
Climate Smart Shelter in Practice Building Back Safer and Greener

15 October 2025 – 14:00 – 15:30 CET

AGENDA

Time	Description	Speakers
14:00 - 14:10	Welcome and Framing	Mandy George, GLOBAL SHELTER CLUSTER / IFRC
14:10 - 14:20	CARE Minimum Requirements for Climate Smart Shelter	James Morgan, CARE UK
14:20 - 14:45	Lightning Case Studies: Climate-smart shelter in action	Yodit Gutema, Ethiopia Shelter NFI Cluster Coordinator, IOM Bea Varnai, Project Manager Climate-resilient Housing & Economic Development, Geres Farooq Rahman, Senior Programme Manager WASH, CARE Bangladesh
14:45 - 15:15	Breakout Discussion: Trade-offs & Challenges	ALL
15:15 - 15:25	Report Back	Group facilitators
15:25 - 15:30	Next steps	Mandy George, Global Shelter Cluster and ALL

WHERE ARE WE NOW?

EXTENDED IMPACT

- 1.1 *Promote integrated approaches to preparedness and response*
- 1.2 *Improve environmental impact*
- 1.3 *Enable safe, secure, accessible and protective living conditions*
- 1.4 *Plan for recovery and durable solutions from the start*

"Considering the environment – including climate change – in shelter and settlements programming improves the effectiveness of humanitarian assistance and has long-term benefits for populations affected by crises. This includes reducing risks and building resilience to future crises."

- GSC Strategy 2024 - 2028

1.2 *Improve environmental impact*

- Prioritize environmental considerations in organizational strategies, policies and tools
- Strengthen capacity to deliver environmentally sustainable and climate-smart approaches
- Foster an integrated approach to environmental protection and climate change mitigation and adaptation
- Implement locally appropriate shelter solutions

SHELTERING IN THE CLIMATE CRISIS



Learning to Adapt

Proceedings of the Shelter and Climate Change Adaptation Learning Event on 23rd January 2025

[Sheltering in the Climate Crisis: Learning to Adapt](#)

