



SHELTER DESIGNS - MOZAMBIQUE



CATALOGUE OF THE DIFFERENT SHELTER SOLUTIONS IMPLEMENTED BY SHELTER CLUSTER PARTNERS IN MOZAMBIQUE

SHELTER DESIGNS

Mozambique Shelter Cluster
www.sheltercluster.org

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The multiple needs of affected families in terms of safety, privacy, protection and livelihood must be assisted through approaches that are appropriate to the specific context and the availability of resources.

Humanitarian actors use a range of methods to provide support to affected people. These methods include the provision of basic materials for shelter construction, technical support, cash assistance, sensitization and promotion of safe shelter construction and installation of shelter practices, or a combination of these and other approaches involving construction.

The aim of shelter assistance programmes is to support affected families and their communities in their pathway to recovery towards safe, adequate, and appropriate shelter, prioritizing the most vulnerable and looking to ensure participation. Basic services and dignified living condition are integral part of safe and adequate shelter.

EMERGENCY SHELTERS

Emergency shelter can be defined as the short term/temporary shelter that provides **lifesaving support**, the most basic shelter support that can be provided before, during or **immediately after a disaster/conflict** (Humanitarian Shelter Guidelines, Version 2, 2018).

Type of sites: Temporary sites, relocation sites, newly displaced families and newly returning families.

Summary of key criteria:

ID	4,5	6	7	9	10a	10b	12	15
Life span	3 to 6 months	3 to 6 months	3 to 6 months	3 to 6 months	1 to 2 years	1 to 2 years	3 to 6 months	1 to 3 months
Setup time	3 to 5 days	1 to 2 days	1 to 2 days	1 to 2 days	5 to 15 days	5 to 15 days	1 to 2 days	1 to 2 days
Area	15 sqm	10.36 sqm	8 sqm	9 sqm	18		8 sqm	22 sqm
Habitability	3m pp for 5 persons	3.4 m per person for 3	2.6 m for 3	3			4 m pp	4.8 m2 pp
Material cost	300	77	90	52	360	660	43.3	139
Labor Cost	50	N/A	10	10	62	76	5	24

EMERGENCY SHELTERS



Province(s):
Cabo Delgado, Nampula, Manica, Sofala

District(s):
Metuge, Ancuabe, Chiure, Ibo, Quissanga, Corrane, Buzi, Dondo, Marromeu, etc.

Context/Trigger of response

- ☒ Conflict
- ☒ Cyclone
- ☒ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent House

Type of site

- ☒ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The construction of emergency shelters follows a community-led approach, ensuring active participation from both the IDP and host communities, as well as local authorities. Local artisans, including both women and men, are trained in Build Back Safer (BBS) construction techniques and receive continuous guidance throughout the building process to ensure proper application of these methods. Depending on the shelter's design, materials are either sourced locally or brought into the community, including items like nails fixtures, tools, etc., all in adherence to strict environmental procedures.

Community Engagement/ Participation

The beneficiaries participate in all the construction process which foster a sense of ownership and responsibility, leading to better maintenance and longevity of the shelters.

Environmental Consideration

When using local materials, we minimize the environmental impact associated with transportation and supports sustainable resource management. Local materials and techniques can be adapted to suit specific environmental conditions, making the shelters more resilient to local weather patterns and natural hazards. Nonetheless, overharvesting local materials, such as wood and bamboo, can lead to environmental degradation and depletion of natural resources.

Cultural Practices (Sustainability)

The emergency shelters built with familiar materials and techniques are more likely to be culturally accepted and integrated into the community's way of life.

Other Information

We encourage the participation of women in all construction activities and provide equal training for both men and women on Build Back Safer techniques adapted to the construction of Emergency shelters and provide PSEA, which is a mandatory requirement for program involvement.

EMERGENCY SHELTER



Province(s):

Nampula

District(s):

Meconta District

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☒ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo, tarpaulin, grass

Walls: Bamboo and local woods, grass

Floors: soil

Shelter set-up time

- ☐ 1-2 days
- ☒ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Use of bamboo as sustainable material and creation of channels along and between the shelter to facilitate water drainage during rainy season, thus avoid flooding

Workforce required for set up

x skilled x unskilled

Shelter area

15 sqm (m²)

Shelter dimensions

6m X 2.5m

Shelter habitability

3 m per person
suitable for up to 5 occupants

Advantages

- ☐ Utilizing readily available local materials such as bamboo, local woods, and grass enables quicker construction and faster and cheaper provision of shelters in emergency situations.
- ☐ Shelters built with familiar materials and techniques are more likely to be culturally accepted and integrated into the community

Challenges/Disadvantages

- ☐ Limited space, lack of privacy (no internal divisions)
- ☐ Local materials such as bamboo, wood, and grass are not as durable, requiring more frequent repairs or replacements. When not treated, local materials may be more vulnerable to weather conditions, pests, and rot, which can compromise the integrity of the shelters.

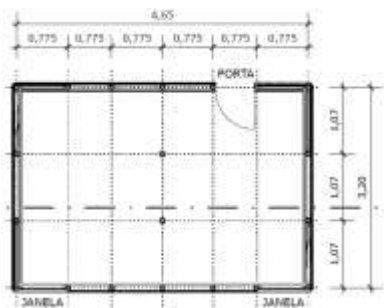
Shelter estimated cost

Material cost: USD 300

Labour cost: USD 50

**not including logistics*

EMERGENCY SHELTER



Province(s):

Nampula, Ibo, Quissanga

District(s):

Corrane, Matemo, Quirimba, Quirambo, Mefunvo, Kisiwi, etc

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☒ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo, tarpaulin, grass

Walls: Bamboo and local woods, grass

Floors: soil

Shelter set-up time

- ☐ 1-2 days
- ☒ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

The bamboo and local wood poles are arranged in a cross-bracing pattern to enhance the structural integrity and prevent the shelter from swaying or collapsing

Workforce required for set up

x skilled x unskilled

Shelter area

15 sqm (m²)

Shelter dimensions

6m X 2.5m

Shelter habitability

3 m per person
suitable for up to 5 occupants

Shelter estimated cost

Material cost: USD 300

Labour cost: USD 50

Advantages

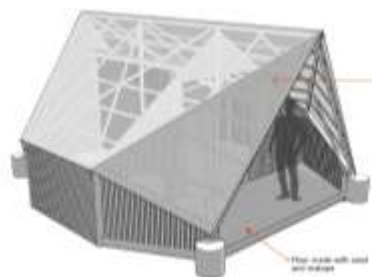
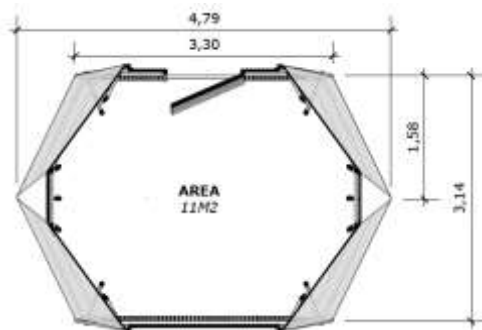
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- ☐ Shelters built with familiar materials and techniques are more likely to be culturally accepted and integrated into the community

Challenges/Disadvantages

- ☐ Local materials such as bamboo, wood, and grass are not as durable, requiring more frequent repairs or replacements. When not treated, local materials may be more vulnerable to weather conditions, pests, and rot, which can compromise the integrity of the shelters.

**not including logistics*

EMERGENCY SHELTER



Province(s):
Cabo Delgado

District(s):
Ibo district

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☒ Temporary site
- ☐ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☒ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Tarpaulin 4x6m, bamboo

Walls: bamboo, local stakes

Floors: sand

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

The structure design and layout is resilient against strong winds, providing reliable protection.

Advantages

- ☐ Quick and efficient construction allows for rapid deployment in emergencies.
- ☐ The shelter design is well-accepted by the local community, who can actively participate in the building process, fostering community engagement.
- ☐ Cost-effective, making it an affordable solution for emergency housing.

Challenges/Disadvantages

- ☐ Limited size restricts occupancy, accommodating only up to three people per shelter, which may not be sufficient for larger families.
- ☐ While construction is quick, the shelters may offer only temporary solutions and require frequent maintenance or upgrades.

Workforce required for set up

1 skilled 2 unskilled

Shelter area

10.36 sqm (m²)

Shelter dimensions

3.3m X 3.14m

Shelter habitability

3.4m per person
suitable for 3 occupants

Shelter estimated cost

Material cost: USD_77 USD 3500 MZN*

Labour cost: N/A

*not including logistics



EMERGENCY SHELTER



Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☒ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☒ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo, tarpaulin

Walls: Bamboo, nylon rope

Floors: Local mud

Advantages

- ☐ Fast assembly, low cost
- ☐ Easy transport of many shelters
- ☐ Better dimensions for temporary sites

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Use of bamboo as sustainable material and creation of channels along and between the shelter to facilitate water drainage during rainy season, thus avoid flooding

Challenges/Disadvantages

- ☐ Limited space, lack of privacy
- ☐ Safety and protection concerns (no doors and windows)
- ☐ No elevation from the ground

Workforce required for set up

1 skilled 3 unskilled

Shelter area

8 sqm (m²)

Shelter dimensions

4m X 2m

Shelter habitability

2.6 m per person
suitable for 3 occupants

Shelter estimated cost

Material cost: USD 90

Labour cost: USD 10

**not including logistics*

EMERGENCY SHELTER



Province(s):
Cabo Delgado

District(s):
Chiure, Meculane

Context/Trigger of response

- ☒ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural X
- ☐ Urban

Shelter category

- ☐ Emergency Shelter X
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Materials, training, labor provided.

Community Engagement/ Participation

The community is involved from the consultation process and presentation of the project. They are trained in shelter construction and protection and participate in the construction by providing labor. The construction system is appropriate and accepted by the community.

Environmental Consideration

Local materials without chemicals, community involvement in the construction and long term maintenance ensures its sustainability. 80% of materials from the forest (bamboo and poles), but these materials have been harvested following regulations established by national authorities.

Cultural Practices (Sustainability)

The construction system is used in the region, and the communities are familiar with it, ensuring that the methods are suitable and well-accepted. This approach involves women in the building process of their own shelters and employs local labor. Training in resilient construction techniques was carried out, along with awareness sessions on risks and maintenance.

Other Information

This solution was used as a phased approach in order to allocate families in their plots, while they could start the construction of their transitional shelter. However, as this solution covers main shelter needs, community was not encouraged to build t-shelters quickly. Strong mobilization required



EMERGENCY SHELTER/TRANSIT



Province(s):
Cabo Delgado

District(s):
Chiure, Meculane (Resettlement site)

Context/Trigger of response

- ☐ Conflict **X**
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural **X**
- ☐ Urban

Shelter category

- ☐ Emergency Shelter **X**
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites **X**
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ **3-6 months X (up to 1Y)**
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Tarpaulins, bamboo, tire cords and galvanized wires,
Walls: Bamboo, tire cords and galvanized wires,

Advantages

- ☐ Construction time is very short.
- ☐ Economic.
- ☐ Quickly assembled by low skilled people.
- ☐ Easy to be extended

Shelter set-up time

- ☐ **1-2 days X**
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

Floors: Soil

DRR/Resilience techniques used

Local carpenters trained in repair and maintenance techniques as this is emergency situation with short period of life span.

Challenges/Disadvantages

- ☐ Area of coverage is good for 3 family members, when normal family size is 5.
- ☐ Requires treatment of bamboo.
- ☐ Not easy to upgrade
- ☐ No elevation from the ground
- ☐ Protection concerns as there are no internal divisions and no doors.

Workforce required for set up

1 skilled 1 unskilled

Shelter area
9.0 (m²)

Shelter dimensions
3.0 X 3.0 X 2.5m

Shelter habitability
3 Family members (when family size is 5)

Shelter estimated cost
Material cost: USD 52 *
Labour cost: USD 10

**not including logistics*



EMERGENCY SHELTERS



Province(s):
Cabo Delgado

District(s):
Mueda

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent House

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Workforce required for set up

1 skilled 3 unskilled

Materials

Local wooden poles, bamboo poles, mud daub wall for the superstructure, plastic tarpaulin and grass fixed on local wooden truss roof.

Shelter area

Type 1 - 18sqm (6mx3m) for small households with 5 and below family members.

Type 2 – 30sqm (5mx6m) for household size above.

Hipped roof is the design of shelters in Lyanda IDP site, Mueda district. Proposed by the partner Solidarités International (SI) in 2022.

Advantages

- ☐ Short-term solution, ensuring durability and stability of the housing structure.
- ☐ Provision of dignified shelter, contributing to safety, security, health, and well-being, and promotion to recovery among affected households.
- ☐ Remove the need of water for the *matope* process.
- ☐ Reduce the number of bamboos in the construction.

Challenges/Disadvantages

- ☐ Requires more advanced construction skills and materials.

Type 1
Total cost: 506\$

Material cost: 360.44\$
Labour cost: 62.18\$

Type 2
Total cost: 828\$

Material cost: 663.45\$
Labour cost: 76.03\$

EMERGENCY SHELTER

Province(s):

Cabo Delgado

District(s):

Ancuabe - Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Training of local committee in type A shelter construction, supply of material (tarpaulin, shelter toolkit, bamboos, nail and recycled rubber rope) and construction support (team of 4 per shelter).

Community Engagement/ Participation

After construction, women/men can line bamboo walls with mud to strengthen shelter and provide a strong barrier

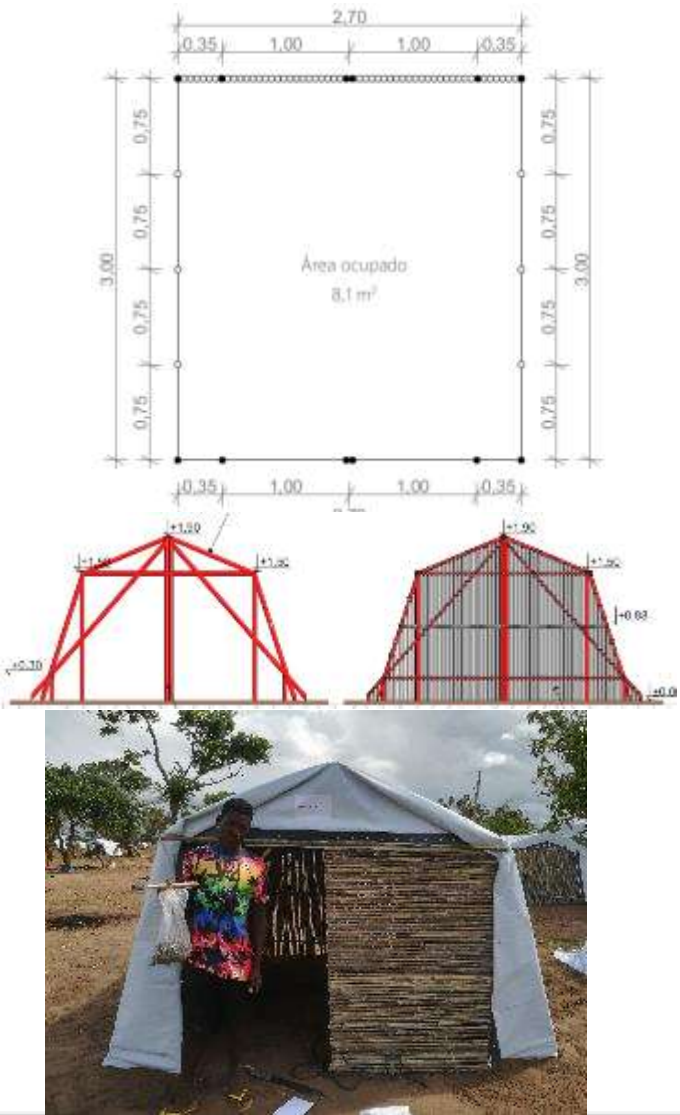
Cultural Practices (Sustainability)

The families make the entrance doors out of bamboos and the back and front are covered with earth.

Environmental Consideration

Promotion of use of bamboo as sustainable material, but the design durability is limited by the lifespan of the tarp and bamboo is treated with anti termite solution.

Other Information



EMERGENCY SHELTER

Province(s):

Cabo Delgado

District(s):

Ancuabe – Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☒ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing and Walls: Bamboo, 3.5" common nails", recycled rubber cord "corda de pneu", shelter toolkit and tarpaulin.

