mitigate these risks. Provides a non-exhaustive database of mitigation measures for each environmental risk associated with activities in the Food Security & Livelihoods, Water, Sanitation & Hygiene, Shelter and Mental Health and Psychosocial Support sectors. This matrix does not replace environmental screening tools (like NEAT+, EST), but can complement them.

For further guidance and tools on Environmental Assessments, see the [EHA Connect](#) assessment guidance page.

## Tools for Shelter Design

**University of Bath, Humanitarian Shelter Tools:**<sup>17</sup> A suite of tools aimed at humanitarian actors was developed through a University of Bath research project (Healthy Housing for the Displaced). They are all publicly available and free to use.

1. The **Shelter Assessment Matrix (SAM)** is a scoring mechanism for shelter design. The SAM tool includes 34 criteria of planned temporary/transitional shelter solutions and was developed to avoid oft-repeated and avoidable mistakes. It gives a rational way to assess the potential performance of a shelter – including social issues. It also contains a library of useful information on shelter design.
2. **ShelTherm** is a simple thermal model designed for those with little buildings or modelling experience. It allows you to build your shelter in a user-friendly way, place it in the correct climate and then look at the likely internal **temperatures** on a hot day and a cold day
3. **SheltAIR** is the first simulation tool created using a co-creation approach, involving those for whom it is intended. The development included participation from a diverse group of stakeholders, including shelter designers, humanitarian workers, and academics from 15 different countries. SheltAir is an Excel-based tool that employs simplified airflow equations to model natural **ventilation and indoor air quality**. More information on SheltAIR is available [here](#).
4. **Zebra core tools** allow shelter designers to model and assess **embodied and operational carbon**. Zebra is a user-friendly model that aids in designing zero-carbon buildings with minimal inputs and no required training, also enhancing user knowledge of zero-carbon principles.

**Build Change, Resilient Housing Ecosystem Assessment Tool (RHEAT):** RHEAT™ has been developed by Build Change to help countries, states, territories, cities, and communities identify key gaps and challenges as they work toward achieving resilient housing at scale.

**Build Change: Build Change technical assistance platform (BCtap):** an end-to-end solution that pairs technology with subject matter expertise to take resilient housing programs to scale.

<sup>1</sup> For an evaluation of some of these tools in terms of their ability to improve thermal comfort in low-cost housing under future climate scenarios, see the following research paper by Hendriks et al: Sustainability 2025, 17(6), 2511; <https://doi.org/10.3390/su17062511>

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**CARE International UK**

1 St John's Lane  
London EC1M 4AR, UK



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