SHELTERING IN THE CLIMATE CRISIS



ANNEX A

Collection of resources

THE HUMANITARIAN RESET

PUTTING THE PEOPLE WE SERVE FIRST

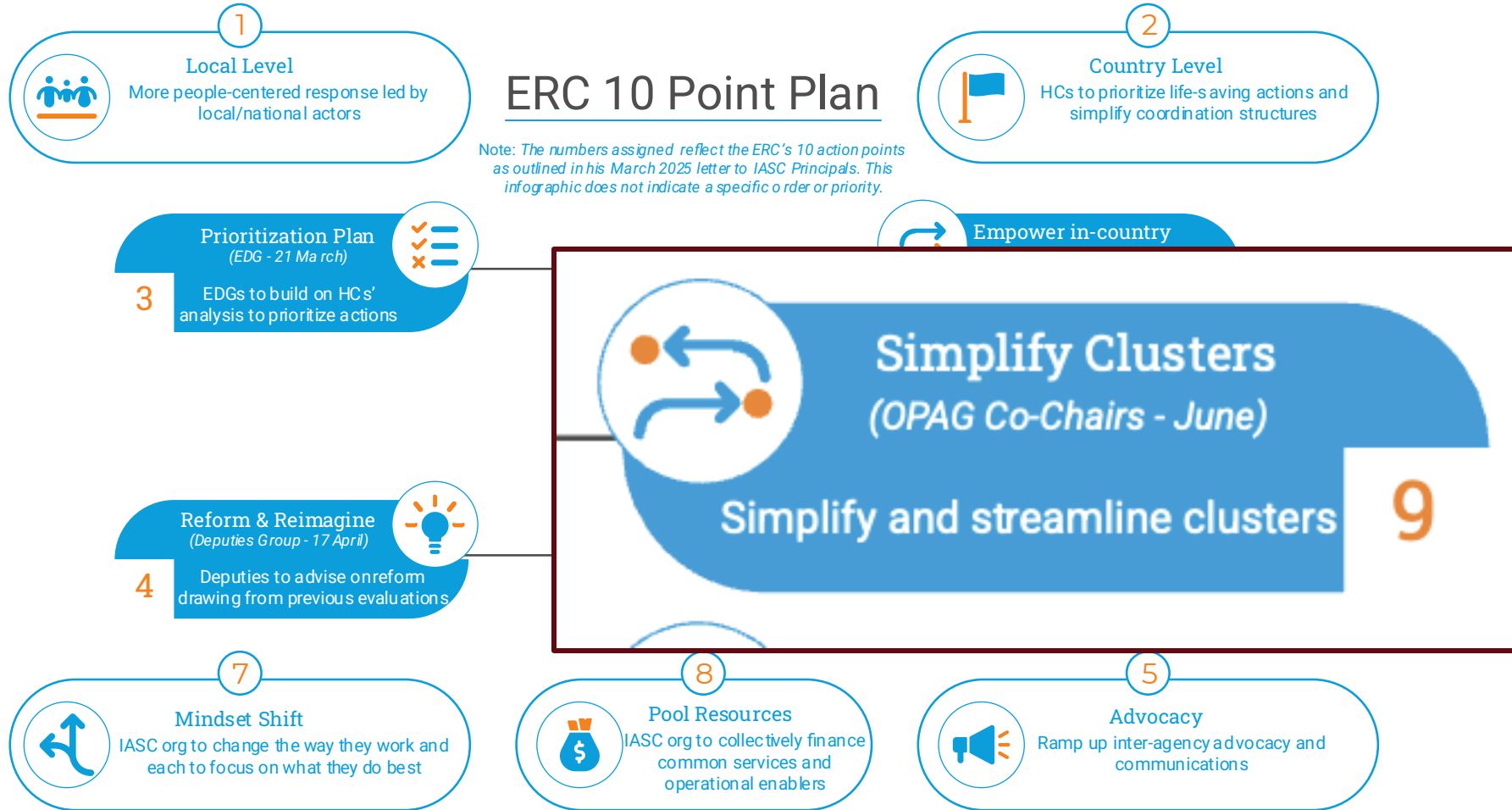


● **DEFINE** why we are here

● **DELIVER** effectively and efficiently

● **DEVOLVE** to local partners

● **DEFEND** IHL and our work



UN80 Workstreams

① Identify efficiencies and improvements in our ways of working

② Review the implementation of mandates

③ UN system strategic review and realignment

UN reforms include common services relevant to NGOs

CLUSTER X: SHELTER – CCCM – HLP – CEE +





Which of the following can
be considered climate
smart?

DEFINING 'CLIMATE SMART'

Using climate information across timescales in designing, adjusting, and implementing programmes and operations. In doing so, programmes and operations ensure that, at a minimum, they do not place people at increased risk and that they anticipate in the future likely climate extremes and growing vulnerabilities

Short-term weather and seasonal forecasts
Long-term climate projections



→ *adapting to climate risks while minimising our own contribution to the problem*

Process first Product as a result

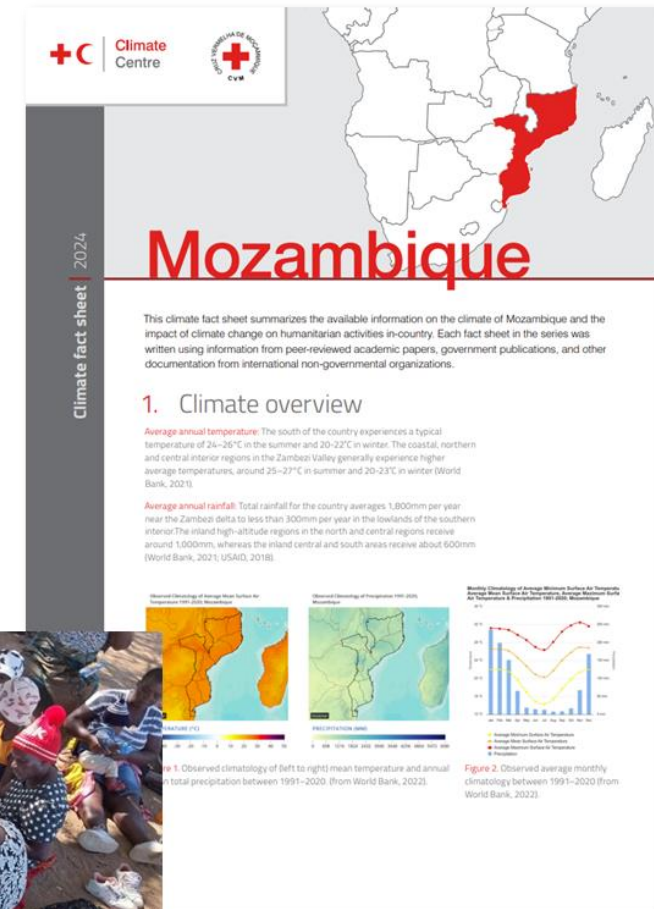
- Reflecting on how we can adapt existing shelter processes
- Shifting the emphasis away from shelter as merely a product defined by 'green' or 'climate' features
- Standardising critical ingredients such as incorporating climate risk information and platforming community knowledge, experience and adaptation



Climate Experience



Climate Science





CLIMATE SMART SHELTER

The Minimum Requirements

- All risks assessed** Climate-Smart Shelter should start with a multi-hazard, multi-sector risk assessment.
- Focused on adaptation** Climate-Smart Shelter should be an adaptation-focused process leading to climate-resilient Shelter and Settlement outcomes.
- Climate-risk informed** Climate-Smart Shelter should use best-available climate change information to inform Shelter and Settlement process, design and implementation.
- Community-led** Climate-Smart Shelter should be community-led, with meaningful involvement from those who best understand their local context and adaptation needs.
- Environmentally sustainable** Climate-Smart Shelter should minimize environmental damage, enhance environmental protection, and build resilience.