Floors: Sand

Advantages

- ☒ Lifespan of tarp
- ☒ Lack of privacy
- ☒ Reduced space

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Promotion of use of bamboo as sustainable material, but the design durability is limited by the lifespan of the tarp and bamboo is treated with anti termite solution

Challenges/Disadvantages

- ☒ Quick construction, just a few materials what allows to transport materials for a high number of shelters in the same truck
- ☒ Low cost
- ☒ Goods dimensions for temporary centers
- ☒ On sunny days, indoors and extremely hot

Workforce required for set up

0 skilled 4 unskilled

Shelter area

8 sqm (m²)

Shelter dimensions

3.0 m X 2.70 m

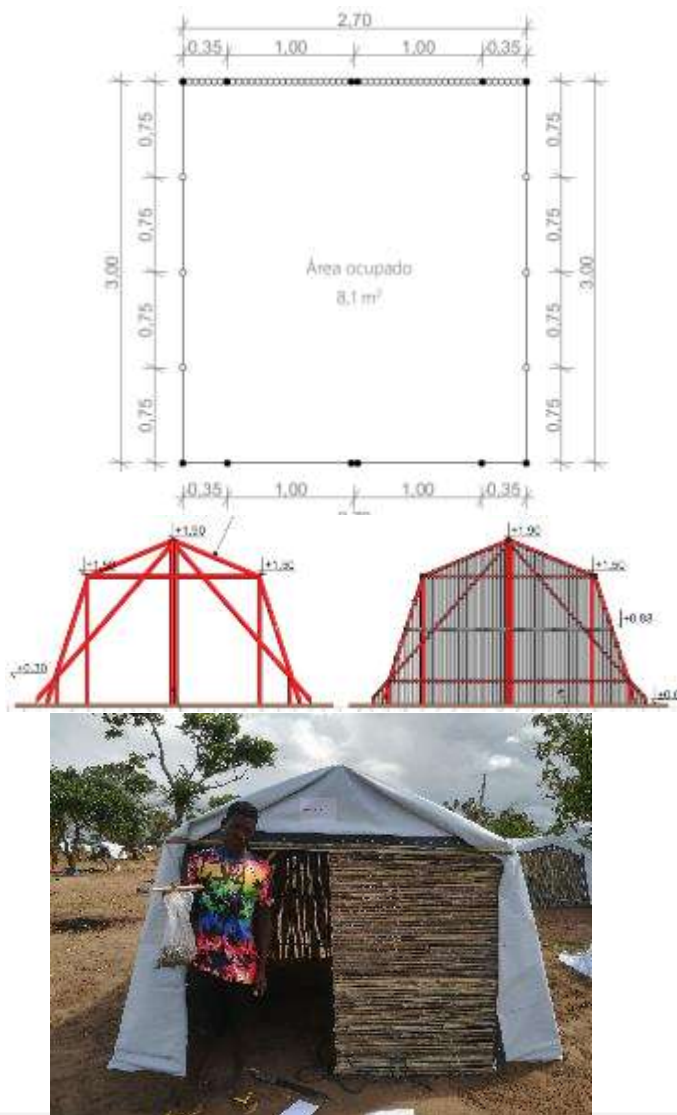
Shelter habitability

4 m per person
suitable for 2 occupants

Shelter estimated cost

Material cost: USD 43.39*
Labour cost: USD 4.74

*not including logistics



TRANSIT SHELTER/CENTRE



Province(s):
Cabo Delgado

District(s):
Mueda

Shelter category
Context/Trigger of response

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☒ Temporary site
- ☐ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The semi-permanent communal hanger internally partitioned used to serve as a transit center for new arrivals following attacks in the neighboring villages of Mueda District. There are total of 6 blocks in Lianda site with a full capacity of 96HHs/ 480 individuals. In 2022, UNHCR and partner SI (Solidarités International) constructed two (2) transit shelters and NRC constructed four (4) transit shelters in Lianda site. The materials used for the construction are bamboo wall, corrugated galvanized iron sheets, plastic sheets partition and concrete floor.

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Shelter set-up time

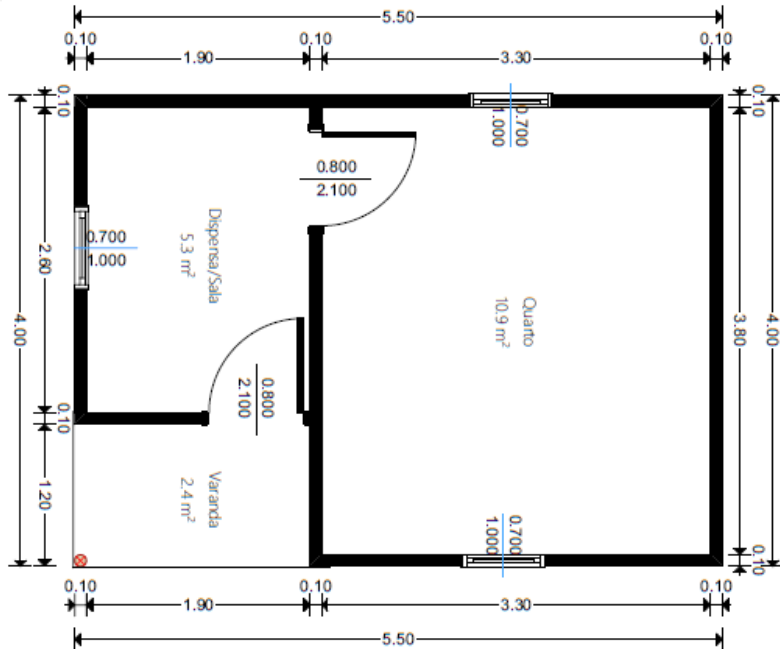
- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Total cost:
13,000\$ - 16,000\$

Overall challenges and Environmental Consideration

- Protection issues: reach broader audience, which does not allow for precise targeting of specific households (as Gender, vulnerability criteria).
- Space limitations and privacy concerns.
- Environmental impact from harvesting natural materials
- Inconsistency in the quality of the wooden poles.

EMERGENCY SHELTER



Province(s):
Cabo Delgado

District(s):
Ancuabe - Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction materials will be made available to families and the local shelter committee will be trained to build the shelter and construction will be carried out by a team of more than 5 people.

The families in turn will tidy up the walls and create flooring to protect rainwater.

The committee group was made up of a mixed group of men and women. The shelter toolkit is given to allow beneficiary to source own raw materials for future repairs. Grass can be added to the cover and allow the Tarpaulin's to last longer and reduce heating. Windows included which allow for great air circulation.

Community Engagement/ Participation

Inspired by local construction and made in a model similar to traditional pau-a-pique structures. Beneficiary is able to adapt and improve as needed, offers privacy.

Environmental Consideration

Uses locally available resources for support, allowing beneficiary to undertake upgrades and repairs as needed. CARE has purchased the material used locally from suppliers authorized by the environmental department, and this institution has authorized cutting the material within the recommended period to allow for reproduction and growth of plants in the Veda period.

Cultural Practices (Sustainability)

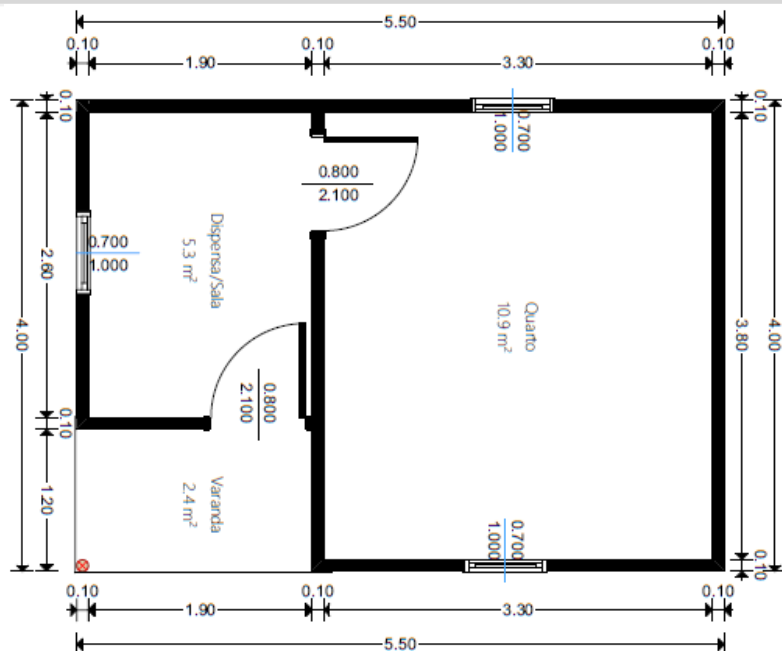
Upgrading and improvements possible, extension is also possible using an incremental approach.

Other Information

Cost: 163,24 USD
Area: 16,3 spm (bedroom, storage space and porch)
Time: 1 Day and 3 hours
Lifespan: 18 - 24 months + (lifespan increased if tarpaulin is replenished)



EMERGENCY SHELTER



Province(s):
Cabo Delgado_

District(s):
Ancuabe - Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☒ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo and tarpaulin

Walls: Bamboo and wooden poles, recycled rubber rope and sand

Floors: Sand

Advantages

- ☒ Local and culturally adapted
- ☒ Shelter can be upgraded and expanded, adapting the pantry/kitchen
- ☒ Easy and fast to build

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

- Roof connections;
- Wall bracings, strong foundation;
- Wood treatment and pavement preparation

Challenges/Disadvantages

- ☒ Grass can be added to the cover and allow the Tarpaulin's to last longer and reduce heating. Windows included which allow for great air circulation.
- ☒ Requires treatment of wooden poles and bamboos to combat termites. Will not withstand cyclonic winds. Requires tarpaulin replenishment every 24 months.

Workforce required for set up

3 skilled 2 unskilled

Shelter area

22 sqm (m²)

Shelter dimensions

4.00 m X 5.50m

Shelter habitability

4.8 m² per person
suitable for 3 occupants

Shelter estimated cost

Material cost: USD 139.51*

Labour cost: USD 23.73

*not including logistics



SHELTER RETROFITTING WITH TARP



Province(s):
Cabo Delgado

District(s):
Ancuabe – Milamba1, Milamba 2, 25 de Junho and Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction materials will be made available to families and the local shelter committee will be trained to build the shelter and construction will be carried out by a team of 4 people.

These families benefited from the following materials: Bamboos, recycled, rubber rope, burnt wire, 3" nails and tarpaulin and also received shelter tool kits to be able to carry out any repairs to their shelters when they are in a state of collapse.

Community Engagement/ Participation

Inspired by local construction and made on a model like traditional wattle and daub structures. Helping the community to better preserve and make good use of tarpaulins as well as to extend the lifespan of the tarp by adequate installation techniques

Environmental Consideration

CARE has purchased the material used locally from suppliers authorized by the environmental department, and this institution has authorized cutting the material within the recommended period to allow for reproduction and growth of plants in the Veda period.

Cultural Practices (Sustainability)

Grass can be added to the cover and allow the Tarpaulin's to last longer and reduce heating.

Other Information

Cost: 48,70 USD (without tarpaulin)
 Area: 24 spm (on average)
 Time: 3 Hours
 Lifespan: 18-24 months+(lifespan increased if tarpaulin is replenished)

SHELTER RETROFITTING WITH TARP



Province(s):
Cabo Delgado

District(s):
Ancuabe - Milamba1, Milamba 2, 25 de Junho and Natove

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

Materials

Roofing: Tarpaulin and bamboo
Walls: Bamboo, wooden poste and sand
Floors: Sand

DRR/Resilience techniques used

- ☒ Fixing the tarpaulin
- ☒ correctly Techniques for overlapping and perforating the tarpaulin
- ☒ Strengthening the roof and wall structure

Workforce required for set up

3 skilled 1 unskilled

Shelter area

24 sqm (m²)

Shelter dimensions

4 m X 6 m

Shelter habitability

4.8 m² per person
 suitable for 3-8 occupants

Advantages

- ☒ Use of few resources
- ☒ Use of local materials
- ☒ No specialization required

Challenges/Disadvantages

- ☒ Will not withstand cyclonic winds. Requires replenishment every 12 months;
- ☒ Canvas cannot withstand 100% exposure

Shelter estimated cost

Material cost: USD 37.75*

Labour cost: USD 10.95

**not including logistics*

EARLY RECOVERY/TRANSITIONAL

TRANSITIONAL / EARLY RECOVERY SHELTER

Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo, tarpaulin, grass
Walls: Bamboo, wooden poles, pau au pique with mud, nylon rope
Floors: Local mud

Advantages

- ☐ Promotion of local and sustainable materials
- ☐ Appropriation of the model by the community using local design and construction techniques
- ☐ Improvement on local construction techniques

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Inspired by local construction techniques, this model has created a great level of acceptance

Challenges/Disadvantages

- ☐ Lack of proper foundations
- ☐ Roofing materials require maintenance and replacement of grass to ensure durability

Workforce required for set up

2 skilled 3 unskilled

Shelter area

16-20 sqm (m²)

Shelter dimensions

4m X 4m

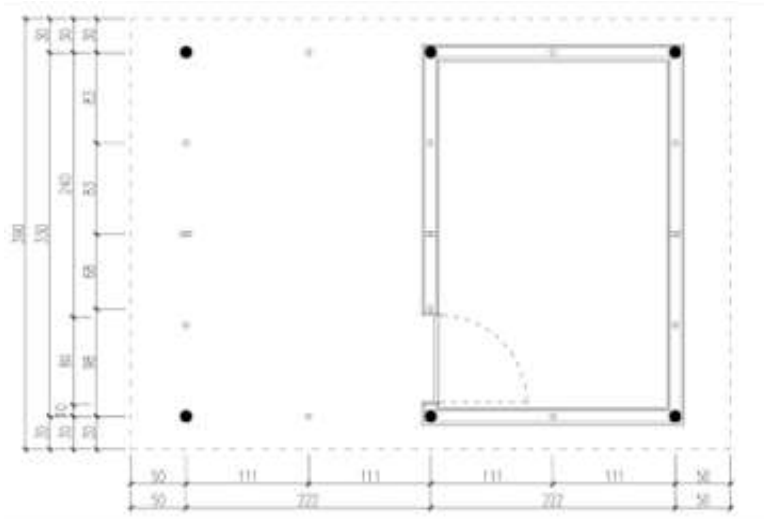
Shelter habitability

4 m per person
 suitable for 3-5 occupants

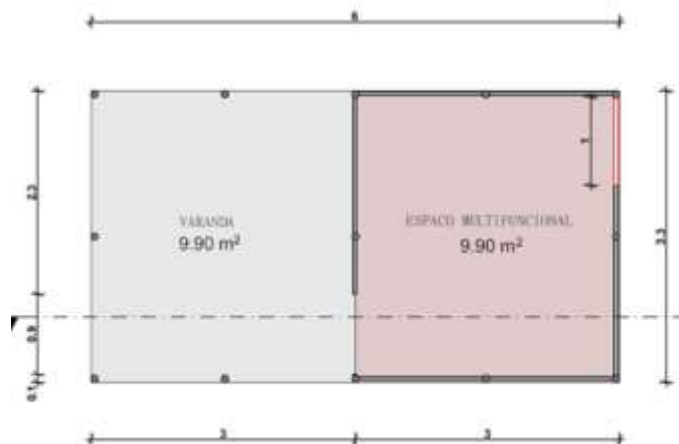
Shelter estimated cost

Material cost: USD 130
 Labour cost: USD 20

**not including logistics*



TRANSITIONAL / EARLY RECOVERY SHELTER



Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

Materials

Roofing: Bamboo, tarpaulin

Walls: Bamboo, wooden poles, pau au pique with mud

Floors: Local mud

DRR/Resilience techniques used

Inspired by local construction techniques, this model has created a great level of acceptance

Advantages

- ☐ Possibility of extension of the shelter made by the family over time
- ☐ The veranda allows better ventilation and open space to the whole structure
- ☐ It is possible to close the veranda in a second moment and create a new room

Challenges/Disadvantages

- ☐ Lack of proper foundations
- ☐ Roofing materials require maintenance and replacement of tarps over time

Workforce required for set up

x skilled x unskilled

Shelter area

9.90 to 19.80 sqm (m²)

Shelter dimensions

3m X 3.3m

3.3m X 6m

Shelter habitability

3.3m to 3.9m per person
suitable for 3-5 occupants

Shelter estimated cost

Material cost: USD 100

Labour cost: USD 20

**not including logistics*

TRANSITIONAL / EARLY RECOVERY SHELTER



Province(s):
Manica, Sofala

District(s):
Sussundenga, Buzi

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Materials

Roofing: Local timber, corrugated galvanized iron (CGI) roofing sheets

Walls: Local wooden poles, “macane” sticks, mud-plastering

Floors: Soil

DRR/Resilience techniques used

Resilience techniques, such as wall weaving, enhance strength, while robust foundations and secure roof connections ensure overall structural stability and durability.

Advantages

- ☐ The transitional shelters support the early recovery efforts initiated by the communities.
- ☐ The shelter align with cultural preferences and traditional building practices, fostering community acceptance.
- ☐ Engaging local artisans in the construction process helps to build local capacity and transfer BBS construction practices within the community.

Challenges/Disadvantages

- ☐ Local materials may be in short supply or of inconsistent quality, potentially affecting the durability of the shelter.
- ☐ The skill levels of local artisans can vary, leading to inconsistencies in construction quality.

