



KEY FINDINGS THE INCREMENTAL PROCESS WORKS



The *Structure* approach offers **low-cost**, transitional tentage for forcibly displaced people, capable of lasting the **duration of displacement** through upgrading with local materials. Its modular metal framework can be deployed with a tarpaulin cover and serve as an **emergency shelter** in the immediate aftermath of a disaster or conflict.

Over time, as communities and markets recover, *Structure* can be upgraded with **local materials** by humanitarian actors, local government and civil society, and/or residents themselves. In this way, *Structure* enables **incremental upgrading** and can be adapted to different **climates** and **contexts**, building **traditions** and **cultural** norms.

The frame is a proven design with over 60,000 units deployed, as the Refugee Housing Unit, which includes additional composite panels that can also be added at any time to *Structure* shelters. Made from steel, the frame lasts for ten years and can be reused, repurposed and recycled. Equally, the tarpaulin and local materials used in the *Structure* approach can, if carefully selected, be **re-used** in **repair** and **reconstruction**, thereby constituting '**transitional tents**'. The *Structure* approach considers sheltering as an incremental process, offering inhabitants the maximum control and flexibility, as well as minimizing both costs and environmental impacts, as all materials used in the emergency shelter have follow-on uses or value.

KEY FINDINGS COMMUNITY INVOLVEMENT



- Easy to deliver, distribute and build.
- Comprehensive assembly manuals and a training of trainer approach involves the community to build, take ownership and maintain the structures.
- The decision how to construct durable shelter must not be taken during the emergency phase.
- Communities can and should be involved in all phases of the shelter response.

Upgrading structure with local material										Detailed BOQ-Technical									
Country		India		State		Kerala		Date of Issue:		Country		India		State		Kerala		Date of Issue:	
City		Kerala		Supervisor				Currency		City		Kerala		Supervisor				Currency	
Organization name		SEEDS		Organization name		SEEDS		Currency		Organization name		SEEDS		Currency		SEEDS		Currency	
Project name		Upgrading structure with local material		Project name		Upgrading structure with local material		Currency		Project name		Upgrading structure with local material		Currency		Upgrading structure with local material		Currency	
Project location				Project location				Currency		Project location				Currency		Project location		Currency	
Project start date				Project start date				Currency		Project start date				Currency		Project start date		Currency	
Project end date				Project end date				Currency		Project end date				Currency		Project end date		Currency	
Project budget				Project budget				Currency		Project budget				Currency		Project budget		Currency	
Project status				Project status				Currency		Project status				Currency		Project status		Currency	
Project description				Project description				Currency		Project description				Currency		Project description		Currency	
Project details				Project details				Currency		Project details				Currency		Project details		Currency	
Project components				Project components				Currency		Project components				Currency		Project components		Currency	
Project materials				Project materials				Currency		Project materials				Currency		Project materials		Currency	
Project labor				Project labor				Currency		Project labor				Currency		Project labor		Currency	
Project equipment				Project equipment				Currency		Project equipment				Currency		Project equipment		Currency	
Project other resources				Project other resources				Currency		Project other resources				Currency		Project other resources		Currency	
Project notes				Project notes				Currency		Project notes				Currency		Project notes		Currency	
Project attachments				Project attachments				Currency		Project attachments				Currency		Project attachments		Currency	
Project references				Project references				Currency		Project references				Currency		Project references		Currency	
Project contact information				Project contact information				Currency		Project contact information				Currency		Project contact information		Currency	
Project approval				Project approval				Currency		Project approval				Currency		Project approval		Currency	
Project signature				Project signature				Currency		Project signature				Currency		Project signature		Currency	
Project stamp				Project stamp				Currency		Project stamp				Currency		Project stamp		Currency	
Project date				Project date				Currency		Project date				Currency		Project date		Currency	
Project version				Project version				Currency		Project version				Currency		Project version		Currency	
Project revision				Project revision				Currency		Project revision				Currency		Project revision		Currency	
Project comments				Project comments				Currency		Project comments				Currency		Project comments		Currency	
Project total				Project total				Currency		Project total				Currency		Project total		Currency	
Project subtotal				Project subtotal				Currency		Project subtotal				Currency		Project subtotal		Currency	
Project grand total				Project grand total				Currency		Project grand total				Currency		Project grand total		Currency	