Minimum Requirements for Climate-Smart Shelter



This guidance sets out CARE's definition of Climate-Smart Shelter and summarises its minimum requirements. It was prepared for CARE country offices designing or implementing humanitarian Shelter projects and includes information for developing concept notes, project proposals and project implementation plans.

If you have any questions or would like help implementing Climate-Smart Shelter, contact the Global Shelter Team: emergencyshelter@careinternational.org

Overview

How is climate change relevant to CARE's Shelter programming?

Climate change is causing more pressure on already-vulnerable people and communities in crisis and disaster contexts. Climate change can even be one of the triggers of conflict and/or displacement. CARE recognises that displaced and disaster-affected communities are especially vulnerable to the impacts of climate change. Extreme heat and flooding, as well as storms, extreme cold and fires, are risks that impact not only people's shelters and settlements, but also their livelihoods, health and other aspects of their lives and, therefore, recovery. Women and girls are disproportionately impacted by disasters and crises, inadequate post-crisis living conditions, and the direct and indirect impacts of climate change, including on health. Preparedness, emergency response and early recovery activities should enable and support local communities to prepare for climate risks, adapt to climate change and build resilience, in alignment with [CARE's 2030 Vision](#) and CARE's [Shelter Strategy](#).

What is Climate-Smart Shelter programming?

Climate-smart humanitarian programming, as defined by IFRC, consists of:

Integrating available climate and weather information, both short-term weather and seasonal forecasts and long-term climate projections, in designing and/or adjusting all programmes and operations to ensure that, at a minimum, they do not place people at increased risk from new climate extremes and, if possible/appropriate, empower communities to anticipate, absorb and adapt to climate shocks and long-term changes. (IFRC, 2023)

For Shelter programming to be climate-smart it should integrate climate and weather information into the design and implementation of Shelter solutions whether it be at the emergency stage, during early recovery or longer term, so that communities are better placed to anticipate, absorb and adapt to climate shocks and long-term changes.

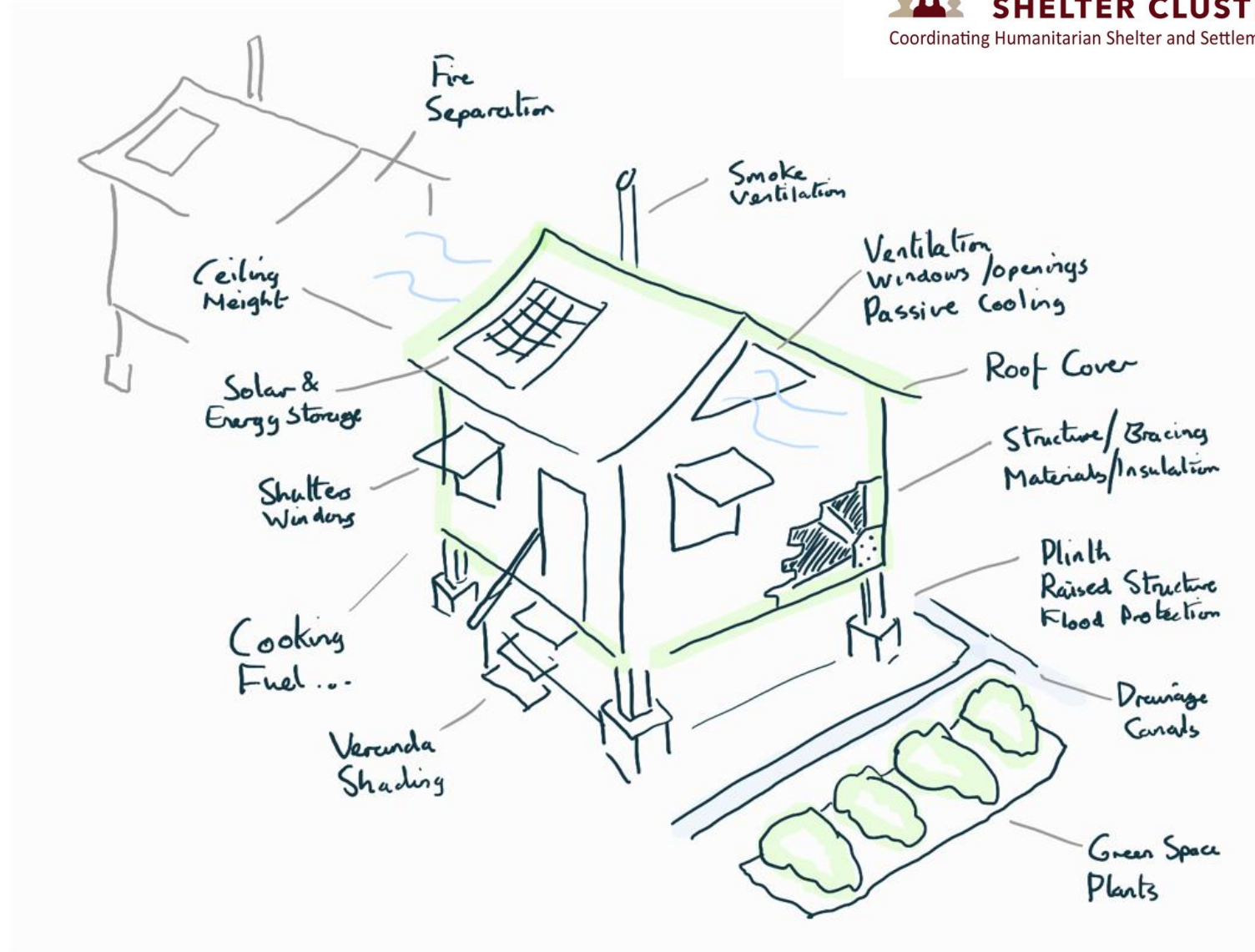
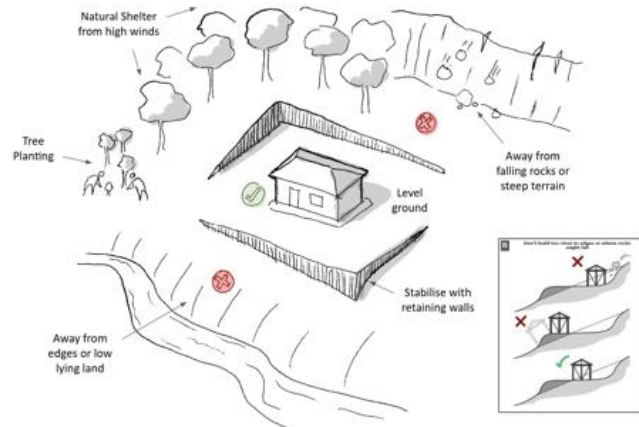
Aligning on a common understanding