Workforce required for set up

1 skilled 2 unskilled

Shelter area

18 sqm (m²)

Shelter dimensions

5.15 m X 3.5 m

Shelter habitability

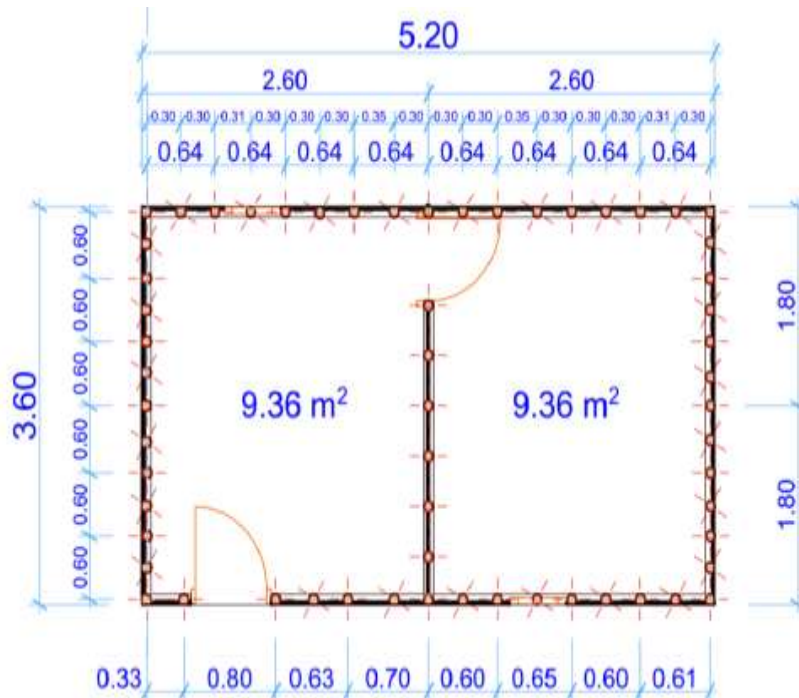
3.6 m per person
suitable for 5 occupants

Shelter estimated cost

Material cost: USD 700
Labour cost: USD 70

**not including logistics*

EARLY RECOVERY SHELTER



Province(s):
 Cabo Delgado

District(s):
 Montepuez and Namuno

Context/Trigger of response

- ☐ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural X
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Temporary Shelter X
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas X
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction with hired labor and support from beneficiaries.

Community Engagement/ Participation

Community involved from the consultation process and presentation of the project. They are trained in shelter construction and protection, and participate in the construction with manpower, using traditional techniques.

Environmental Consideration

Local materials without chemicals, community involvement in the construction and long-term maintenance ensures its sustainability. 70% of materials from the forest (bamboo and poles), but these materials have been harvested following regulations established by national authorities.

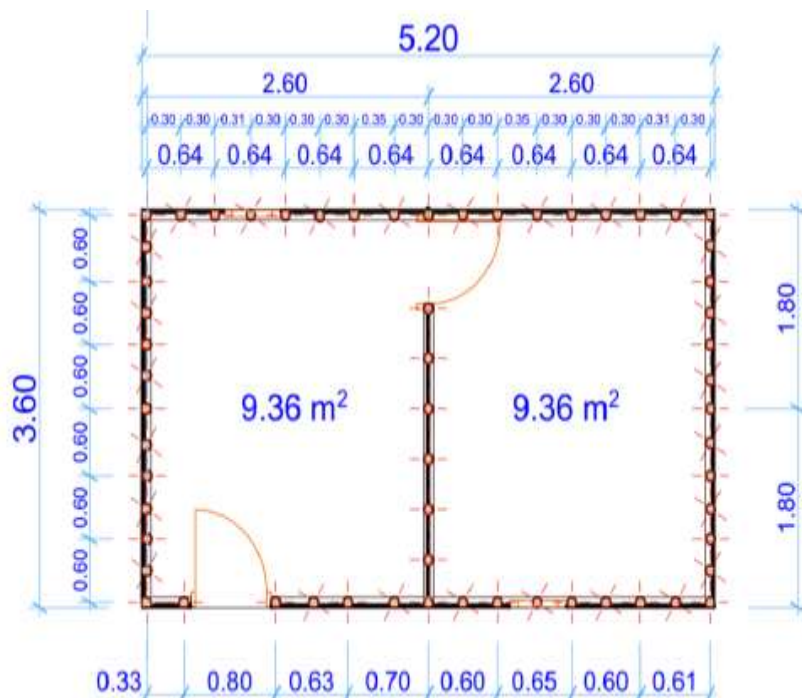
Cultural Practices (Sustainability)

Use of local materials, resilient construction methods utilizing traditional design through community participation, including sustainable practices compatible with the local environment, training and employing local labor while incorporating cultural values such as traditional aesthetics (drawings and paintings).

Other Information

Quick construction of resilient shelters relies on community engagement on the construction process. Wooden poles and bamboo requires treatment which is limited to a specific period on the market

EARLY RECOVERY SHELTER



Province(s):
Cabo Delgado

District(s):
Montepuez and Namuno

Context/Trigger of response

- ☐ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural X
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter X
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas X
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years X

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days X
- ☐ >5 days
- ☐ >15 days

Workforce required for set up

2 skilled 3 unskilled

Shelter area

18.72 sqm (m²)

Materials

Roofing: Bamboo, tarps, tire cords, nails, galvanized wires

Walls: Pau a pique (Bamboo, tire cords and galvanized wires, galvanized nails, wooden poles, Mud, Burnt oil.

Doors/ windows: Bamboo, tire cords and galvanized wires, galvanized nails Bolt lock.

Floors: Soil

DRR/Resilience techniques used

- ☐ preparedness strategies in construction techniques: designed to withstand potential hazards like heavy storms and cyclones
- ☐ BBB (Built, Back Better) workshops test designs with carpenters and community members

Advantages

- ☐ Provide shelter and repairs to IDPs and host communities in need, offering safe and dignified conditions.
- ☐ Materials adapted to the local context, climate, cultural practices, and local construction techniques.
- ☐ Offer work to communities through local labor.
- ☐ Efficient and low-cost construction system.

Challenges/Disadvantages

- ☐ Occasional community engagement in the construction process.
- ☐ Procurement of key shelter materials.
- ☐ Restrictions on the exploitation of forest materials due to seasonal bans.
- ☐ Rainy season.

Shelter dimensions

5.20 m X 3.60 m

Shelter habitability

3.74m per person
suitable for 5 occupants

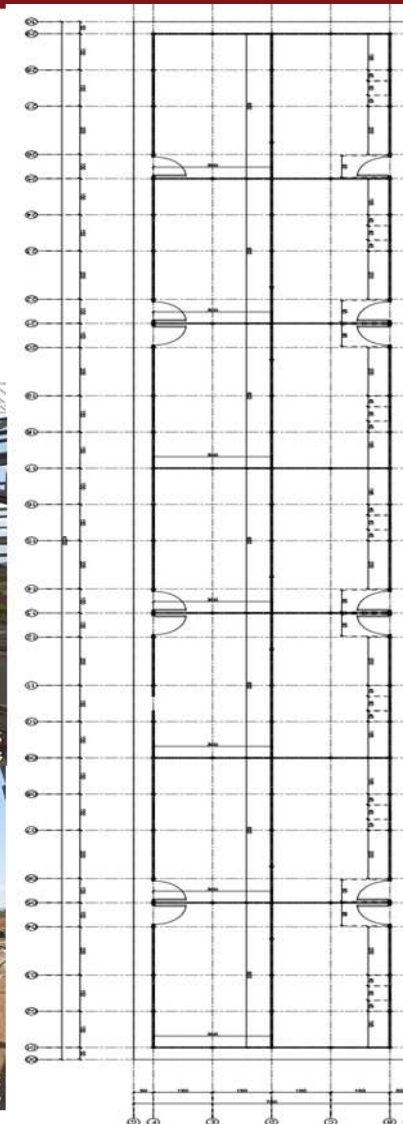
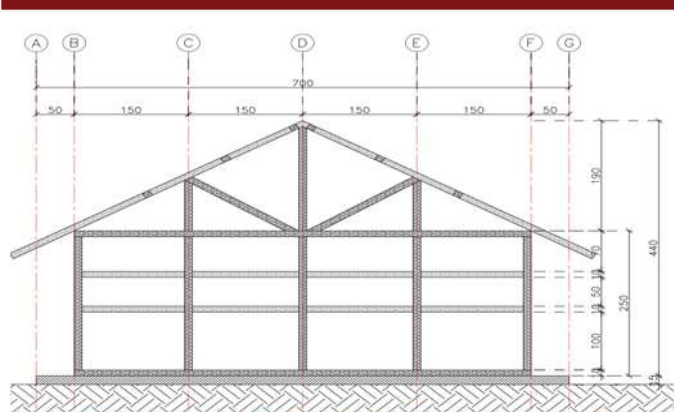
Shelter estimated cost

Material cost: USD 325.47

Labour cost: USD 23.72

**not including logistics*

EARLY RECOVERY/TRANSITIONAL SHELTER (COMMUNAL)



Province(s): Cabo Delgado

District(s): Mueda

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The construction uses locally sourced available material provided by NRC including roof CGI zinc sheet.

The construction of the shelters is done by a team of 5-6 skilled and unskilled laborers.

The construction includes a block of 7 to 8 shelters in one communal block. Each block has the capacity to receive 14 to 16 families at once for the necessary period before transitioning to the their individual/familiar shelter.

Community Engagement/Participation

NRC staff conducts community engagements prior to provision of the assistance to explain the project including eligibility and vulnerability selection criteria.

Since NRC provided part of the assistance in Cash, the community engagement includes sensitization of beneficiary families on use of the Cash for shelter for the intended purpose such as the purchase of construction material. In addition, the community engagement includes explaining the availability of technical support for the construction of the shelter provided by NRC and through skilled community laborers.

The selected construction team is trained, including familiarization on the designs of the shelters to be constructed.

Cultural Practices (Sustainability)

The communal topology ensures incorporation of local material, and construction techniques including typology

Environmental Consideration

The shelters are constructed using locally sourced material available in the targeted locations, mainly bamboo and wood poles, allowing upgrades and/or repairs when needed.

EARLY RECOVERY/TRANSITIONAL SHELTER (COMMUNAL)



Province(s): Cabo Delgado_

District(s): Mueda

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

Workforce required for set up

3 skilled 3 unskilled

Shelter area

252 sqm (m²)

Materials

Roofing: CGI Roof zinc, wood trusses, nails, wire

Walls: Wood poles, bamboo, mud,

Floors: Concrete floor & soil

DRR/Resilience techniques used

Use of resistant wood pole dimensions and a short distances between its to reenforce the bracing between the structural elements.

Roof with enough slope to ensure quick drainage of the water during the rainy season.

The wood poles column sowed with enough dept to resist winds.

Shelter dimensions

6m X 42 m

Shelter habitability

3,5 m² /person
suitable for 70 occupants

Advantages

- ☐ Flexible Shelter solution for displaced people on transit or recently arrived and waiting for plot allocation and shelter assistance
- ☐ Independents units within the communal shelter

Challenges/Disadvantages

- ☐ Same lack of privacy due the communality
- ☐ Lack of internal partition within each family

Shelter estimated cost

Material cost: USD 5000*

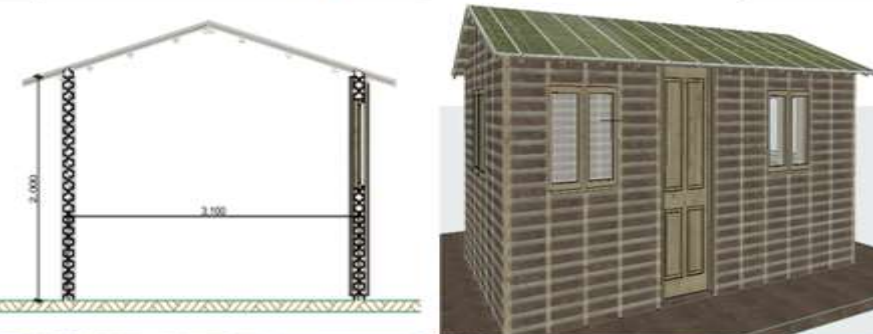
Labour cost: USD 400

**not including logistics*

EARLY RECOVERY/ TRANSITIONAL SHELTER



FLOR PLAN



Province(s): Cabo Delgado

District(s): Mueda, Muidumbe, Quissanga, Nangade

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

The construction uses locally sourced available material provided by NRC through cash modality.

The construction of the shelters is done by a team of 3-4 people to assist the families unable to erect the structure of the shelters.

The mudding of the walls is done by the family members of shelter ensuring ownership of the it.

The shelter assistance includes additional shelter construction tool kits: hammer, shovel, hoe, hacksaw and measuring tape, rope to support the construction activities.

Community Engagement/ Participation

NRC staff conducts community engagements prior to provision of the assistance to explain the project including eligibility and vulnerability selection criteria.

Since NRC provided part of the assistance in Cash, the community engagement includes sensitization of beneficiary families on use of the Cash for shelter for the intended purpose such as the purchase of construction material. In addition, the community engagement includes explaining the availability of technical support for the construction of the shelter provided by NRC and through skilled community laborers.

The selected construction team is trained, including familiarization on the designs of the shelters to be constructed.

NRC CASH MODALITY FOR SHELTER ASSISTANCE

NRC uses Cash as one of the modalities to assist the conflict affected people in Cabo Delgado. The NRC Cash for shelter support is part of a broader programme that also includes technical components defined by the context and needs. In the design of an intervention in Cash for Shelter, the technical components are prioritised because they greatly influence the impact of intervention.

NRC uses Cash for shelter only when it is appropriate to the context, needs, and market conditions, and does not expose beneficiaries to unacceptable risk.

Environmental Consideration

The shelters are constructed using locally sourced material available in the targeted locations allowing upgrades and/or repairs when needed.

The dry grass improves the interior temperature of the shelter by reducing the heat including protection and extension of the tarpaulin lifespan.

EARLY RECOVERY/ TRANSITIONAL SHELTER RETROFITTING



Province(s): Cabo Delgado_

District(s): Mueda, Muidumbe, Nangade, Quissanga

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 daysx
- ☐ >5 days
- ☐ >15 days

Workforce required for set up

1 skilled 2 unskilled

Shelter area

18 sqm (m²)

Materials

Roofing: Tarpaulin, Dry grass, Bamboo and wood poles

Walls: Wood poles, bamboo, mud,

Floors: soil

DRR/Resilience techniques used

Use of resistant wood pole dimensions and a short distances between its to reenforce the bracing between the structural elements.

Roof with enough slope to ensure quick drainage of the water during the rainy season.

The wood poles column sowed with enough dept to resist winds.

Shelter dimensions

3m X 6 m

Shelter habitability

3,5 m² /person
suitable for 6 occupants

Advantages

☐ Cash assistance for crisis-affected people is the most dignified form of assistance. Cash gives the beneficiaries greater choice and control over how best to prioritize their own needs.

“The cash for shelter is often more economical programming, faster, more flexible than in-kind distribution assistance

Challenges/Disadvantages

☐ The cash for shelter requires proper set up of work, monitor and continuous engaging people to use the Cash for the intended purpose

“If people have more urgent needs, they might use cash in other ways than the intended (as they would sell or exchange the in-kind to fulfil other needs)

☐ The tarpaulins require replacement after one year.

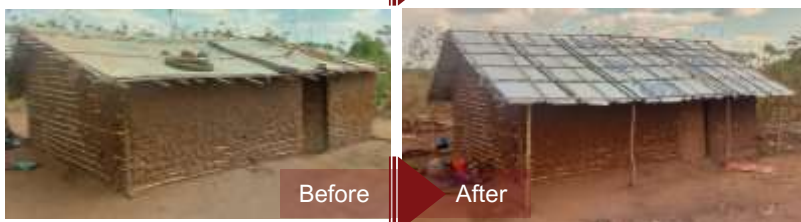
Shelter estimated cost

Material cost: USD 250*

Labour cost: USD 50

**not including logistics*

SHELTER RETROFITTING



Province(s):
Cabo Delgado

District(s):
Chiure, Quissanga

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Materials

Roofing: Bamboo, tarpaulin

Walls: Bamboo, wooden poles, pau au pique with mud, nylon rope

Floors: Local mud

Advantages

- ☐ Adapted to specific and existing shelter needs
- ☐ Possibility of repairing and extending the shelter
- ☐ Use of local materials and construction methods
- ☐ Taking advantage of the existing structure to minimize the costs with a new intervention

Shelter set-up time

- ☒ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Distribution of shelter fixing toolkits, tarpaulins and nylon ropes, followed by a training on resilient construction techniques for local artisans and population

Challenges/Disadvantages

- ☐ Strong planning and specific needs assessment needed
- ☐ High skilled staff needed on the field to carry out the technical assessment of each case and decide the type of intervention to implement

Workforce required for set up

1 skilled 4 unskilled

Shelter area

16-20 sqm (m²)

Shelter dimensions

4m X 4m

Shelter habitability

3-4m per person
suitable for 3-5 occupants

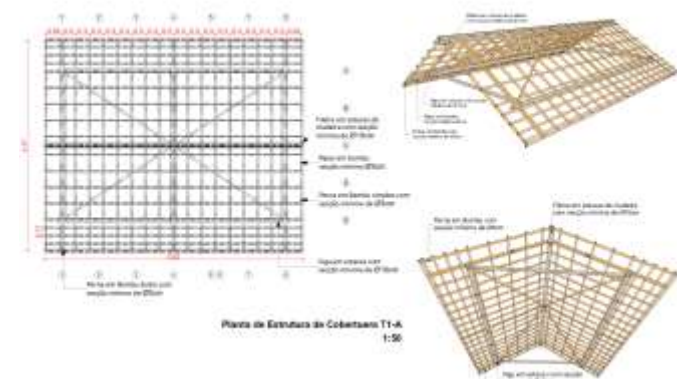
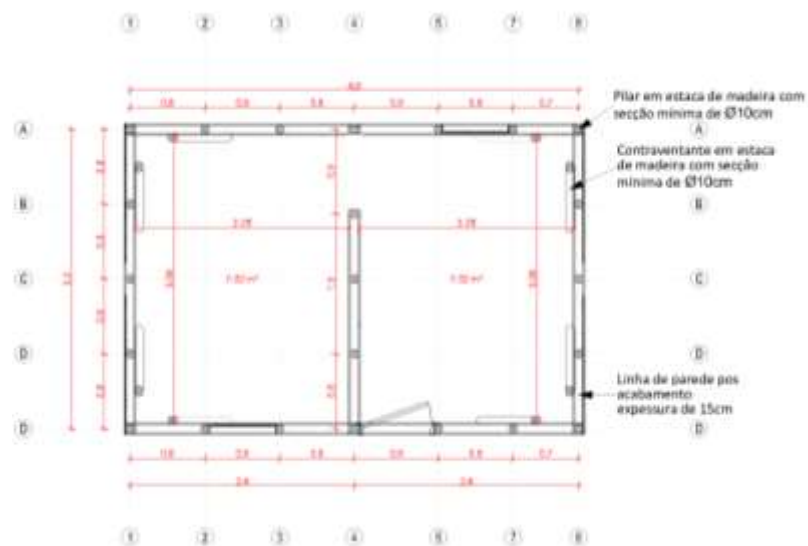
Shelter estimated cost

Material cost: USD 50-150

Labour cost: USD 20

**not including logistics*

[TEMPORARY SHELTER/ EARLY RECOVERY]



Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Local committee training trains community members in specific construction techniques, tool use and best practices to ensure durable and safe shelters. Provision of building materials (tarpaulin, shelter toolkit, bamboo, nails and recycled rubber rope).

