Green Modular Warehousing for Humanitarian Supply Chains

A Finnish-UNHCR Collaboration Opportunity with Finnpartnership

Chad, UNHCR MSU warehouse in Ouaddaï province .

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IN BRIEF

Current humanitarian warehousing often depends on imported, short-lifespan structures that generate high carbon footprints and miss opportunities for local economic participation.
presents a concrete **challenge and collaboration opportunity** to Finnish companies, NGOs, and educational institutions interested in applying for **Finnpartnership funding** for partnering up with UNHCR in impactful projects.

The objective is to invite qualified organizations to propose **innovative, sustainable, and modular warehousing solutions** that respond to real operational gaps in humanitarian supply chains and could be piloted in projects funded with Finnpartnership's Business Partnership Support financing instrument.

The modular warehouses will be adaptable to different climates, terrains, and operational needs, ensuring rapid deployment in emergency and stabilization contexts.
Successful pilots will serve as scalable reference models, informing broader adoption of environmentally responsible, locally managed infrastructure across humanitarian operations.

The Challenge: Humanitarian Warehousing under Pressure

UNHCR manages one of the world's largest humanitarian supply networks, supporting emergency operations in more than 70 countries. Warehousing is central to this system — ensuring the rapid delivery of relief items to displaced populations. However, many current warehouse structures are **temporary, imported, and carbon-intensive**, with limited local value creation.

Humanitarian operations globally—and particularly in fragile, displacement affected contexts such as Chad—are increasingly constrained by structural weaknesses in logistics and infrastructure. Warehousing, a critical backbone of humanitarian supply chains, is under particular strain.

Operations in Chad illustrate these pressures clearly. The country faces rising humanitarian needs driven by regional conflict spillover (notably from Sudan), largescale refugee and Internally Displaced Person (IDP) movements, recurrent flooding, food insecurity, and climate stress. Humanitarian supply chains depend heavily on the **Douala–N'Djamena–Abéché (DNA) corridor**, a long and delay prone route characterized by extended transit times, border clearance delays, and vulnerability to disruption.

Within the country, warehousing capacity remains **fragmented, limited in scale, and largely temporary**. Humanitarian actors rely on a combination of mobile storage units, ad hoc facilities operated by NGOs, and limited private logistics services. While functional in emergency conditions, this system offers little durability, scalability, or resilience in the face of fluctuating caseloads, sudden influxes, or regional spillover operations.

At the same time, urban centers—particularly **N'Djamena**—face acute environmental and infrastructure challenges. Waste collection and management systems are severely under resourced, leading to widespread open dumping and burning, blocked drainage channels, heightened flood risk, and public health impacts. These pressures are exacerbated by population growth and displacement, including in eastern regions hosting refugees.

These parallel challenges—**fragile logistics infrastructure and chronic waste management gaps**—create a compelling case for alternative warehousing approaches that

are not only operationally effective, but also environmentally sustainable and locally embedded.

Reference Context: Existing Humanitarian Warehouse Structures

As a point of reference, UNHCR and the wider humanitarian community currently rely primarily on **Mobile Storage Units**[1] **(MSUs)** as the standard temporary warehousing solution.

The most commonly used configurations include:

- **MSU 10 × 24 m – PVC single cover**
- **MSU 10 × 32 m – PVC single cover**

These structures provide rapid deployability and flexibility but have inherent limitations in terms of durability, environmental performance, and local value creation. Proposed solutions under this challenge are expected to be **compatible with humanitarian operational standards**, while offering improved sustainability, lifespan, adaptability, and potential for local manufacturing or assembly.

The Opportunity: Green, Modular and Circular Warehousing

UNHCR is seeking collaboration with Finnish partners to **design, pilot, and test green, modular warehousing systems** that respond directly to the operational and environmental constraints described above.

The proposed approach goes beyond conventional temporary storage solutions by integrating:

- **Modular construction principles**, enabling rapid deployment, reconfiguration, relocation, and scaling according to operational needs;
- **Circular economy approaches**, including the use of recycled, reclaimed, or locally available materials, and the recovery of value from waste streams;
- **Local production and assembly models**, reducing dependence on imported structures and lowering transport related emissions;
- **Local economic participation**, through engagement of local entrepreneurs, artisans, forcibly displaced and host communities labor for construction, assembly, maintenance, or rental models.

Warehousing units developed under this challenge are expected to meet humanitarian operational requirements—such as ventilation, security, pest control, and adaptability to different commodities—while offering improved durability, environmental performance, and lifecycle value compared to standard temporary structures.