- CARE had developed this first guidance to help those in the field writing proposals and designing projects
- **We want to work with the GSC and others to take this further**

Next Steps...

Menu of Options

- Catalogue the design elements that can result from a climate-smart process
- Equal focus on settlement level results as well as HH shelter design





GLOBAL
SHELTER CLUSTER

Coordinating Humanitarian Shelter and Settlements

CASE STUDIES

Locally Adapted Shelter Kits for Climate Resilience

Yodit Gutema, Ethiopia Shelter Cluster Coordinator (IOM)



AFAR'S CLIMATE, CULTURE, AND MOBILITY



Climate Vulnerability in Afar

- Afar faces recurrent and overlapping climate shocks including droughts, flash floods, strong winds, and extreme heat, that severely affect pastoralist livelihoods.
- Limited infrastructure, loss of grazing lands, and recurrent conflict-related displacement further increase vulnerability.
- Some zones experience both conflict and, drought or flooding within the same year, making it one of Ethiopia's most climate-stressed regions.

Pastoralist Lifestyle

- The Afar population is predominantly pastoralist, relying on mobility and livestock for survival.
- This mobile lifestyle shapes how people build and maintain shelters, prioritizing lightweight, portable, and well-ventilated structures that can be dismantled and moved when conditions change.

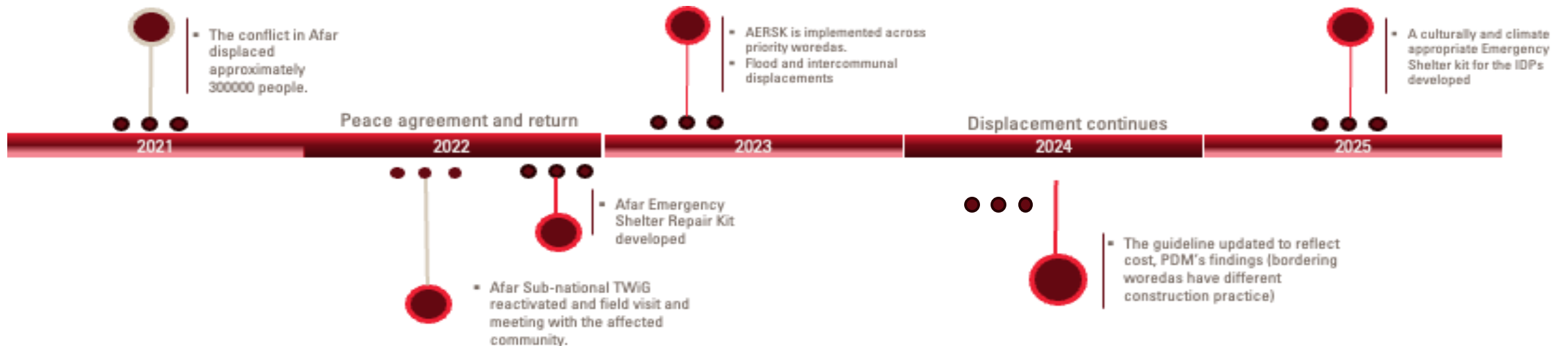
Traditional Dome-shaped Shelters

- Afar communities traditionally construct dome-shaped shelters using Halawa poles and Senan mats, renewable materials available locally.
- These shelters are naturally ventilated, cooler in extreme heat, and easy to rebuild after floods or relocation.