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Sl. No.	Item Name	Description	Length	Width	Thickness	Quantity and Unit
1	Roofing	4000	60	40	20mm	
2	Roofing	2000	60	40	20mm	
3	Roofing	2000	60	40	20mm	
4	Roofing	2000	60	40	20mm	
5	Roofing	2000	60	40	20mm	
6	Roofing	2000	60	40	20mm	
7	Roofing	2000	60	40	20mm	
8	Roofing	2000	60	40	20mm	
9	Roofing	2000	60	40	20mm	
10	Roofing	2000	60	40	20mm	
11	Roofing	2000	60	40	20mm	
12	Roofing	2000	60	40	20mm	
13	Roofing	2000	60	40	20mm	
14	Roofing	2000	60	40	20mm	
15	Roofing	2000	60	40	20mm	
16	Roofing	2000	60	40	20mm	
17	Roofing	2000	60	40	20mm	
18	Roofing	2000	60	40	20mm	
19	Roofing	2000	60	40	20mm	
20	Roofing	2000	60	40	20mm	
21	Roofing	2000	60	40	20mm	
22	Roofing	2000	60	40	20mm	
23	Roofing	2000	60	40	20mm	
24	Roofing	2000	60	40	20mm	
25	Roofing	2000	60	40	20mm	
26	Roofing	2000	60	40	20mm	
27	Roofing	2000	60	40	20mm	
28	Roofing	2000	60	40	20mm	
29	Roofing	2000	60	40	20mm	
30	Roofing	2000	60	40	20mm	
31	Roofing	2000	60	40	20mm	
32	Roofing	2000	60	40	20mm	
33	Roofing	2000	60	40	20mm	
34	Roofing	2000	60	40	20mm	
35	Roofing	2000	60	40	20mm	
36	Roofing	2000	60	40	20mm	
37	Roofing	2000	60	40	20mm	
38	Roofing	2000	60	40	20mm	
39	Roofing	2000	60	40	20mm	
40	Roofing	2000	60	40	20mm	
41	Roofing	2000	60	40	20mm	
42	Roofing	2000	60	40	20mm	
43	Roofing	2000	60	40	20mm	
44	Roofing	2000	60	40	20mm	
45	Roofing	2000	60	40	20mm	
46	Roofing	2000	60	40	20mm	
47	Roofing	2000	60	40	20mm	
48	Roofing	2000	60	40	20mm	
49	Roofing	2000	60	40	20mm	
50	Roofing	2000	60	40	20mm	
51	Roofing	2000	60	40	20mm	
52	Roofing	2000	60	40	20mm	
53	Roofing	2000	60	40	20mm	
54	Roofing	2000	60	40	20mm	
55	Roofing	2000	60	40	20mm	
56	Roofing	2000	60	40	20mm	
57	Roofing	2000	60	40	20mm	
58	Roofing	2000	60	40	20mm	
59	Roofing	2000	60	40	20mm	
60	Roofing	2000	60	40	20mm	
61	Roofing	2000	60	40	20mm	
62	Roofing	2000	60	40	20mm	
63	Roofing	2000	60	40	20mm	
64	Roofing	2000	60	40	20mm	
65	Roofing	2000	60	40	20mm	
66	Roofing	2000	60	40	20mm	
67	Roofing	2000	60	40	20mm	
68	Roofing	2000	60	40	20mm	
69	Roofing	2000	60	40	20mm	
70	Roofing	2000	60	40	20mm	
71	Roofing	2000	60	40	20mm	
72	Roofing	2000	60	40	20mm	
73	Roofing	2000	60	40	20mm	
74	Roofing	2000	60	40	20mm	
75	Roofing	2000	60	40	20mm	
76	Roofing	2000	60	40	20mm	
77	Roofing	2000	60	40	20mm	
78	Roofing	2000	60	40	20mm	
79	Roofing	2000	60	40	20mm	
80	Roofing	2000	60	40	20mm	
81	Roofing	2000	60	40	20mm	
82	Roofing	2000	60	40	20mm	
83	Roofing	2000	60	40	20mm	
84	Roofing	2000	60	40	20mm	
85	Roofing	2000	60	40	20mm	
86	Roofing	2000	60	40	20mm	
87	Roofing	2000	60	40	20mm	
88	Roofing	2000	60	40	20mm	
89	Roofing	2000	60	40	20mm	
90	Roofing	2000	60	40	20mm	
91	Roofing	2000	60	40	20mm	
92	Roofing	2000	60	40	20mm	
93	Roofing	2000	60	40	20mm	
94	Roofing	2000	60	40	20mm	
95	Roofing	2000	60	40	20mm	
96	Roofing	2000	60	40	20mm	
97	Roofing	2000	60	40	20mm	
98	Roofing	2000	60	40	20mm	
99	Roofing	2000	60	40	20mm	
100	Roofing	2000	60	40	20mm	