A pilot implementation in Chad would allow Finnish companies to validate technologies, materials, and business models in a real humanitarian operating environment. Successful pilots would generate **scalable reference models** that could be replicated across UNHCR operations and, potentially, by other humanitarian actors in similar contexts across the Sahel and beyond.

Expected Outcome

Through this challenge, UNHCR and Finnish partners aim to achieve:

- Operational pilot warehouses built and functioning in humanitarian logistics hubs;
- Improved resilience and flexibility of humanitarian supply chains in fragile contexts;

[1] For reference, NRSRelief Mobile Storage Units

- Reduced environmental footprint compared to conventional imported MSUs, including lower material and transport emissions;
- Demonstrated use of circular materials and waste recovery approaches where feasible;
- Tested local business and entrepreneurship models (e.g. build and rent, local assembly);
- Strengthened local skills and livelihoods linked to humanitarian infrastructure;
- A documented, scalable blueprint for sustainable humanitarian warehousing applicable across multiple regions.

Finnpartnership Funding

This opportunity is well aligned with the objectives of **Finnpartnership's Business Partnership Support (BPS)** grant programme, funded by the Ministry for Foreign Affairs of Finland. The following Finnpartnership project types particularly support collaboration between Finnish organizations and UNHCR:

- **ODA Piloting**: enabling companies to test innovative solutions, technologies, or business models in ODA-eligible countries in cooperation with international organizations such as UNHCR.
- **Innovation Funding**: supporting the development and adaptation of new or significantly improved solutions with strong development impact and commercial potential, in partnership with local organizations.
- **Support Function:** provides NGOs and educational institutions with a relevant pathway to contribute to business projects. The activities focus on capacity building, research, training, or knowledge development linked to the pilot, and are executed in conjunction with companies.

Organizations that **UNHCR considers suitable for collaboration within the context of this challenge** may apply for a Finnpartnership grant to support the implementation of the pilot project.

Who Should Apply

This challenge is open to a range of **Finnish organizations** whose capabilities align with sustainable construction, modular systems, circular economy solutions, and humanitarian or development contexts.

Individual Finnish companies

Finnish companies of different sizes are encouraged to engage, especially those that:

- Develop modular construction systems, prefabrication technologies, or lightweight structural solutions;
- Work with recycled materials, bio-based materials, or circular production processes;
- Offer innovative construction methods, components, or services that can be adapted to low resource or fragile settings;
- Seek pilot and validate solutions in new markets with strong development impact and long-term commercial potential.

Finnpartnership ODA Piloting and Innovation Funding project types provide an opportunity to test concepts in partnership with UNHCR while mitigating early-stage market and operational risks.

Consortia

Finnish organizations may also offer solutions as consortia, who additionally:

- Adapt jointly developed modular, industrial, or circular construction solutions to humanitarian standards and contexts;
- Provide scalable manufacturing, engineering, or systems integration capabilities;
- Partner with other companies, NGOs, or research institutions to combine innovation with implementation capacity;
- Explore collaborative longer-term engagement in humanitarian or development markets.

Organizations within consortia propose their solution to UNHCR collectively but apply for Finnpartnership funding individually.

NGOs and Educational Institutions
Finnish NGOs, universities, and research institutions may engage particularly through Finnpartnership Support Function project type, contributing expertise to business projects in areas such as:

- Research and development;
- Training, skills transfer, and capacity building;
- Monitoring, evaluation, and learning;
- Social, environmental, or livelihood impact assessment.

Actors applying for Finnpartnership Support Function grant participate as partners contributing to business projects (e.g., ODA Piloting and Innovation Funding).

How to Engage

Are you ready to make an impact?

Finnish organizations interested in collaborating with UNHCR are invited to sign up for an **exclusive webinar** hosted by Finnpartnership and UNHCR. This is your opportunity to learn more about the challenge, showcase your organization, and present your unique solutions.

Following the webinar, you'll have the chance to submit your offering directly to UNHCR, who will evaluate and select the most suitable solutions for collaboration. Those selected will then be eligible to apply for Finnpartnership funding to help support their partnership with UNHCR.

SIGN UP HERE

Please also see the page below for the timeline of the activities.

Timeline

Period	Milestone
March 2026	Webinar introducing humanitarian logistics challenges to Finnish innovators.
April 2026	Deadline for company pitches and qualification of suitable solutions by UNHCR.
Q2/26	Initial design phase and formalities between chosen companies and UNHCR, submission of Finnpartnership application.
Q3-Q4/26	Further design and pilot preparations between companies and UNHCR.
Q3-Q4/26	Grant decisions from Finnpartnership (3 to 5 months from application date).
Q4/26-Q1/27	Pilot construction and testing in field locations.
Early 2027	Assessment of model's feasibility and carbon impact, evaluation, documentation, and scale-up planning.

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