FROM CRISIS TO LOCALLY ADAPTED SHELTER SOLUTIONS IN AFAR



TIMELINE



Why the Revision Was Needed

- Standard shelter kits (CGIs, tarpaulins) were unsuitable for Afar's hot, arid climate — plastic sheeting trapped heat and deteriorated quickly under high temperatures.
- Communities expressed low acceptance of the standard designs and preferred traditional, breathable materials like *Halawa* poles and *Senan* mats.
- The kits did not adequately reflect mobility patterns or cultural shelter practices of Afar's pastoralist communities.

How the Revision Was Done

- Participatory Consultations: The Sub-National Cluster, partners, and communities conducted joint field visits to IDP sites, collecting feedback through focus group discussions, especially from women and elders.
- Technical Working Group (TWiG): review materials, local practices, and climate considerations, developing two adaptable shelter options (for flood-prone and dry areas).
- Prototype Testing: Demonstration shelters were built with community involvement to assess structural safety, comfort, and cultural fit.

FROM CRISIS TO LOCALLY ADAPTED SHELTER SOLUTIONS IN AFAR

OPERATIONAL CONSIDERATIONS



Self-Construction Approach

- Designed for self-build by households using familiar skills. Brief orientation or demonstration sessions ensure quality.
- Targeted support is provided for vulnerable groups



Community-Based Training

Practical training supports safe self-construction using halawa, mats, and tarpaulins, strengthening local skills, ownership, and reducing dependency on external labor through hands-on community engagement.



Flood Mitigation and Environmental Integration

Flood-area training promotes elevated site selection, drainage planning, and sustainable halawa sourcing, integrating environmental responsibility and strengthening household flood resilience.



Response Methodology

Shelter assistance can be delivered in-kind or through cash/voucher support, depending on market conditions and beneficiary preference.

Partners ensure transparency by sharing the full bill of materials and clear communication on selection and distribution.



Procurement and Supply Chain

- Procurement should follow seasonal production cycles to prevent overharvesting and market distortion.
- Plastic sheeting and ropes must meet minimum quality standards (UV resistance, durability).



Climate and Geographical Appropriateness

Shelter designs adapt to Afar's diverse conditions tarpaulin for floods, traditional for dry zones, and CGI for border areas ensuring climate-smart and culturally accepted solutions.

PROGRAM CONSIDERATIONS



Gender Consideration and Women's Leadership

- In Afar, women are the traditional shelter builders.
- The shelter response ensures that women receive shelter packages directly and lead construction, reinforcing cultural practices, dignity, and empowerment



Conflict Sensitivity and Coordination Considerations

Shelter interventions apply a conflict-sensitive approach, ensuring HLP issues are considered and responses are coordinated with local authorities.



Targeting

- Target assistance through transparent, community-led processes using clear vulnerability criteria.
- Ensure two-way communication, feedback, and monitoring to strengthen accountability and inclusion.



Inclusion and Accessibility

All households, including women, older persons, and persons with disabilities, have access to shelter support. Partners should build sample shelters for the most vulnerable unless conditions prevent it.



Resource Constraints

Limited funding reduced the reach and scale of the climate-adapted shelter response, leaving many vulnerable households without support.



Seasonal Material Availability

Core materials like Senan mats and Halawa poles became scarce during the dry season.



Market Supply Limitations

Local suppliers operated on a small scale, unable to meet the increased demand for traditional materials.



Adaptive Measures

Partners adjusted response modalities – combining in-kind and cash assistance – and engaged local cooperatives



Price Volatility and Logistics

Rising transport costs and inflation caused fluctuations in material prices, complicating procurement and delivery timelines.

LESSONS LEARNED: ADVANTAGES AND DISADVANTAGES OF THE CLIMATE-ADAPTED SHELTER APPROACH

ADVANTAGES

- Builds on traditional Afar knowledge and cultural design.
- Provides better thermal comfort and ventilation in extreme heat.
- Reduces plastic use and environmental footprint.
- Strengthens community ownership through self-construction and training.
- Promotes local livelihoods by sourcing materials from local cooperatives.
- Enhances flexibility, shelters can be dismantled and moved with pastoral mobility.



LIMITATIONS

- Seasonal scarcity of key materials (Halawa poles, Senan mats).
- Limited durability in areas with high rainfall or flooding.
- Dependence on local production restricts large-scale rollout.
- Some areas lack capacity for full self-construction without partner support.
- Risk of overuse or depletion of natural resources if harvesting is not managed sustainably.
- Higher unit costs due to small-scale local production and transport.