Training a team of 4 people per shelter to provide practical guidance on building resilient shelters, helping with assembly and ensuring proper construction.

This approach speeds up the process and strengthens the community's ability to build and maintain sturdy shelters independently in the future.

Community Engagement/ Participation

Resilient construction training of local artisans for direct implementation.

Environmental Consideration

Low environmental impact - usage of local material from certified sources

Cultural Practices (Sustainability)

Use of Traditional Techniques: Local and Renewable Materials: Use materials that are abundant in the region; Training and Capacity Building: Involve the community in the construction process; Promoting the Local Economy: Prioritizing the purchase of materials and hiring local labour.

Other Information

The beneficiaries were involved in the design of the shelter, being responsible for filling in the clay in the walls and the final finish. Involvement of women in the process of making the shelters

TEMPORARY SHELTER/ EARLY RECOVERY

Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☒ 3-5 days
- ☐ >5 days
- ☐ >15 days

Materials

Roofing: Grass, tire wire, nails, tire rope

Walls: Pau a Pique (bamboo, clay, nails etc.)

Floors: soil

DRR/Resilience techniques used

Roof connections, use cross bracings, strong and deep foundations, wood treatment, etc.

Workforce required for set up

4 unskilled

Shelter area

14.04 sqm (m²)

Shelter dimensions

4.8m X 3.2m

Shelter habitability

3.5m per person
suitable for 4 occupants

Advantages

- ☐ Possibilities for expansion and updating Use of local materials and traditional construction techniques that are well known by the community and easily updated by the beneficiaries.
- ☐ Offers privacy (internal partitions)
- ☐ Offers strong foundations and structure with bracing - resilient building standards are met

Challenges/Disadvantages

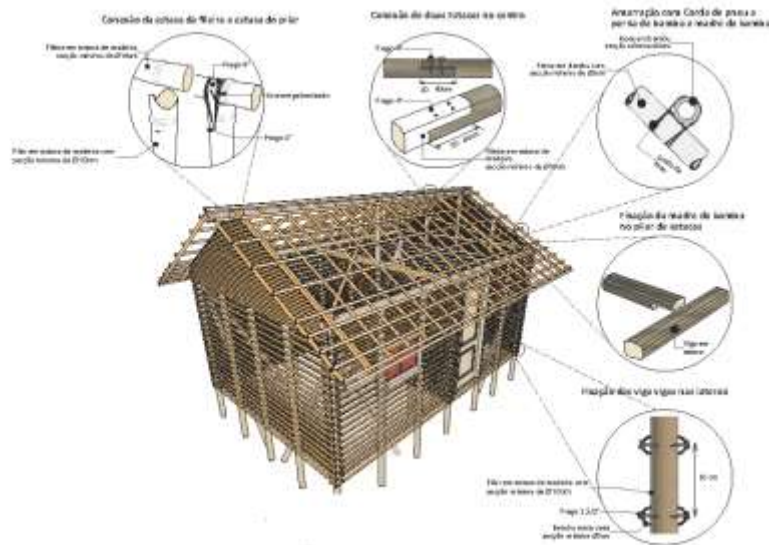
- ☐ Balancing the use of local materials with environmental conservation efforts is a challenge
- ☐ The total area of the house and bedrooms is small for the average mozambican family, Will not withstand cyclonic winds.
- ☐ Limited durability, and Ongoing Maintenance

Shelter estimated cost

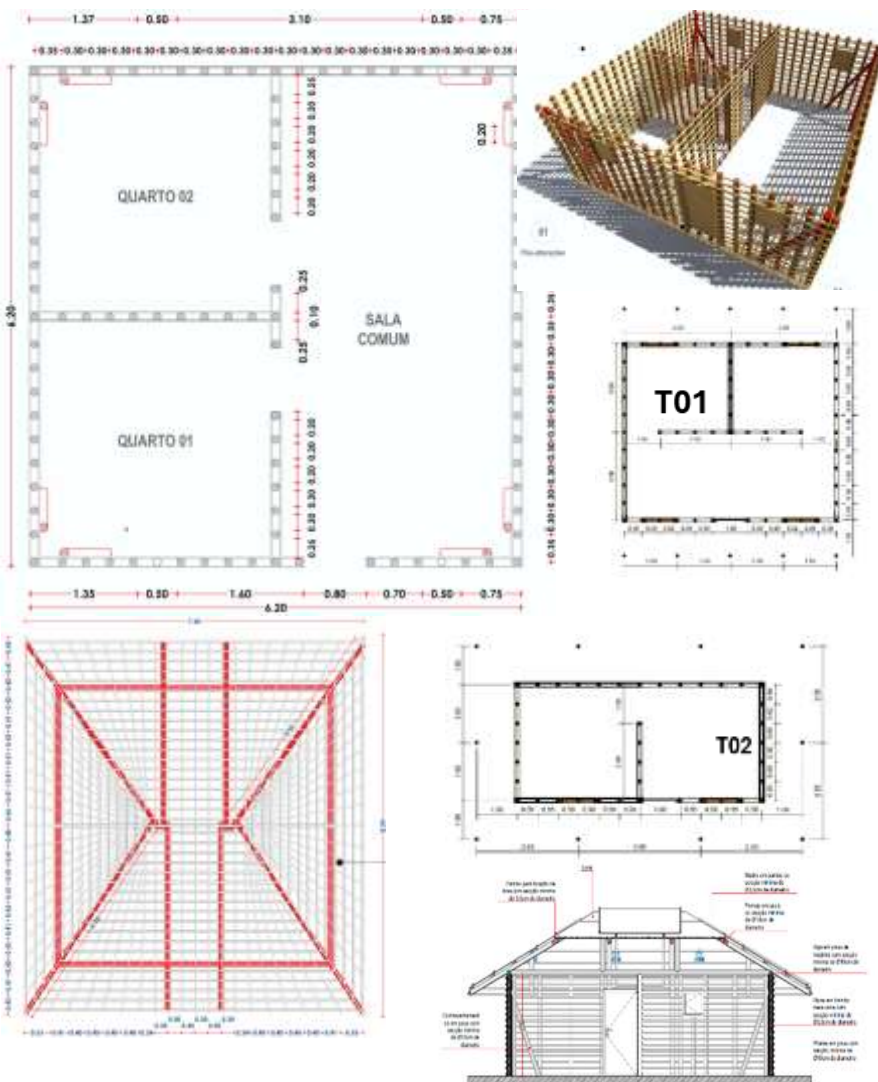
Material cost: USD 280*

Labour cost: USD 79*

**not including logistics*



TEMPORARY SHELTER/ EARLY RECOVERY



Province(s):
CABO DELGADO

District(s):
MONTEPUEZ

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction with hired labour (skilled and unskilled). The construction team consisted of four craftsmen: two bricklayers and two carpenters, all hired to ensure the quality of the work. The beneficiaries of the project also took an active part, acting as helpers and contributing to the execution of the tasks.

Introduction of crown beam and legs in sticks/piles with minimum cross-section Ø10cm.

Introduction of crown beam and legs in sticks/piles with minimum cross-section Ø10cm

Introduction of bamboo that can be rolled up at the ends of the canvas: on the eaves for better fixing on the roofing and water containment structure (see illustrative details)

Community Engagement/ Participation

Resilient construction training of local and IDP's, artisans for direct implementation.

Environmental Consideration

Medium environmental impact - use of local material from certified sources (need to observe the sources of extraction of the material, especially the sticks)

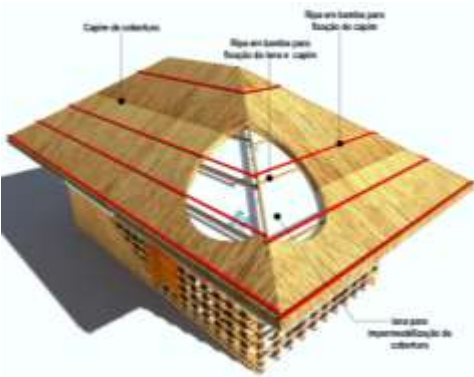
Cultural Practices (Sustainability)

Use of traditional techniques Local and conventional materials: Use materials that are abundant in the region (eg. Dry grass) and possibility of mix with conventional materials; Promoting the local economy: Favouring the purchase of materials and hiring local labour. And also improving new techniques.

Other Information

Those involved in this process were local and welcoming communities, with a mix of different origins, always with the aim of creating unity between all those involved.

TEMPORARY SHELTER/ EARLY RECOVERY



Province(s):
CABO DELGADO

District(s):
MONTEPUEZ

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION



Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Workforce required for set up

1 skilled 3 unskilled

Shelter area

Type 1 - 18sqm (6mx3m) for small households with 5 and below family members.

Type 2 - 30sqm (5mx6m) for household size above.

Materials

Roofing: Grass, tire wire, nails, tire rope,

Walls: Pau a Pique (bamboo, clay, nails etc.)

Floors: SOIL

DRR/Resilience techniques used

Wall bracings, roof connections, strong foundations, size of the union between sticks considerable, cement skirting board, wood treatment, etc.

Advantages

- ☐ Use of local materials in its highest percentage and local labor
- ☐ Possibilities for expansion and updating Use of local materials and traditional construction techniques that are well known by the community and easily updated by the beneficiaries.
- ☐ Thermal comfort, in periods of higher temperatures and heat containment, in cold periods

Challenges/Disadvantages

- ☐ Susceptible to burning due to tarpaulin and grass during periods of high temperatures
- ☐ Balancing the use of local materials with environmental conservation efforts is a challenge
- ☐ Limited durability, and Ongoing Maintenance

Type 1

Total cost: 332\$

Material cost: 267\$

Labour cost: 47.39\$

Type 2

Total cost: 434\$

Material cost: 349.68\$

Labour cost: 63.29\$

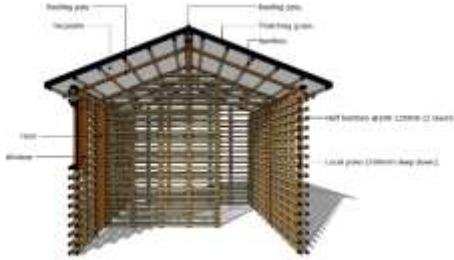
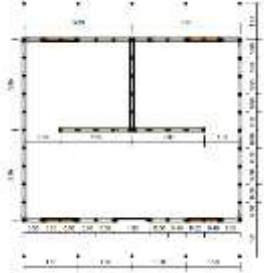
Shelter habitability

3,5 m per person
suitable for 6 occupants

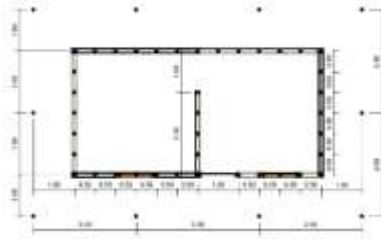
TRANSITIONAL SHELTER – HIPPED ROOF



T01



T02



Province(s):
Cabo Delgado

District(s):
Mueda

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent House

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Workforce required for set up

1 skilled 3 unskilled

Materials

Local wooden poles, bamboo poles, mud daub wall for the superstructure, plastic tarpaulin and grass fixed on local wooden truss roof.

Shelter area

Type 1 - 18sqm (6mx3m) for small households with 5 and below family members.

Type 2 – 30sqm (5mx6m) for household size above.

Hipped roof is the design of shelters in Lyanda IDP site, Mueda district. Constructed with partner Solidarités International (SI) from 2021 to 2023.

DRR/Resilience techniques used

Strong roof connections, roof band reinforcement, wood treatment, etc.

Advantages

- ☐ Mid-term solution, ensuring durability and stability of the housing structure.
- ☐ Provision of dignified shelter, contributing to safety, security, health, and well-being, and promotion to recovery among affected households.

Challenges/Disadvantages

- ☐ Requires more advanced construction skills and materials
- ☐ Poor soil consistency requiring the need for cement for stabilization.
- ☐ Lack of water in Mueda slows the mud daubing of walls by beneficiaries.

Type 1

Total cost: 718\$

Material cost: 470.89\$

Labour cost: 76.03\$

Type 2

Total cost: 1,150\$

Material cost: 818.25\$

Labour cost: 76.03\$

TRANSITIONAL / EARLY RECOVERY SHELTER



Province(s):
Zambezia and Nampula

District(s):
Chinde, Pebane, Mongicual and Angoche

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☒ 1-2 years
- ☐ 2-5 years

Shelter set-up time

- 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Materials

Roofing: Bamboo, stakes, tarpaulin, grass

Walls: Bamboo, stakes, pau a pique with mud, nylon or rubber rope, plastered with adobe with cement

Floors: Local mud

Advantages

- ☒ Promotion of local and sustainable materials
- ☒ Appropriation of the model by the community using local design and construction techniques
- ☒ Improvement on local construction techniques

Challenges/Disadvantages

- ☐ Lack of proper foundations
- ☒ Roofing materials require maintenance and replacement of grass to ensure durability

DRR/Resilience techniques used

- Based on the local model.
- Promotes the improvement of local construction techniques
- Highly accepted due to local characteristics

Workforce required for set up

2 skilled 3 unskilled

Shelter area

16 sqm (m²)

Shelter dimensions

4m X 4m

Shelter habitability

4 m per person
suitable for 3-5 occupants

Shelter estimated cost

Material cost: USD 900
Labour cost: USD 120

**not including logistics*



TEMPORARY SHELTER/ EARLY RECOVERY



Province(s):
Cabo Delgado

District(s):
Mecufi – Napuilimuite and Moge

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

CARE establishes the most vulnerable families through criteria and is also based on the level of destruction of homes by Cyclone Kenneth.

In addition to the construction committee formed, material was allocated to the selected families and the committee moved forward with construction.

The construction committee was also encouraged with building materials. The material supplied includes beams, bamboo, zinc sheets, tire rope, cashew oil and nails.

Community Engagement/ Participation

After construction, women/men can line bamboo walls with mud to strengthen shelter and provide a strong barrier

Environmental Consideration

Promotion of use of bamboo as sustainable material, but the design durability is limited by the lifespan of the tarp and bamboo is treated with anti termite solution. CARE has purchased the material used locally from suppliers authorized by the environmental department, and this institution has authorized cutting the material within the recommended period to allow for reproduction and growth of plants in the Veda period.

Cultural Practices (Sustainability)

This permanent solution is adequate for the context as it is socially accepted and can be easily replicated. It incorporates BBB principles, with some attention to the traditional technique, to increase its resilience

Other Information

Cost: 500 USD
Area: 24.5 spm
Time: 8 day for construction

TEMPORARY SHELTER/ EARLY RECOVERY



Province(s):
Cabo Delgado

District(s):
Mecufi – Napuilimuite and Moge

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Materials

Roofing: Zinc Sheets, wood beans and nails.