Total costs for materials:
In the given description only necessary active materials to be used in given with their links

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date:
Project budget:
Project status:
Project description:
Project details:
Project components:
Project materials:
Project labor:
Project equipment:
Project other resources:
Project notes:
Project attachments:
Project references:
Project contact information:
Project approval:
Project signature:
Project stamp:
Project date:
Project version:
Project revision:
Project comments:
Project total:
Project subtotal:
Project grand total:

Upgrading structure with local material

Country: India
City: Kerala
Organization name: SEEDS

Date of Issue:
Supervisor:
Currency:

Project name: Upgrading structure with local material
Project location:
Project start date:
Project end date

KEY FINDINGS PROGRAMMATIC DIFFERENCES



- Low weight to volume ratio it is suitable both for emergency fly in and for stock piling.
- Tarpaulin based on universal humanitarian standards can be used for emergency cladding, procured both locally or globally.
- Suitable to stockpile both Structure and upgrading materials
- Decisions on materials to use can be done later together with the community.
- Structure can be implemented at scale both by implementing partners or by community driven approaches.
- The use of the emergency solution later in the recovery phase is the main benefit of the Structure approach.
- The modularity and flexibility of structure makes it suitable not only for shelter but also for other infrastructure.

KEY FINDINGS THE NEED FOR GUIDANCE AND FRAMEWORKS



- Better Shelter will focus more on providing guidance and support
- Structure has been evaluated by Shelter Center for Sphere Coherence and Design Evaluation both on tarpaulin use for emergency and local materials for recovery.
- BoQs for various claddings should (and are) being collected to share within the community.
- Building guidelines that can be distributed to beneficiaries both to build but also to perform maintenance.
- Selection of materials and techniques should be made on possibility for affected communities to independently perform maintenance and repair, to allow for longer lifespan.
- Further evaluations of reuse, repurpose and recycle measures should be done.
- Joint R&D between Better Shelter and various organizations both on HQ and field level has proven very successful.

KEY FINDINGS EXTENDED WITH WASH AND COOKING



- Structure should allow for upgrade with WASH and Cooking areas.
- The modular frame of Structure works well to extend at later stages.
- Pilots are planned in NW-Syria to evaluate WASH and Cooking extensions
- The combination of different materials and the use of space can be explored further to achieve a more durable shelter with more dignity and privacy.
- The modularity can also work well to adapt the shelter for PWSN.

NEXT STEPS CONTINUOUS DEVELOPMENT

- Continuation of small scale pilots for new partners.
Geographical, **operational** and **organisation** fit
- Pilot at Scale (**100-1000 units**). What are implications going from 15 to 150 or 1000 units?
- **Collaboration** platform online for guidelines, BOQ and materials to **share knowledge** in the community



Want to get involved, let us know!

INTERESTED IN PILOTING STRUCTURE **CONTACT US**



David Karpathakis Thalén

Head of Product Development

david.thalen@bettershelter.org

+46733802435



Tim de Haas

Head of Technology

tim.dehaas@bettershelter.org

+46702991824



Office

Better Shelter RHU AB, Telefonvägen 30, 11th floor 126 26,
Hägersten, Sweden



Phone

+46 (0)8 40 92 50 10



Website

www.bettershelter.org

www.createstructure.org



E-mail

info@bettershelter.org



| Bettershelter