KEY RECOMMENDATIONS AND NEXT STEPS



1

Build on Afar Model

Continue promoting climate-appropriate, culturally accepted solutions to other regions.

2

Refine and Expand Technical Design

Apply Afar's shelter learnings to other contexts — for example, Benishangul now adapts the model using bamboo and grass.

3

Systematic Integration

Institutionalize capacity building on Protection, GBV risk mitigation, and environmental screening (NEAT+).

4

Scale with Caution

Scaling remains dependent on resource availability and market capacity; the model requires significant contextual adaptation for other regions.

5

Building on Environmental Assessments and Profile Findings

Build on the findings of the Cluster response's impact on the environment and the environmental profile recommendations to strengthen sustainable shelter planning and implementation.



Passive Solar Housing in Afghanistan: Harnessing Solar Energy for Greener Shelter

Bea Varnai, Project Manager Climate-resilient Housing & Economic Development, Geres

Risks and Issues

- Afghanistan faces extreme winters, hot summers, and recurrent droughts.
- Most households heat with unsustainably harvested wood and bush or with coal, dung... - up to 4 or 5mT/year/household
- Protracted crisis for decades, undermining environmental development efforts

Consequences

- Widespread deforestation (70% loss of eastern forestlands) and land degradation
- Severe outdoor and indoor air pollution and health risks
- Kabul ranked among the world's most polluted capitals in winter.

A major asset

Afghanistan enjoys over 300 sunny days per year, even in winter



THE INNOVATION/ PASSIVE SOLAR HOUSING

Objective

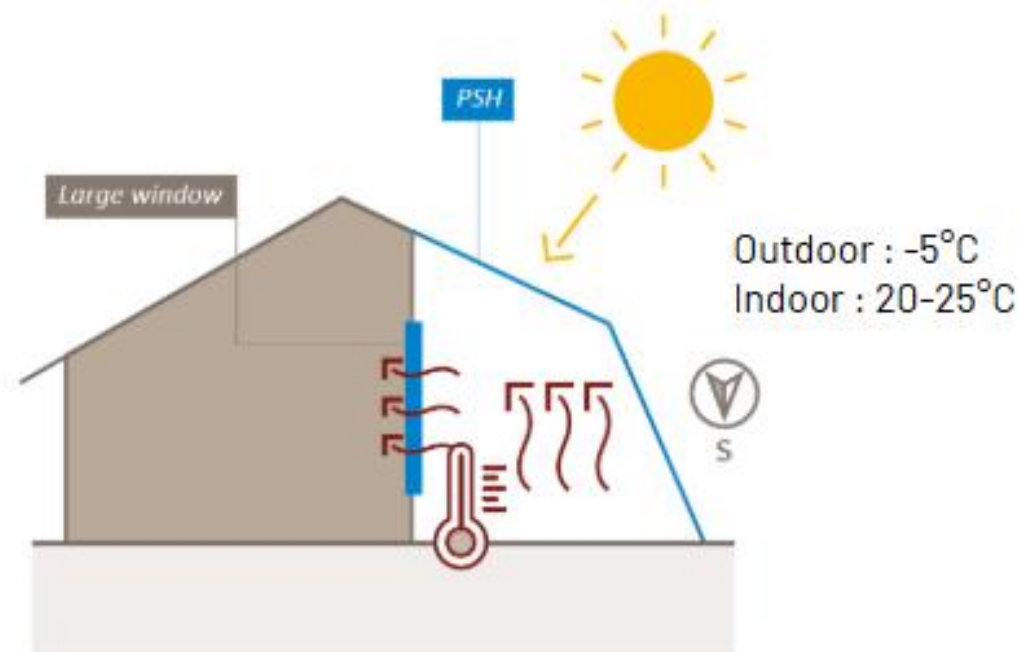
To improve living conditions by promoting solar-based, energy-efficient housing that reduces fuel use, curbs deforestation, lowers emissions, and improves health.

The concept

- Attached south-facing verandas ("gulkhona" or sun houses) to homes, capturing solar heat in winter.
- Constructed with simple, locally available materials such as wood or metal beams and plastic sheeting, the veranda concentrated solar radiation during the day and released heat slowly at night, thanks to the thermal mass of traditional adobe or brick walls.



PSH heating principle in winter



Impacts

- Reduces fuel consumption by up to 40% per household.
- Estimated 1.3 tonnes CO2 avoided annually per unit.
- Improves indoor comfort (cold, humidity, smoke)
- Provides additional, bright and warm space indoor during winter

Development

- Based on already known concept (bioclimatic construction, greenhouse effect)
- Iterative R&D cycles, involving feedback with craftsmen and households
- Developing a wide range of models catering for different situations and financial capacities



Dissemination

- Training of craftsmen for proper set-up
- Large scale awareness raising campaigns
- Visits to demonstration sites on community building (health posts, mosques...)
- Subsidies and micro-loans

Trade-off & challenges

- Household financial capacity limited uptake
- Technical requirements (south orientation, space) excluded some households or was not sufficiently understood in self-replication
- Provision of UV-resistant plastic-sheeting (import)
- Removing and reinstalling plastic sheeting after and before winter can prove challenging
- Short lifespan of plastic sheeting (average three years), limited recycling options
- Donor awareness and understanding of energy efficiency in housing was low
- Political instability disrupted operations after 2021

The little +

During the warmer months, when plastic sheeting has to be removed, shading can be installed on the top of the structure to protect from the sun.