Walls: Pau a Pique (bamboo, stick timer, mud plastering, nails off different sizes, recycled rubber rope and wire)

Floors: soil

DRR/Resilience techniques used

Roof connections, wall bracings, strong foundations, wood treatment and pavement preparation

Advantages

- ☒ Easy to build
- ☒ Traditional technique well known by the community
- ☒ It can be upgraded
- ☒ Improved ventilation and privacy
- ☒ Use local materials

Challenges/Disadvantages

- ☒ High quantity of materials required Requires maintenance
- ☒ Takes longer to build than an emergency shelter

Workforce required for set up

10 skilled 4 unskilled

Shelter area
24,5 sqm (m²)

Shelter dimensions
3.90m X 6.30m

Shelter habitability
4.8 m² per person
suitable for 5 occupants

Shelter estimated cost

Material cost: USD 500*

Labour cost: USD (At no cost)

*not including logistics

PERMANENT SHELTERS/DURABLE SOLUTIONS

PERMANENT SHELTER



Province(s):
Cabo Delgado

District(s):
Chiure, Meculane

Context/Trigger of response

- ☐ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter X

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction with hired labor and support from project participants.

Community Engagement/ Participation

Community involved from the consultation process and presentation of the project.

They are trained in shelter construction and protection, and participate in the construction with manpower, using traditional techniques

Cultural Practices (Sustainability)

Use of local materials, resilient construction methods utilizing traditional design through community participation, including sustainable practices compatible with the local environment, training and employing local labor while incorporating cultural values such as traditional aesthetics (drawings and paintings).

Other Information

This permanent solution is adequate for the context as it is socially accepted and can be easily replicated. It incorporates BBB principles, with some attention to the traditional technique, to increase its resilience.

Environmental Consideration

Local materials without chemicals, community involvement in the construction and long-term maintenance ensures its sustainability. 70% of materials from the forest (bamboo and poles), but these materials have been harvested following regulations established by national authorities.



PERMANENT SHELTER



Province(s):
Cabo Delgado

District(s):
Chiure

Context/Trigger of response

- ☐ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural X
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter X

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years X

Materials

Roofing: Iron Sheet

Walls:: Pau a pique (Bamboo, tire cords and galvanized wires, galvanized nails, wooden poles, Mud, Burnt oil. Doors/ windows: Bamboo, tire cords and galvanized wires, galvanized nails Bolt lock.

Floors: Soil

DRR/Resilience techniques used

- ☐ preparedness strategies in construction techniques: designed to withstand potential hazards like heavy storms and cyclones
- ☐ BBB (Built, Back Better) workshops test designs with carpenters and community members

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days X
- ☐ >5 days
- ☐ >15 days

Workforce required for set up

2 skilled 3 unskilled

Shelter area

18 sqm (m²)

Shelter dimensions

5 m X 3 m

Shelter habitability

3.6 m per person
suitable for 5 occupants

Advantages

- ☐ More covered space and privacy.
- ☐ More durability
- ☐ Safe construction
- ☐ Technical knowledge provided to beneficiaries.

Challenges/Disadvantages

- ☐ It takes too long to be built.
- ☐ Requires technical skills.
- ☐ If built by beneficiaries, requires a lot of mobilization.

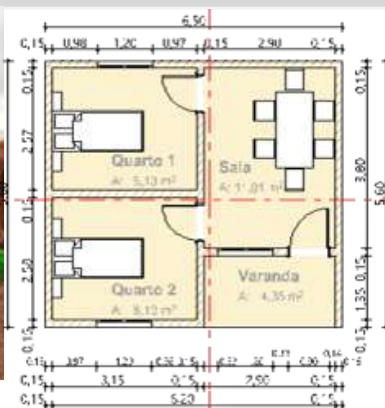
Shelter estimated cost

Material cost: USD 670 *
Labour cost: USD 23.72

**not including logistics*



PERMANENT SHELTER



Province(s):
Cabo Delgado

District(s):
Mecufi

Context/Trigger of response

- ☐ Conflict X
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural X
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter X

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites X
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☐ 2-5 years X

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days X
- ☐ >15 days

Workforce required for set up

2 skilled 3 unskilled

Shelter area
33,6 sqm (m²)

Shelter dimensions
5 m X 3 m

Shelter habitability
3.6 m per person
suitable for 5 occupants

Materials

Roofing: Iron Sheet

Walls: Pau a pique (Bamboo, tire cords and galvanized wires, galvanized nails, wooden poles, Mud, Burnt oil. Doors/ windows: Bamboo, tire cords and galvanized wires, galvanized nails Bolt lock.

Floors: Soil

DRR/Resilience techniques used

- ☐ preparedness strategies in construction techniques: designed to withstand potential hazards like heavy storms and cyclones
- ☐ BBB (Built, Back Better) workshops test designs with carpenters and community members

Advantages

- ☐ More covered space and privacy.
- ☐ More durability
- ☐ Safe construction
- ☐ Technical knowledge provided to beneficiaries.
 - Easy to build
 - Traditional technique well known by the community
 - It can be upgraded
 - Improved ventilation and privacy
 - Use local materials

Challenges/Disadvantages

- ☐ It takes too long to be built.
- ☐ Requires technical skills.
- ☐ If built by beneficiaries, requires a lot of mobilization

Shelter estimated cost

Material cost and Labour cost: USD 840
*not including logistics



PERMANENT DURABLE SOLUTION

Province(s):
Cabo Delgado

District(s):
Metuge

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Materials

Roofing: Corrugated galvanized iron sheet

Walls: Bamboo, wooden poles, iron rods, cement

Floors: Cement

Advantages

- ☐ Possibilities of expansion and upgrade easily with local materials
- ☐ Offers privacy, strong foundations and structure with bracings
- ☐ Resilient construction standards are met

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

DRR/Resilience techniques used

Resilient construction trainings for local artisans and population for direct implementation and development of maintenance skills

Challenges/Disadvantages

- ☐ High use of bamboo and wooden poles
- ☐ Costs may be elevated for the most vulnerable communities
- ☐ Requires plastering to protect the walls from rain, thus increasing the costs

Workforce required for set up

2 skilled 3 unskilled

Shelter area
16-32 sqm (m²)

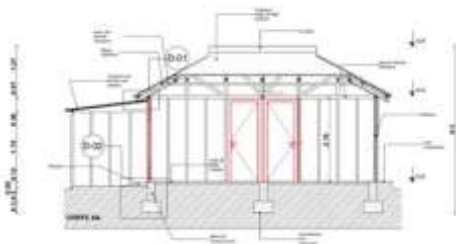
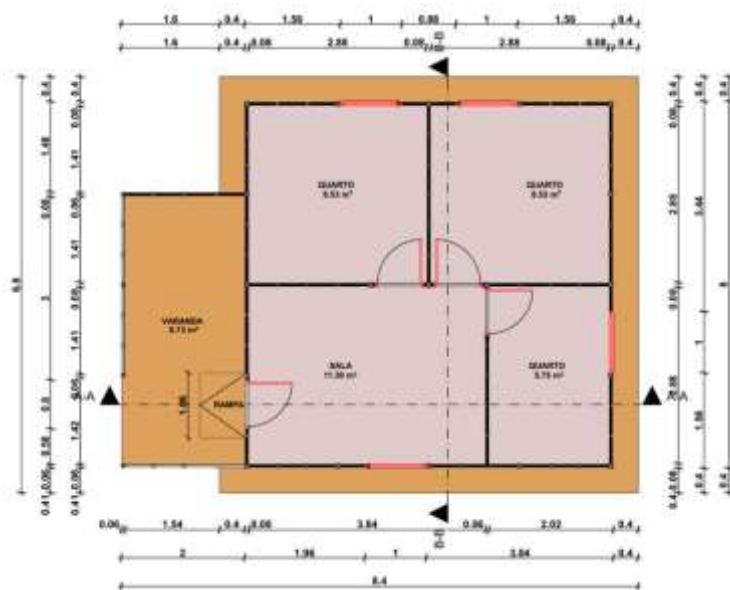
Shelter dimensions
4m X 4m

Shelter habitability
6 m per person
suitable for 5-7 occupants

Shelter estimated cost

Material cost: USD 2,000-2,500
Labour cost: USD 400

**not including logistics*



PERMANENT AND TRANSITIONAL HOUSING SOLUTIONS



Province(s):
Cabo Delgado, Nampula, Manica, Sofala

District(s):
Pemba, Memba, Sussundenga, Beira, Buzi

Context/Trigger of response

- ☒ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☒ Permanent House

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

The implementation modality for the construction of resilient houses and early recovery shelters is based on a community led approach which requires effective participation of local artisans, the beneficiaries, the local authorities and the community. The local artisans (women and men) receive training in resilient construction and subsequent on-the-job training is done throughout the project implementation. Depending on the typology of the house, the materials are collected locally or brought to the community, following strict environmental and resilient standards.

Community Engagement/ Participation

The beneficiaries participate in all the decision making of their house construction, some participate as artisans and the most vulnerable, with no labour capacity, are supported with labourers.

Environmental Consideration

When using local materials, ensuring that the materials are treated and utilized in a manner that prolongs their durability is prioritized, thereby reducing the need for frequent rebuilding due to material degradation. Additionally, we ensure that suppliers possess the required certificates and permits for material provision.

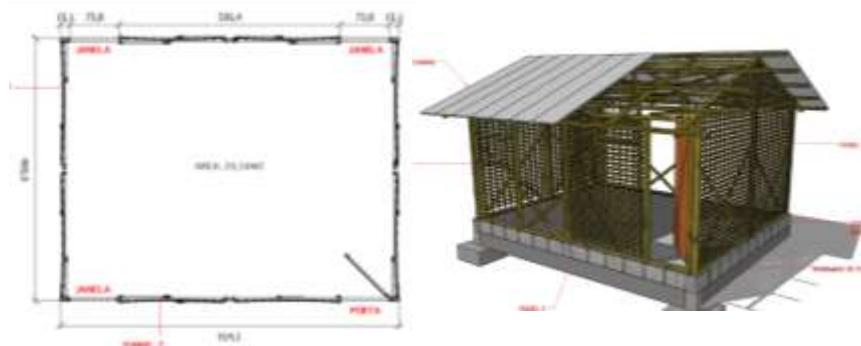
Cultural Practices (Sustainability)

We collaborate with the community to incorporate their cultural values and construction preferences into the house designs. By aligning interventions with traditional practices and applying Build Back Safer techniques, we ensure knowledge transfer, community acceptance, and the sustainability of the constructions.

Other Information

We encourage the participation of women in all construction activities and provide equal training for both men and women on Build Back Safer techniques and PSEA, which is a mandatory requirement for program involvement.

PERMANENT HOUSING SOLUTIONS



Province(s):
Cabo Delgado

District(s):
Ibo district

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Workforce required for set up

2 skilled 3 unskilled

Shelter area
20.56 sqm (m²)

Shelter dimensions
4m X 5.14m

Shelter habitability
4.11m per person
suitable for 5 occupants

Materials

Roofing: corrugated galvanized iron (CGI) roofing sheets

Walls: Pau a Pique (bamboo, timber, rocks, cement plastering, etc.), doors and windows

Floors: concrete flooring

DRR/Resilience techniques used

Strong foundations, cross bracing and strong roof anchorage, ensuring stability and resistance to natural hazards such as floods or strong winds.

Advantages

- ☐ Local materials and traditional building methods ensure that the houses align with cultural practices and are accepted by the community.
- ☐ Applying Build Back Safer construction techniques result in houses resilient to climate shocks.
- ☐ Familiar materials and techniques allows for quicker construction, aiding in the rapid recovery and stabilization of community's post-disaster.

Challenges/Disadvantages

- ☐ Local artisans may require additional training to effectively implement Build Back Safer techniques.
- ☐ Sourcing sufficient local materials and skilled labor, limit the ability to meet housing demands in Ibo islands.

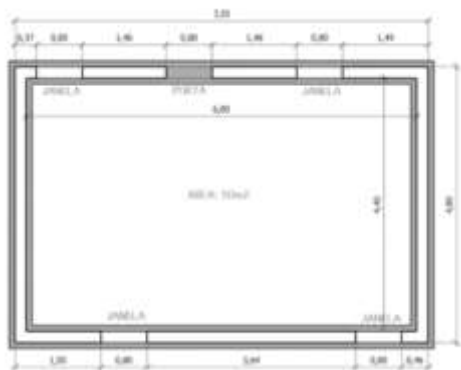
Shelter estimated cost

Material cost: USD 1,600*
Labour cost: USD 100

**not including logistics*



PERMANENT HOUSING SOLUTIONS



Province(s):
Cabo Delgado

District(s):
Ibo district

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: corrugated galvanized iron (CGI) roofing sheets

Walls: Coral Ragstone

Floors: Concrete floor

DRR/Resilience techniques used

The use of coral ragstone, when responsibly sourced, is an environmentally friendly, durable and resilient option, as it makes use of naturally occurring materials.

Workforce required for set up

3 skilled 2 unskilled

Shelter area

34.56 sqm (m²)

Shelter dimensions

7m X 4.80m

Shelter habitability

46.9m per person
suitable for 5 occupants

Advantages

- ☐ Coral ragstone is a strong and long-lasting material, offering excellent structural integrity and resistance as well as great insulating properties.
- ☐ Coral ragstone is locally available, which makes construction more affordable as we reduce transportation costs.
- ☐ Houses require less maintenance over time compared to other materials, reducing long-term upkeep costs.

Challenges/Disadvantages

- ☐ Coral ragstone may be in limited supply, especially on small islands, making it difficult to meet large-scale housing demands.
- ☐ Requires specialized skills and labor, which may not be readily available, leading to increased construction time and costs.

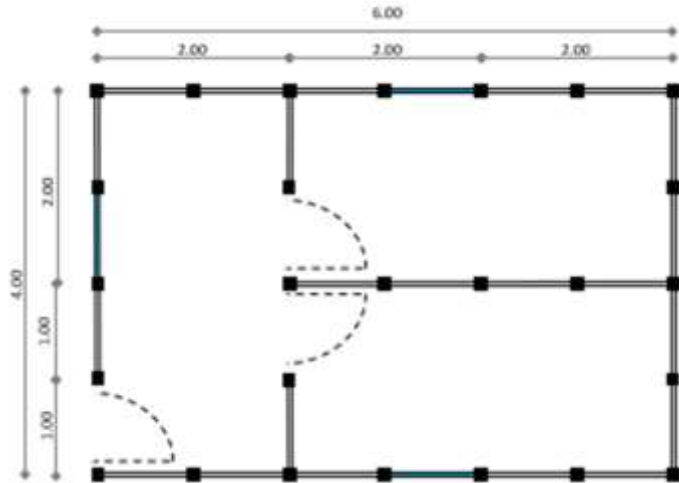
Shelter estimated cost

Material cost: USD 1,200*

Labour cost: USD 150

**not including logistics*

PERMANENT HOUSING SOLUTIONS



Province(s):
 Cabo Delgado, Nampula, Manica

District(s):
 Pemba, Memba, Sussundenga

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent House

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: corrugated galvanized iron (CGI)

Walls: Pau a Pique (bamboo, timber, rocks, mud-cement plastering, etc.), doors and windows

Floors: soil

DRR/Resilience techniques used

Roof connections, wall bracings, strong foundations, cement skirting board, wood treatment, etc.

Workforce required for set up

2 skilled 2 unskilled

Shelter area

24 sqm (m²)

Shelter dimensions

6m X 4m

Shelter habitability

4.8m per person
suitable for 5 occupants

Advantages

- ☐ More durable housing solution compared to emergency shelter
- ☐ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☐ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☐ Balancing the use of local materials with environmental conservation efforts is a challenge
- ☐ Can be more expensive than emergency or transitional shelter
- ☐ Takes longer to construct than emergency shelter
- ☐ May require more advanced construction skills and materials

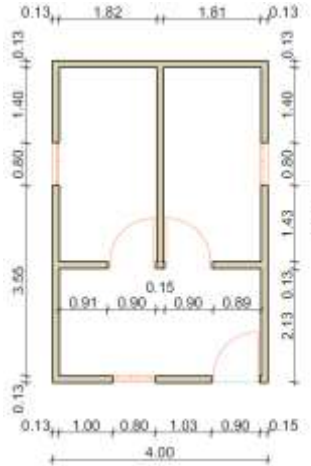
Shelter estimated cost

Material cost: USD1,500*

Labour cost: USD 120

**not including logistics*

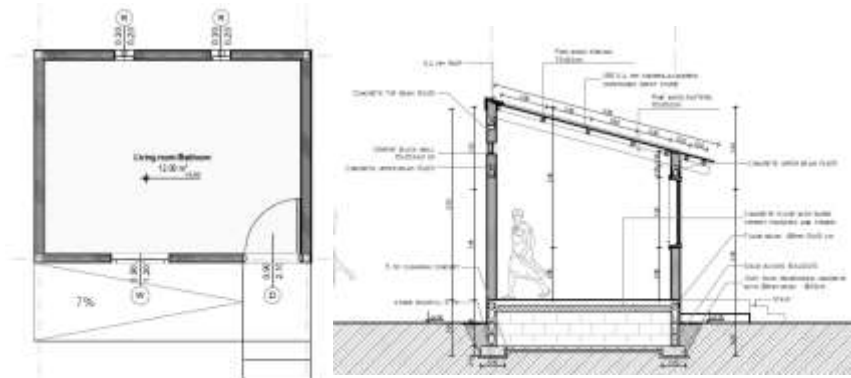
**MOZAMBIQUE
SHELTER CLUSTER**
Coordinating Humanitarian Shelter and Settlements



☐ Temporary site
☒ Relocation site, Resettlement sites
☐ Host areas/affected areas
☐ Return/origin location

**not including logistics*

PERMANENT HOUSING SOLUTIONS



Province(s):
Sofala

District(s):
Beira

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent House

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: Galvanized IBR (Inverted Box Rib) Roof Sheetting
Walls: Reinforced Concrete block, doors and windows
Floors: Concrete flooring

DRR/Resilience techniques used

Strong roof connections, concrete columns and bands, strong foundations, cement plastering, wood treatment, etc.

Advantages

- ☐ Permanent and resilient housing solution to support the recovery efforts of the family
- ☐ House has the possibility of expansion.
- ☐ Local and culturally adapted
- ☐ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☐ It is more expensive than using local materials
- ☐ Takes longer to construct than emergency or transitional shelter
- ☐ Requires more advanced construction skills and materials
- ☐ The house is small and offers only one room

Workforce required for set up

2 skilled 2 unskilled

Shelter area

12 sqm (m²)

Shelter dimensions

3m X 4m

Shelter habitability

4m per person
suitable for 3 occupants

Shelter estimated cost

Material cost: USD 3,200*
Labour cost: USD 330

**not including logistics*



PERMANENT HOUSING SOLUTIONS | ROOF REPAIRS | RETROFITTING

Province(s):
Cabo Delgado, Sofala

District(s):
Ancuabe, Beira

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent House

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☒ >5 days
- ☐ >15 days

Workforce required for set up

1 skilled 2 unskilled

Shelter area

Coverage roof of up to 45 sqm (m²)

Shelter dimensions

Depends on the repaired house

Shelter habitability

Depends on the repaired house

Materials

Roofing: Option#1: Galvanized IBR (Inverted Box Rib) Roof Sheeting, Hurricane clips, treated timber, umbrella nails, etc.
Option#2: Corrugated galvanized iron (CGI) Roof Sheeting, roof and wall bracings, treated timber, umbrella nails, etc.

*Some roof repairs include reinforcement of other structural components

DRR/Resilience techniques used

Strong roof connections, roof band reinforcement, wood treatment, etc.

Advantages

- ☐ Long-term solution, ensuring durability and stability of the housing structure.
- ☐ Provision of better protection against weather elements, reducing the risk of leaks and structural damage.
- ☐ Properly repaired roofs improve insulation, leading to better energy efficiency.

Challenges/Disadvantages

- ☐ Requires more advanced construction skills and materials
- ☐ In some cases, focusing solely on the roof might neglect other structural components that also need attention, compromising overall building integrity.

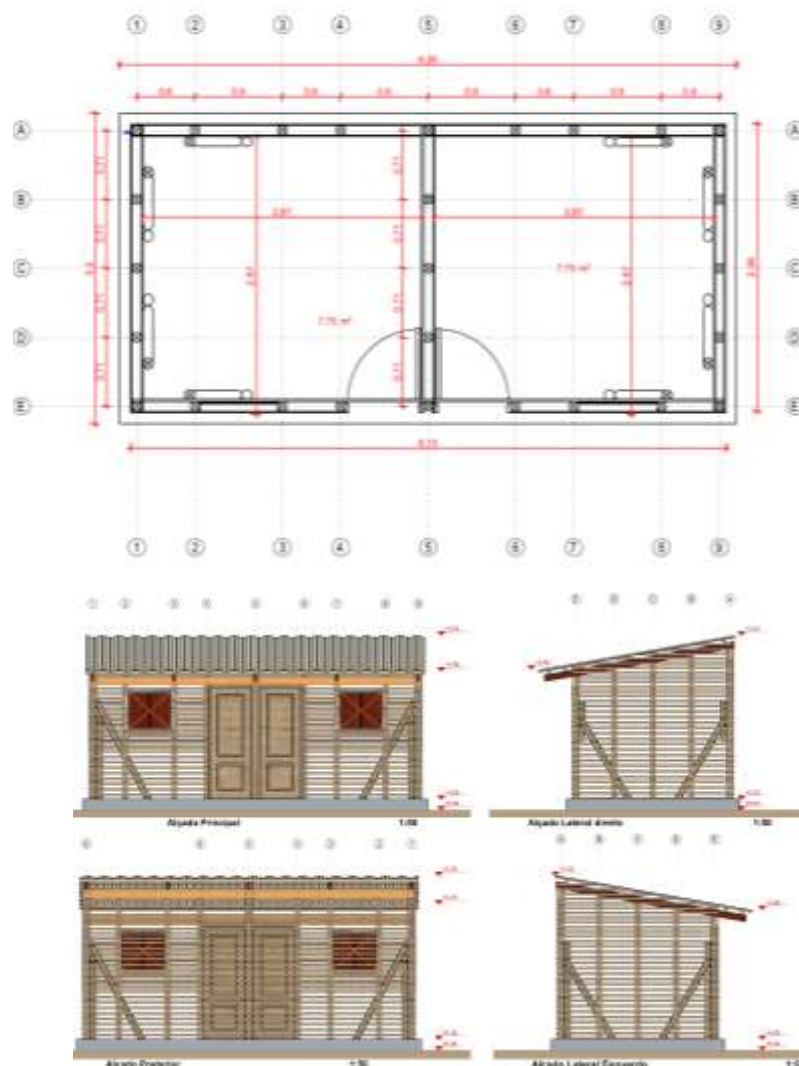
Shelter estimated cost

Material cost: USD 1,200*

Labour cost: USD 215

**not including logistics*





Province(s):
Cabo Delgado

District(s):
Pemba

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☒ Emergency Shelter
- ☐ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Construction with hired labour (skilled and unskilled). The construction team consisted of four craftsmen: two bricklayers and two carpenters, all hired to ensure the quality of the work. The beneficiaries of the project also took an active part, acting as helpers and contributing to the execution of the tasks.

Community Engagement/ Participation

The houses were built/assembled with local labour and with the participation of the beneficiaries, who acted as assistants and were responsible for filling the walls with stones before the final finish.

Cultural Practices (Sustainability)

Use of traditional (mixed) techniques. Local and conventional materials: Use materials that are abundant in the region and mix them with conventional materials; Promoting the local economy: Favouring the purchase of materials and hiring local labour.

Environmental Consideration

Low environmental impact - usage of local material from certified sources

Other Information

Beneficiaries were involved in the annexes project as helpers. Beneficiaries with vulnerable physical conditions were supported by the artisans.

PERMANENT HOUSING SOLUTIONS



Province(s):
Cabo Delgado

District(s):
Pemba

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: corrugated galvanized iron (CGI)

Walls: Pau a Pique (bamboo, timber, rocks, mud-cement plastering, etc.)

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall bracings, strong foundations, cement skirting board, wood treatment, etc.

Workforce required for set up

4 skilled

Shelter area
15.5 sqm (m²)

Shelter dimensions
6.35m X 3.2m

Shelter habitability
3.8m per person
suitable for 4 occupants

Advantages

- ☐ More durable housing solution compared to emergency shelter
- ☐ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☐ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☐ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average mozambican family.

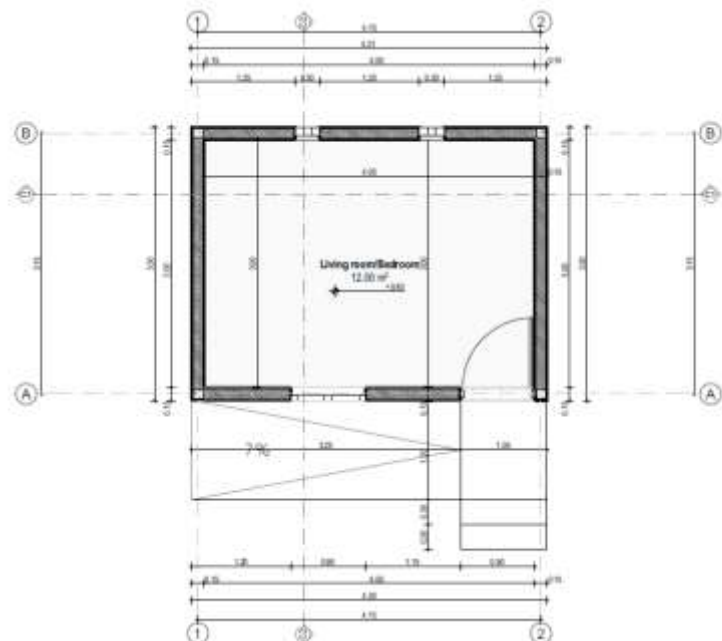
Shelter estimated cost

Material cost: USD 1,750*

Labour cost: USD 169*

**not including logistics*

PERMANENT SHELTER



Province(s):

Sofala

District(s):

Dondo

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The buildings are built using conventional materials and are carried out by a group of artisans (local labour), with 2 bricklayers, 1 carpenter and 1 helper needed to build a house.

However, QA/QC quality control is carried out by the site managers and supervisors. In order to guarantee greater flexibility in the construction process, the project has a production workshop where prefabricated materials are produced to measure, such as: Construction site materials, formwork, pillar and beam reinforcements, roof structures and painted doors and windows.

Community Engagement/ Participation

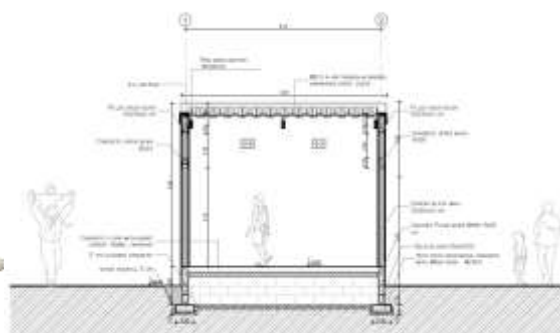
The communities are directly involved in the project, firstly as beneficiaries and secondly as artisans (executors of the houses). But for this project, we are counting on the support of the community in the process of quickly locating the beneficiaries' houses, in the process of signing tripartite agreements for the execution of the houses, and in the process of controlling the material, through the community policing group.

Environmental Consideration

All environmental issues that respond to the challenges of the millennium are taken into account, in accordance with EB policies.

Cultural Practices (Sustainability)

Nothing specific to report. But all the cultural practices of each of the regions covered by the project are respected.



PERMANENT SHELTER



Province(s):

Sofala

District(s):

Dondo

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: IBR Sheet Metal 686, 4mm thick

Walls: Concrete block masonry 400x200x150 mm thick + 0.0250mm of render on each side of the wall.

Floors: Simple C25/30 concrete finished with trowel-fired screed

DRR/Resilience techniques used

Roof connections, wall bracings, strong foundations, cement skirting board, wood treatment, etc.

Advantages

More durable housing solution compared to emergency shelter. Local and culturally adapted. Shelter can be upgraded and expanded. Improves overall well-being and promotes long-term recovery and stability.

Challenges/Disadvantages

Logistical chain of the project; permanent training of artisans

Workforce required for set up

1 skilled 4 unskilled

Shelter area

12 sqm (m²)

Shelter dimensions

3m X 4m

Shelter habitability

3m per person
suitable for 4 occupants

Shelter estimated cost

Material cost: USD 3.200*

Labour cost: USD 355.73

**not including logistics*





Province(s):

Cabo Delgado

District(s):

Chiure, Metuge, Montepuez and Mueda

Shelter category

Context/Trigger of response

- ☒ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Emergency Shelter
- ☒ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The shelter response provided by UNHCR Sub-Office in Cabo Delgado province is critical to address the urgent needs of IDPs by providing them with life-saving shelters and core-relief items/NFI assistance. The transitional shelters are tailored to the household size, vulnerability level, and displacement phase, utilizing locally sourced materials according to the context. From 2021 until 2023 Shelter and NFI activities have been implemented through partnerships agreements with International NGOs to respond to the protracted crisis. In 2023 and 2024, UNHCR scaled up the localization strategy and capacity development of local entities, with formalization of partnerships with SDPI in Montepuez and Mueda districts.

Community Engagement/ Participation

The beneficiaries participate in all the construction process which foster a sense of ownership and responsibility, leading to better maintenance and longevity of the shelters. This includes:

- Open communication channels for dialogue.
- Meetings within the community to address shelter and other issues.
- CFM – Complaint and feedback mechanisms system within the sites.
- Advocate for Community needs.
- Measuring impact and outcomes.

Cultural Practices (Sustainability)

The emergency shelters built with familiar materials and techniques are more likely to be culturally accepted and integrated into the community's way of life.

Other Information

We encourage the participation of women in all construction activities and provide equal training for both men and women on Build Back Safer techniques adapted to the construction of Emergency shelters and provide PSEA, which is a mandatory requirement for program involvement.

EARLY RECOVERY - SHELTER ROOF UPGRADE



Before



After

Province(s):
Cabo Delgado

District(s):
Montepuez

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☐ Permanent House

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☒ 3-5 days
- ☐ >5 days
- ☐ >15 days

Workforce required for set up

1 skilled 2 unskilled

Materials

Local wooden poles, bamboo poles, mud daub wall for the superstructure, CGI (corrugated galvanized iron) sheet on local wooden truss roof.

Shelter area

Type 1 - 18sqm (6mx3m) for small households with 5 and below family members.

Type 2 – 30sqm (5mx6m) for household size above.

Reinforcement of the superstructure and upgrading of the roof structure from grass thatch to CGI sheets in Nicuapa host village, Montepuez district. Constructed with partners AVSI (Association of Volunteers in International Service) and SDPI from 2023 to 2024.

DRR/Resilience techniques used

Strong roof connections, wood treatment, piles in depth of 50cm, etc.

Advantages

- ☐ Long-term solution, ensuring localization strategy and capacity development.
- ☐ Community participation.
- ☐ Properly repaired roofs improve insulation, leading to better energy efficiency.

Challenges/Disadvantages

- ☐ Shelter sizes aren't consistent, which may vary the materials quantities.
- ☐ Beneficiaries' vulnerability during the building process.

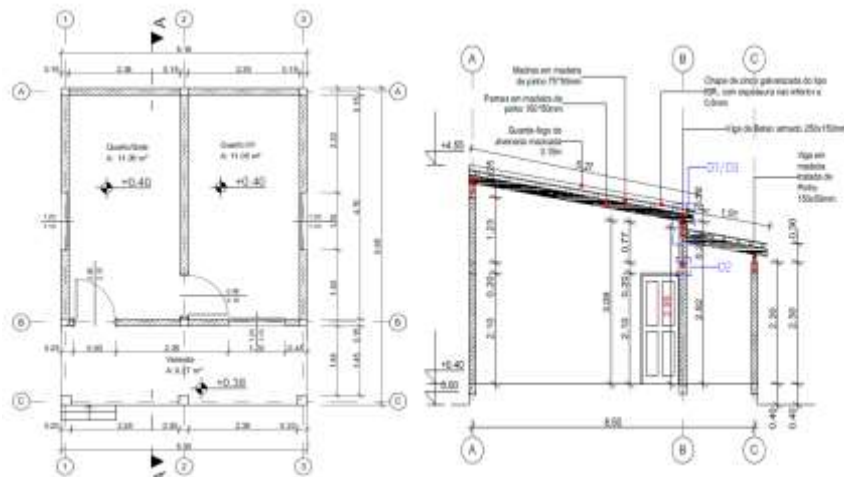
Type 2

Total cost: 600\$

Material cost: 536.71\$

Labour cost: 63.29\$

[PERMANENT HOUSING SOLUTIONS]



Province(s):

SOFALE

District(s):

DONDO DISTRICT

Context/Trigger of response

- ☐ Conflict
- ☒ **x Cyclone**
- ☐ Floods

Setting

- ☒ **x Rural**
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ **x Permanent Shelter**

Type of site

- ☐ Temporary site
- ☒ **x Relocation site, Resettlement sites**
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The implementation modality for the construction of resilient houses is based on self-construction approach implemented by a local NGO with effective participation of local beneficiaries, which received training in resilient construction and subsequent on-the-job training is done throughout the project implementation.

Community Engagement/ Participation

The beneficiaries themselves participate in the selection process of the most vulnerable beneficiaries and receive training as skill labors to support on the building process of the houses.

Environmental Consideration

Use local materials and ensure that the source of the materials are legal according to Mozambican laws and are approved by the the supervision body as well as the use of individual protection equipment for the labors.

Cultural Practices (Sustainability)

Collaboration with the host community and local government to incorporate their cultural values and construction preferences into the house designs. By aligning interventions with traditional practices and applying Build Back Better techniques, we ensure knowledge transfer, community acceptance, and the sustainability of the constructions.