PSH is an excellent means to introduce other energy saving solutions, such as insulation, double-glazing, energy-efficient heating and cooking stoves....





Results 2003-2021

- 6,000+ subsidised Passive Solar Housing (PSH) units built.
- 10,000+ (and counting) households self-replicated PSH design
- Over 500 craftsmen trained and engaged in construction.
- 500,000+ people reached by awareness campaigns.
- Average cost per unit: €285

Key lessons

- Iterative R&D is critical for adaptation and uptake.
- Demonstration units drive awareness and replication.
- Behavioural change (energy management) complements technical solutions.
- Waste management and lifecycle elements must be integrated for disposal of used plastic sheeting.
- Access to finance determines scalability.





Women's Voices Driving Innovation: From Heat & Ventilation Research to Prototype Development

Farooq Rahman, WASH Senior Programme Manager, CARE Bangladesh



Climate risk context

- Largest Refugee camp in the world (> 1.1 million)
- High levels of vulnerability – climate related hazards, socioeconomic, livelihoods, protection and other aspects
- High heat and rapid onset flooding seen as the predominant climate risks
- **Lack of women's participation and perspectives in shelter design**

Action research

A research project centering women and girl's experiences and recommendations around shelter and the home through creative research practices:

- Workshops using arts-based methods
- Informal group discussions
- Community based photographers
- A community survey carried out over 400 households

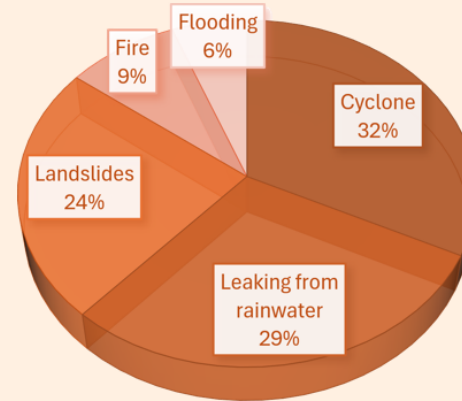
Women highlighted the need for housing solutions that are adapted to increasingly dangerous weather events and extreme temperatures



Hazards, climate and adaptation

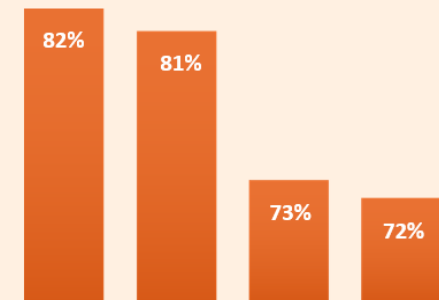
- Climate and Hazards were extensively discussed in all the workshops held with women and girls
- The Women were interested in discussing technical matters including:
 - Concrete footing to prevent flooding
 - Raising the roof to improve ventilation
 - Slope stabilization
 - Retaining walls
 - Durable materials
 - Geo bags

Distribution of experienced hazards



% of hazard exposure reported by respondents relative to total reported (N 378)