[PERMANENT HOUSING SOLUTIONS]



Province(s):

SOFALE

District(s):

DONDO

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone x
- ☐ Floods

Setting

- ☒ Rural x
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter x

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites x
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years x

Materials

Roofing: Corrugated galvanized iron sheet

Walls: Cement blocks

Floors: Concrete pavement

Advantages

- ☐ Engage local beneficiaries in the construction process to build local capacity and transfer resilient construction practices within the community
- ☐ Evolutive houses
- ☐ Promotion of local and sustainable materials

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days x

DRR/Resilience techniques used

Resilience techniques, such as wall weaving, enhance strength, while robust foundations, roof connections, wood treatment and ensure overall structural stability and durability including resilient construction trainings for local beneficiaries

Challenges/Disadvantages

- ☐ Misuse of money by NGO/CSOs
- ☐ Inadequate capacity of IPs, engineers, consultant company
- ☐ Assure that beneficiaries will be the actual owner of the houses
- ☐ Quality of local materials

Workforce required for set up

2 skilled 3 unskilled

Shelter area

34,25 sqm (m²)

Shelter dimensions

5,15m X 6,65m

Shelter habitability

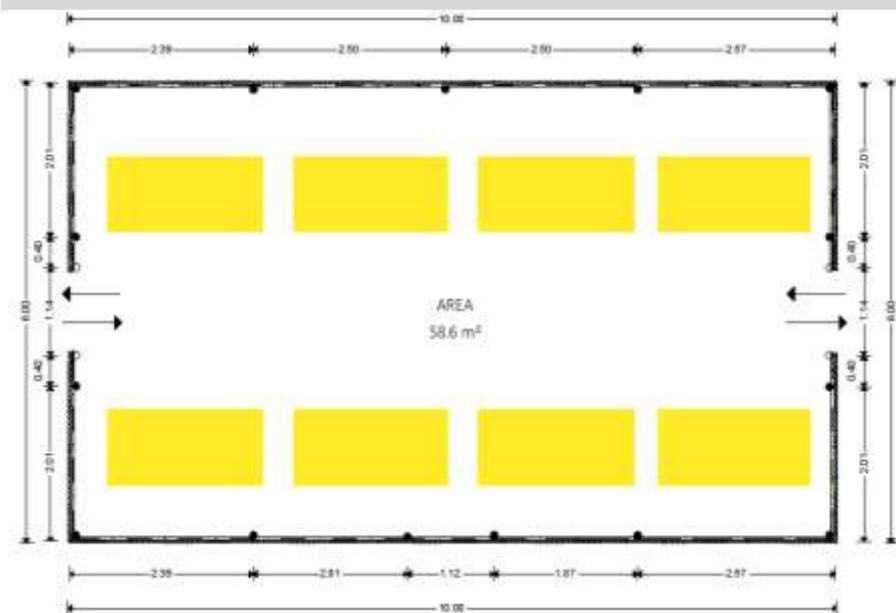
6m per person
suitable for 5 occupants

Shelter estimated cost

Material cost: USD 7,000

Labour cost: USD 3,000

[COMMUNITY MARKET/ INFRASTRUCTURE]



Province(s):
Cabo Delgado

District(s):
Chiúre - Mahipa

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Market category

- ☐ Emergency Market
- ☐ Transitional Market
- ☒ Permanent Market

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

The community will receive all the materials needed to build the community market: rope, wire, nails, zinc sheets, beams, burnt oil/cashew oil, cement, sand and gravel.

A construction committee was formed, made up of 7 members (specialized and non-specialised members), responsible for building the wall structure with bamboo and eucalyptus poles, building the roof structure and paving the market.

The construction members are members of the community.

Community Engagement/ Participation

CARE trained and equipped a group of local volunteer carpenters, later the group would carry out roofing work on the shelters through a selection of the most outstanding in the group, as this was specialized work. We will also use a specific group of masters (bricklayers) to make the flooring of the market - local masters.

Environmental Consideration

Building community markets with mixed materials offers an opportunity to balance sustainability, durability and efficiency. The life cycle of materials used incorporates the practice of resilient construction and sustainable maintenance to minimize negative environmental impacts.

Cultural Practices (Sustainability)

- 0.34 m² (m2) per seller suitable for 16 permanent and 8 occasional occupants;
- Every Saturday, the market welcomes traders from various points to participate in the fair;
- The market was developed to also accommodate people with special needs, at both entrances it has ramps.

Other Information

- Material cost: USD 4,538.41*
- Labour cost: USD 633.992
- Workforce required for set up: 3 skilled 5 unskilled;
- Market area: 10mx6m - 60 sqm (m²)



PERMANENT HOUSING



Resilient Houses in Icidua, Quelimane (2017/2019)

Province(s):

Cabo Delgado, Nampula, Zambezia, Manica, Sofala, Inhambane and Gaza

District(s):

Pemba, Ancuabe, Angoche, Mongicual, Ilha de Moçambique, Quelimane, Manica, Dondo, Nhamatanda, Buzi, Vilanculos and Chokwe.

Context/Trigger of response

- ☒ Conflict
- ☒ Cyclone
- ☒ Floods

Setting

- ☒ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☒ Transitional Shelter
- ☒ Permanent House

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

UN-Habitat's response to resilient housing in Mozambique is based on a community and government-led approach using participatory methods to design, plan, prioritize and build resilient housing and shelter models. Government technicians, local artisans (men and women), youth and women's associations are trained in resilient construction throughout the project implementation. Following the three (3) resilience principles (cultural appropriation, local technologies and climate adaptation), the models are diversified depending the location and building materials is collected locally or brought into the community, following strict environmental and resilience standards.

Community Engagement/ Participation

The community is involved from the start of the process, in the initial assessment, design of the model, construction and supervision. Depending on the physical condition and age of the beneficiaries, they can take an active part in the construction and benefit from training to help them maintain the houses.

Environmental Consideration

To ensure environmental sustainability UN-Habitat promotes the following principles: 1. prioritize the practice of good execution and application of materials, 2. implement site mapping and risk assessment, 3. implement diversification of models (conventional, mixed and/or local) and 4. encourage the use of certified materials by suppliers.

Cultural Practices (Sustainability)

An initial participatory assessment of the local context is essential to ensure cultural appropriateness, ownership of the model and replicability. In line with this, UN-Habitat argues that local technologies should be studied in order to improve them, as replicability and ownership are highly dependent on local culture.

Other Information

The people-centred process is a fundamental requirement of UN-Habitat interventions, as it ensures the creation of capacity at the community level to prepare for, respond to and adapt to future crises. The participation of women and young people is encouraged, and it is essential that cross-cutting issues of PSEA and GBV are implemented throughout the process.

[PERMANENT HOUSING SOLUTIONS]



Model T1



Model T2

Province(s):
Sofala

District(s):
Dondo (Mandruzi), Nhamatanda (Metuchira)

- Context/Trigger of response**
 - ☒ Conflict
 - ☐ Cyclone
 - ☐ Floods
- Shelter category**
 - ☐ Emergency Shelter
 - ☐ Transitional Shelter
 - ☒ Permanent Shelter
- Setting**
 - ☒ Rural
 - ☐ Urban
- Type of site**
 - ☐ Temporary site
 - ☒ Relocation site, Resettlement sites
 - ☐ Host areas/affected areas
 - ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

The implementation of these models in IDAI's post-cyclone reconstruction uses a participatory and community-centered methodology. The model is new to the community therefore it has been implemented in Vilanculos and Xai-Xai and is being identified as a suitable model for cyclone affected areas, with good acceptance, has been proposed as a pilot for dissemination in the areas of Beira, Dondo, Nhamatanda and Buzi.

This resilient housing solution can be used as a durable solution in local integration, return or resettlement situations in urban, peri-urban or rural context.

Community Engagement/ Participation

This resilient housing model, implemented in Mandruzi (Dondo), and Metuchira (Nhamatanda), endorsed by local government and the community was trained to built.

Environmental Consideration

The construction of these houses involves the use of pressed bricks, for which the soil must have specific characteristics, so this implementation may involve excavations that may affect the local environment. Excavation is recommended in accordance with local environmental standards and with a mitigation plan.

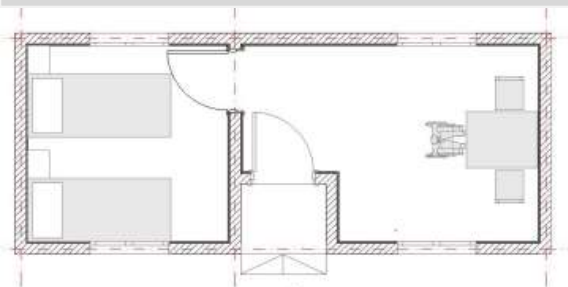
Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.

[PERMANENT HOUSING SOLUTIONS]



Province(s):

Sofala

District(s):

Dondo (Mandruzi), Nhamatanda (Metuchira)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: Ferrocement vault.

Walls: conventional wall with stabilized blocks and concrete beams and pillars.

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Ferrocement vault, wall and roof reinforced connections, strong foundations etc.

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: USD 8,400

Labour cost: USD 2,400*

*not including logistics (10% = USD 1,200)
Implemented by Contractors

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T1: 21 sqm (m²)
T2: 30 sqm (m²)

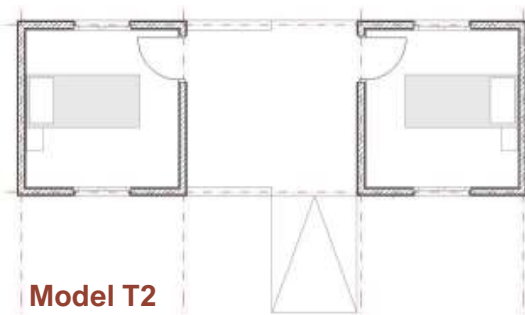
Shelter dimensions

3m X 7m
3m X 10m

Shelter habitability

3.5m² per person
suitable for 6-8 occupants

Model T1



Model T2

[PERMANENT HOUSING SOLUTIONS]



Province(s):

Sofala

District(s):

Dondo (Mandruzi) and Buzi (Guara-Guara)

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

This model was designed with the involvement of government technicians and community members through participatory housing design workshop.

To speed up assistance and implementation, these models were implemented using a hybrid approach, with contractors overseeing construction and stabilized blocks supplied by local associations established, trained and empowered by the project.

This resilient housing solution can be used as a durable solution in local integration, return or resettlement situations in urban, peri-urban or rural context.

Community Engagement/ Participation

This resilient housing model, implemented in Mandruzi (Dondo), and Guara-Guara (Buzi), was designed by the government technicians and community members.

Environmental Consideration

The construction of these houses involves the use of pressed bricks, for which the soil must have specific characteristics, so this implementation may involve excavations that may affect the local environment. Excavation is recommended in accordance with local environmental standards and with a mitigation plan.

Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.

[PERMANENT HOUSING SOLUTIONS]



Province(s):

Sofala

District(s):

Dondo (Mandruzi), Buzi (Guara-Guara)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T1: 36 sqm (m²)
Including verandas

Shelter dimensions

6m X 6m

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails.

Walls: conventional wall with stabilized blocks and concrete beams and pillars.

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, 2 slope Roof, wood treatment, etc.

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

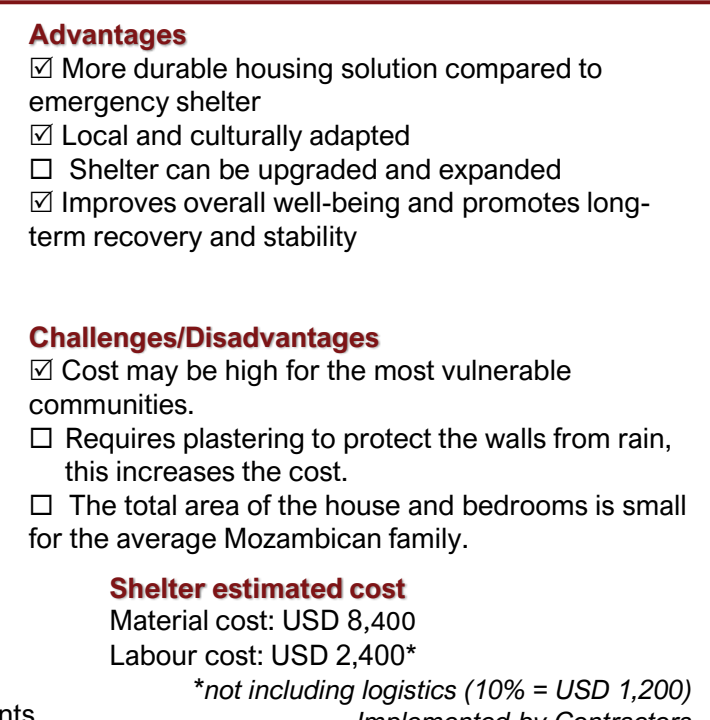
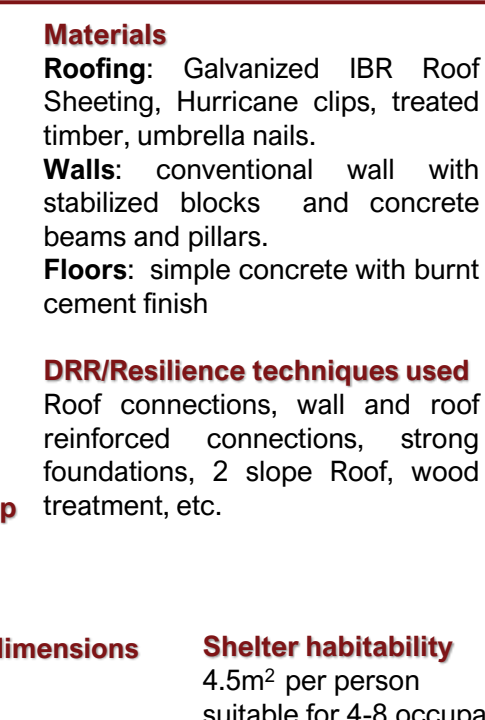
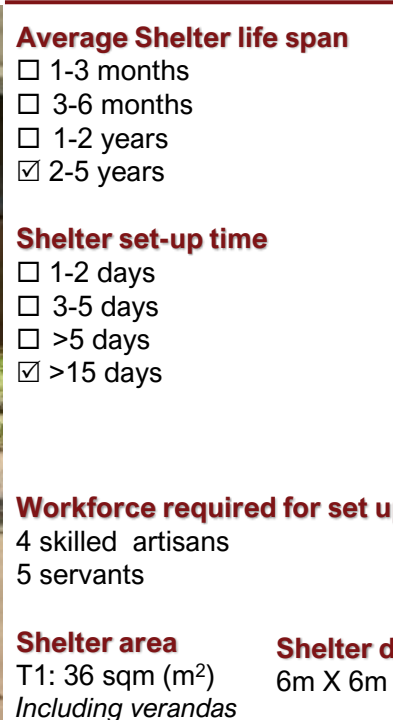
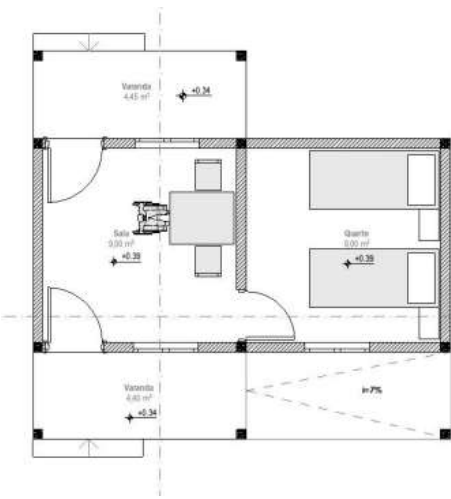
- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: USD 8,400

Labour cost: USD 2,400*

*not including logistics (10% = USD 1,200)
Implemented by Contractors



[PERMANENT HOUSING SOLUTIONS]



Model T3



Model T2

Province(s):
Cabo Delgado

District(s):
Ancuabe (Marokani)

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Square, hipped-roof, Swahili-style house model, designed with the involvement of government technicians and built with the active participation of skilled and unskilled community members (women and youth). The construction team consists of two masons, two carpenters and five selected workers, all hired from the community.

The beneficiaries of the houses also participated as helpers and contributed to the process of filling the walls with mud and painting the houses.

This resilient housing solution can be used as a durable solution in local integration, return or resettlement situations.

Community Engagement/ Participation

This resilient housing model, implemented in Marokani (Ancuabe), was designed by the government technicians through a technical consultations meetings and built using locally available labour and construction material.

Environmental Consideration

These resilient houses use local forest materials (bamboo and poles) collected by the community in accordance with requirements set by national authorities. The involvement of the community in the construction process ensures long-term durability and sustainability by strengthening their maintenance skills.

Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.

[PERMANENT HOUSING SOLUTIONS]



Province(s):
Cabo Delgado

District(s):
Ancuabe (Marokani)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails.

Walls: #option1: conventional wall with cement block and concrete beams and pillars. #option 2: mixed material wall with local stakes, bamboos, cement plaster

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, 4 slope Roof, wood treatment, etc.

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T2: 36 sqm (m²)
T3.: 48 sqm (m²)

Shelter dimensions

6m X 6m
8m X 6m

Shelter habitability

4.5m² per person
suitable for 6-10 occupants

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: T2 USD 2,520* / T3 USD 3,360*

Labour cost: T2 USD 720* / T3 USD 960*

**not including logistics (10% = USD 360 /480)*

[PERMANENT HOUSING SOLUTIONS]



Province(s):

Sofala

District(s):

Dondo

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

PROJECT DESCRIPTION

Methodology

Conventional urban incremental house model built by hired and trained local craftsmen (skilled and unskilled). The construction team consists of two masons, one carpenter and five selected servants, all hired to ensure the quality of the work.