Most frequently reported shelter interior concerns



% of respondents (N 400) who reported each item as a concern

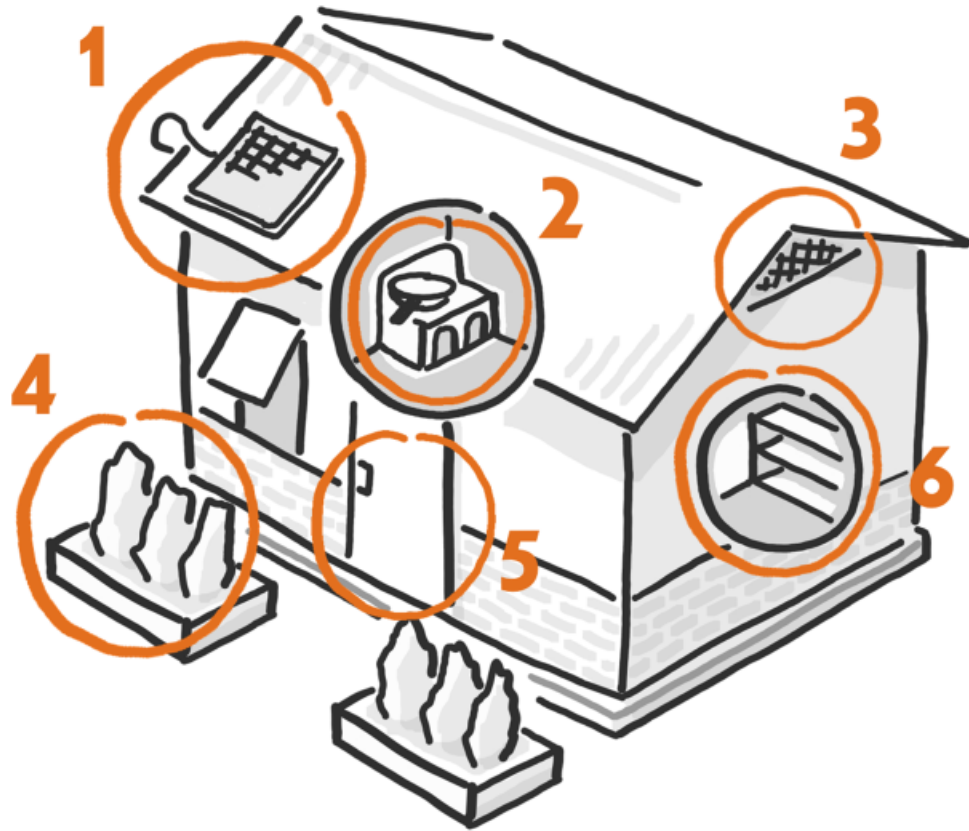


60% of HH experienced 1 or more significant hazards



Average HH size
6 people per HH

Women's priority shelter Recommendations



1 SOLAR AND LIGHTING

'The smaller things like the lights and fan will make the biggest difference right now.'

Recommendation: increase solar panels and adding in more lights and fans to improve comfort inside the shelter

2 STOVE AND KITCHEN AREA

Women fed back that they lacked dedicated kitchen space to cook.

Recommendation: place kitchens near ventilation points and design a dedicated kitchen area for women to use

3 IMPROVED VENTILATION

72% fed back that the shelter had poor ventilation:

'it is so hot inside that it is hard to breath, the men can roam around the camp but we are stuck inside'

Recommendation: improve ventilation by increasing ventilation points under the roof

4 HOMESTEAD GARDEN

Adolescent girls fed back:

'We would love more plants and flowers to make the shelters feel beautiful, it would make us happy'

Women also fed back that they wanted more green space to grow vegetables.

Recommendation: integrate a small garden into the shelter design to improve well-being and food security of women and girls

5 ENHANCED SECURITY

Women and girls do not feel safe outside their shelters due to violence in the camp, and often are worried their shelters are not secure enough

Recommendation: replace current doors with sturdier material and strengthen the locks

6 SHELVING AND PARTITIONS

Three quarters of women surveyed said they lacked privacy in their shelter. Women also felt they had nowhere to store their belonging contributing to a lack of space.

Recommendation: integrate soundproof partitions in the shelters for privacy and add in storage solutions like shelves

Key lessons

- Women understand shelters, experience climate change and have knowledge of vernacular adaptation better than many of us
- They can have rich insight into the technical and social aspects of shelter design and want to be more involved
- This can combine research and community engagement with technical design and physical prototype construction
- **We need to do more to engage with women's voices and leadership in shelter design and climate change adaptation**

WOMEN'S SHELTER PRIORITIES

Action Research for Bangladesh

A research project centering women and girl's experiences and recommendations through creative research practices:

- Workshops using arts-based methods
- Informal group discussions
- Community based photographers
- A community survey carried out over 400 households

Distribution of experienced hazards

Most frequently reported shelter interior concerns

"The lack of private space in our shelter is not dignified and makes me feel mentally unstable"

"We would love to decorate and make our shelters beautiful, so they feel like home!"

SHELTER RECOMMENDATIONS

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care

Advocacy poster to promote women's perspectives and shelter design recommendations



BREAKOUT DISCUSSIONS

1. What's the hardest trade-off you face in trying to make shelter more climate-smart?
2. How have you worked around or balanced these trade-offs in practice?
3. What tools, standards, or support would help scale climate-smart shelter in your context?



Afghan veranda in summer with reeds for shading Credit: Geres

INSIGHT SHARING

1. What's the hardest trade-off you face in trying to make shelter more climate-smart?
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What action will you take as a response to today's webinar?

WHAT'S NEXT?

1. **GSC to share resources** (Key webinar takeaways; Green Shelter Case studies; CARE Minimum Requirements)
2. **Join upcoming webinars:**
 - French (21 October) and Spanish (18 November)
 - Recovery COP webinar on Shelter and Health (28 Oct)
3. **Join the 3 COPs and the Heat WG!**
4. Collaborate with CARE on moving forward with the **Minimum Requirements for Climate-Smart Shelter**



GSC COPs



HEAT WG

ENVIRONMENT – RECOVERY - TECHNICAL Community of Practice



GLOBAL
SHELTER CLUSTER

Coordinating Humanitarian Shelter and Settlements

THANK YOU!



Schweizerische Eidgenossenschaft
Confédération suisse
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Confederaziun svizra

**Swiss Agency for Development
and Cooperation SDC**