The beneficiaries of the project also participated actively, acting as helpers and contributing to the construction process and learn resilient building techniques for maintaining the house.

This resilient housing solution can be implemented as a durable solution in urban and peri-urban areas..

Community Participation

This resilient housing model, implemented in Dondo, was designed by the community through a participatory design workshop and built using locally available labour and with the active participation of the beneficiaries, who acted as servants and sometimes construction supervisors..

Environmental Consideration

Minimal environmental impact through the use of conventional materials sourced from certified suppliers. Waste from the house destroyed by the cyclone was used to fill the floors of the house.

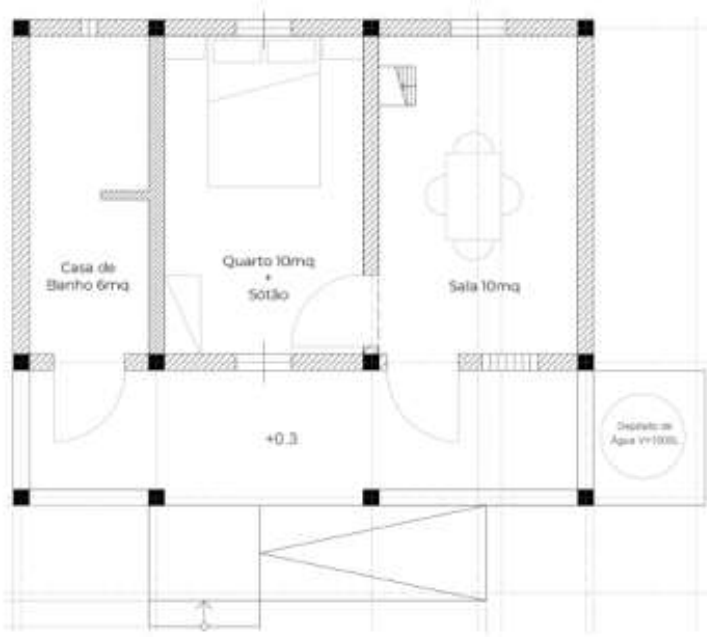
Engagement/

Cultural Practices (Sustainability)

Use of improved conventional construction techniques, sourcing of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.



[PERMANENT HOUSING SOLUTIONS]



Province(s):

Sofala

District(s):

Dondo

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Workforce required for set up

3 skilled artisans
5 servants

Shelter area

Core: 21 sqm (m²)
Exp.: 33,2 sqm (m²)

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails, Gable beams.

Walls: Cement block walls, reinforced concrete beams and columns, cement mortar plaster.

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, Raised floor, wood treatment, etc.

Shelter dimensions

5m X 4.2m
8m X 4.2m

Shelter habitability

4/5.3 m² per person
suitable for 6-8 occupants

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☒ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

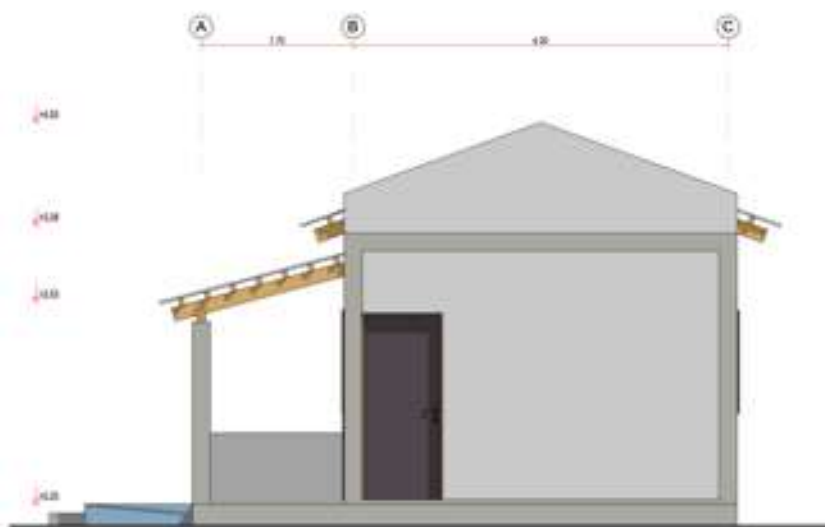
- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☒ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: USD 3,850*

Labour cost: USD 1,100*

*not including logistics (10% = USD 550)



[PERMANENT HOUSING SOLUTIONS]

**Province(s):**

Zambezia

District(s):

Quelimane (Icidua)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☒ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Mixed-material resilient house model, with square shape, hipped-roof designed with the involvement of Municipal technicians and built with the active participation of skilled and unskilled community members (women and youth). The construction team consists of two masons, two carpenters and five selected workers, all hired from the community.

This model was built using coconut wood to make the wall structure and the roof structure, with the involvement of a local carpentry workshop that produces coconut wood.

This resilient housing solution can be used as a durable solution in urban and peri-urban areas.

Community Engagement/ Participation

This resilient housing model, implemented in Icidua (Quelimane), was replicated by the community members and it helped to enhance community resilience. This model resisted to cyclone Freddy.

Environmental Consideration

These resilient houses use local coconut wood provided by local enterprise.

The involvement of the community in the construction process ensures long-term durability and sustainability by strengthening their maintenance skills.

Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.

[PERMANENT HOUSING SOLUTIONS]



Province(s):

Zambezia

District(s):

Quelimane (Icidua)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location

TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails.

Walls: Mixed material wall using coconut wood structure, bamboo, mud and cement plastering.

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, 4 slope Roof, wood treatment, etc.

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: T1 USD 2,240* / T2 USD 4,550*

Labour cost: T1 USD 640* / T2 USD 980*

**not including logistics (10% = USD 320 /650)*

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T2: 24 sqm (m²)

T3.: 36 sqm (m²)

Shelter dimensions

6m X 4m

6m X 6m

Shelter habitability

3.65m² per person

suitable for 5-8 occupants



[2017-2019]

Mozambique Shelter Cluster

www.sheltercluster.org

[PERMANENT HOUSING SOLUTIONS]



Province(s):
Cabo Delgado

District(s):
Pemba (Chuiba)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☒ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

These resilient housing models in mixed and conventional materials were designed with the involvement of Municipal technicians and built with the active participation of skilled and unskilled artisans. The construction team consists of two masons, two carpenters and six selected workers, all hired from the community.

This model was built using local stakes and woods to make the wall structure and the roof structure. And the cement blocks for the walls were produced by the community.

This resilient housing solution can be used in urban and peri-urban areas as a urban durable solution.

Community Engagement/ Participation

This resilient housing model, implemented in Chuiba (Pemba), was replicated by the community members and it helped to enhance community resilience. This model resisted to secondary effects of cyclone Kenneth.

Environmental Consideration

Minimal environmental impact using conventional materials sourced from certified suppliers.

The involvement of the community in the construction process ensures long-term durability and sustainability by strengthening their maintenance skills.

Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.



[PERMANENT HOUSING SOLUTIONS]



Province(s):
Cabo Delgado

District(s):
Pemba (Chuiba)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location



TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T1: 24 sqm (m²)
T2.: 36 sqm (m²)

Shelter dimensions

6m X 4m
6m X 6m

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails.

Walls: #Option 1: Mixed material wall using coconut wood structure, bamboo, mud and cement plastering. #Option 2: Cement block, Concrete beams and pillars etc

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, 4 slope roof and 2 slope roof, wood treatment, etc.

Shelter habitability

3.65m² per person
suitable for 5-8 occupants

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: T1 USD 2,440* / T2 USD 4,660*

Labour cost: T1 USD 840* / T2 USD 1010*

**not including logistics (10% = USD 360 /690)*

[PERMANENT HOUSING SOLUTIONS]

**Province(s):**

Nampula

District(s):

Ilha de Moçambique

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☐ Return/origin location



PROJECT DESCRIPTION

Methodology

These resilient housing models in mixed and conventional materials were designed with the involvement of Municipal technicians and built with the active participation of skilled and unskilled artisans. The construction team consists of two masons, two carpenters and six selected workers, all hired from the community.

This model was built using local stakes and woods to make the wall structure and the roof structure. And the cement blocks for the walls were produced by the community.

This resilient housing solution can be used in urban and peri-urban areas as an urban durable solution.

Community Engagement/ Participation

This resilient housing model, implemented in Macicate (Ilha de Moçambique) resisted to effects of the cyclones Eloise, Ana and Gombe.

The technics were replicated in the neighborhood by the community members.

Environmental Consideration

Minimal environmental impact using conventional materials sourced from certified suppliers.

The involvement of the community in the construction process ensures long-term durability and sustainability by strengthening their maintenance skills.

Cultural Practices (Sustainability)

Use of improved conventional and non-conventional construction techniques, obtaining of materials from local suppliers and use of local labour as a way of boosting the local economy and promoting community resilience.

Other Information

The artisans were selected by local leaders and were also trained in resilient construction. In addition to construction, the training covered topics such as the sustainable use of local materials, the production of cement blocks, and the selection and use of wood in resilient roofs.



[PERMANENT HOUSING SOLUTIONS]



Province(s):
Cabo Delgado

District(s):
Pemba (Chuiba)

Context/Trigger of response

- ☐ Conflict
- ☒ Cyclone
- ☐ Floods

Setting

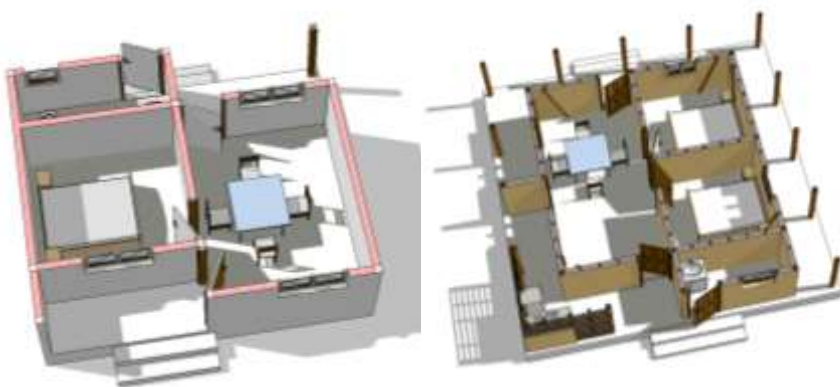
- ☐ Rural
- ☒ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☐ Relocation site, Resettlement sites
- ☒ Host areas/affected areas
- ☒ Return/origin location



TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☐ 3-5 days
- ☐ >5 days
- ☒ >15 days

Materials

Roofing: Galvanized IBR Roof Sheeting, Hurricane clips, treated timber, umbrella nails.

Walls: #Option 1: Mixed material wall using coconut wood structure, bamboo, mud and cement plastering. #Option 2: Cement block, Concrete beams and pillars etc

Floors: simple concrete with burnt cement finish

DRR/Resilience techniques used

Roof connections, wall and roof reinforced connections, strong foundations, 4 slope roof and 2 slope roof, wood treatment, etc.

Advantages

- ☒ More durable housing solution compared to emergency shelter
- ☒ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded
- ☒ Improves overall well-being and promotes long-term recovery and stability

Challenges/Disadvantages

- ☒ Cost may be high for the most vulnerable communities.
- ☐ Requires plastering to protect the walls from rain, this increases the cost.
- ☐ The total area of the house and bedrooms is small for the average Mozambican family.

Shelter estimated cost

Material cost: T1 USD 2,590* / T2 USD 4,340*

Labour cost: T1 USD 740* / T2 USD 1240*

**not including logistics (10% = USD 370 /600)*

Workforce required for set up

4 skilled artisans
5 servants

Shelter area

T1: 24 sqm (m²)
T2.: 36 sqm (m²)

Shelter dimensions

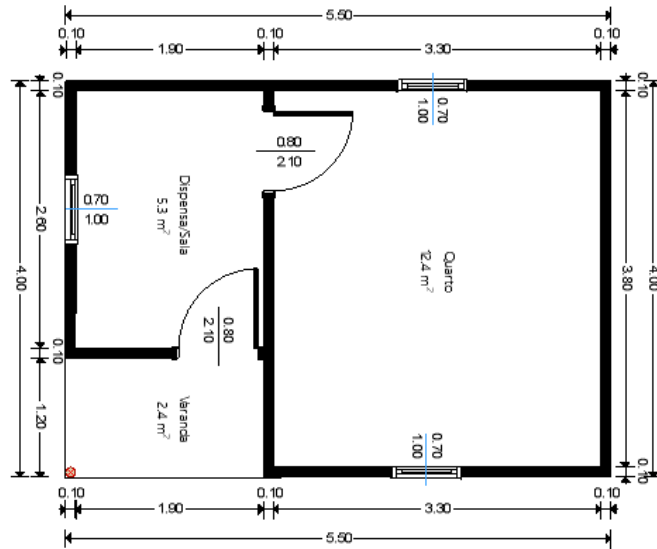
6m X 4m
6m X 6m

Shelter habitability

3.65m² per person
suitable for 5-8 occupants



PERMANENT HOUSING SOLUTIONS



Province(s):
Cabo Delgado

District(s):
Chiúre - Nacivare

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
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TECHNICAL DESCRIPTION

Average Shelter life span

- ☐ 1-3 months
- ☐ 3-6 months
- ☐ 1-2 years
- ☒ 2-5 years

Shelter set-up time

- ☐ 1-2 days
- ☒ 3-5 days
- ☐ >5 days
- ☐ >15 days

Materials

Roofing: Zinc Sheets, wood beams and nails.

Walls: Pau a Pique (bamboo, stick timer, mud plastering, nails off different sizes, recycled rubber rope and wire)

Floors: soil

DRR/Resilience techniques used

Roof connections, wall bracings, strong foundations, wood treatment and pavement preparation

Advantages

- ☐ More durable housing solution compared to emergency shelter
- ☐ Local and culturally adapted
- ☐ Shelter can be upgraded and expanded, adapting the pantry/kitchen

Challenges/Disadvantages

- ☐ May be more expensive than an emergency shelter
- ☐ Takes longer to build than an emergency shelter
- ☐ Delay in cleaning the walls due to lack of water
- ☐ Lack of construction material locally

Workforce required for set up

3 skilled 3 unskilled

Shelter area

22 sqm (m²)

Shelter dimensions

5.5m X 4m

Shelter habitability

4.8m per person
suitable for 3 occupants

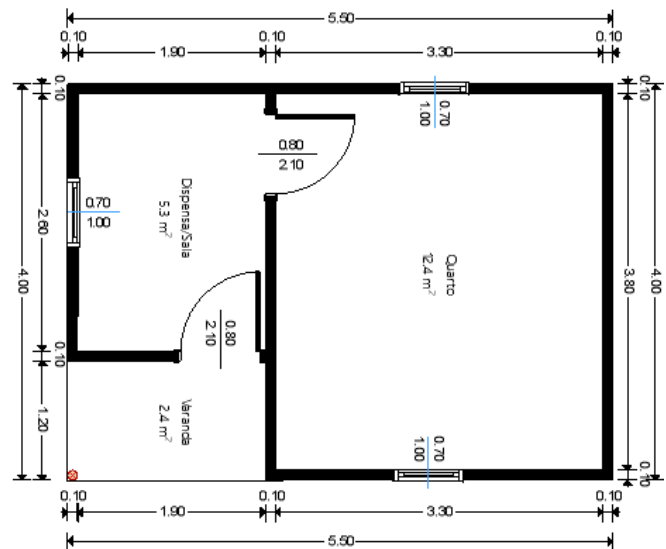
Shelter estimated cost

Material cost: USD 807,95*

Labour cost: USD 33,20

*not including logistics





Province(s):
Cabo Delgado

District(s):
Chiúre - Nacivare

Context/Trigger of response

- ☒ Conflict
- ☐ Cyclone
- ☐ Floods

Setting

- ☒ Rural
- ☐ Urban

Shelter category

- ☐ Emergency Shelter
- ☐ Transitional Shelter
- ☒ Permanent Shelter

Type of site

- ☐ Temporary site
- ☒ Relocation site, Resettlement sites
- ☐ Host areas/affected areas
- ☐ Return/origin location

PROJECT DESCRIPTION

Methodology

Families will be mobilized to chip in wooden poles and bamboos and then the families will receive other additional materials for the construction: rope, wire, nails, sheets and beams.

A mixed construction committee (men and women) will be set up to make the wall structure and assemble the roof structure and the roof will be made with another group of specialized carpenters, and the construction will be carried out by a team of 5 people per shelter.

Community Engagement/ Participation

CARE trained and equipped a group of local volunteer carpenters, later the group would carry out roofing work on the shelters through a selection of the most outstanding in the group, as this was specialized work.

Environmental Consideration

- Uses locally available resources for support, allowing the beneficiary to make upgrades and repairs as needed..
- Windows can be added to allow for optimum air circulation.
 - Wooden posts and bamboo need to be treated to combat termites.
 - You can use the roof sheets to collect rainwater

Cultural Practices (Sustainability)

It is possible to upgrade and improve, extension is also possible using a progressive approach. Especially when adapting the pantry/kitchen in the balcony part.

Other Information

