

Overview

The purpose of this document is to provide technical guidelines on how to assist the population living in temporary shelters after 2015 EQs and that will be affected by low temperatures during the winter in Nepal. The core objective is to assist families with a top-up for their existing coping strategies to help them withstand the winter.

The document includes the results of the winterisation needs and markets availability assessments conducted by agencies in the field. A basic and a supplemental package are recommended according to altitude and living conditions (temporary shelters or displacement camps). Indicative prices are provided depending on the implementation modalities (direct distribution or [cash transfer](#)/voucher system). Partners delivering winterisation support are encouraged to plan for [Post Distribution Monitoring](#) and share results with the Shelter Cluster to enable collective learning.

This document has been developed thanks to the contributions of technical staff from several implementing agencies in country including: NRCS, CRS/Caritas Nepal, Christian Aid, World Vision, Build Change, Malteser International, Goal, ASF Nepal, Care, Oxfam and IOM.

It has been based on previous existing shelter winterisation strategies from other countries adapted to the context of Nepal.

Climate in winter

During winter, December to February, snowline in Nepal drops to approximately 2.000 meters. The different areas that can be found according to the altitude are: High Himalaya (permanent snow), High Mountain (occasional snow), Middle Mountain (no snow), Siwalik (no snow) and Terai (no snow). Average minimum and maximum temperatures in winter, per VDC, can be seen in the [annexed maps](#).

Pre and Post EQ Winterisation Strategies

Winterisation strategies previous to the EQ were mainly targeted at populations living in the Terai where the difference in temperature between summer and winter caused sickness and casualties due to the lack of resources of households on how to prepare for winter. The strategy was primarily based on the distribution of blankets.

Populations living in higher areas already have significant knowledge of how to prepare for the winter, their coping strategies consist of living in thick walled high thermal mass buildings, purchasing warm clothes, and stocking up on food and fuel.

Post EQ scenario, where many high thermal mass buildings have been destroyed a winterisation strategy is required for different cases: HHs living in repaired/ reconstructed houses, undamaged or mildly damage house, or temporary shelter. Special consideration in terms of winterisation item quantities is required for HHs living in displacement camps.

Winterisation Priorities

Shelter is a habitable, covered living space, involving non-food items and support. For a space to be habitable, people living in it must have enough clothing, blankets, mattresses, stoves, fuel, and access to services such as water and sanitation.

The key shelter priority is to keep the immediate space around bodies warm. This is provided primarily by warm clothes and bedding. There is also a key need of blankets.

The secondary shelter priority is to provide protection from the elements, by providing an insulated floor, wind proofing wall and waterproofing roof. Adequate drainage is also required, so tools are needed to help prevent shelters from flooding.

Some key actions for shelter winterisation which households can take are shown below:

- **Personal Insulation:**
To prevent body heat from leaving and being lost to the cold air. Body can be kept warm by wearing warm clothes and covering with blankets. Lots of heat is lost through the head, so a warm hat will make a big difference.
- **Prevent heat loss to the ground:**
Ground insulation and bedding are key actions, and will help survival through periods of cold. The floor will draw warmth away so it is recommended to have raised wooden floors or to raise the mattress off the floor. Whilst closed cell foams will reduce the loss of heat to floors as well. Plastic sheeting is a key basic flooring component preventing rising damp. Consider using insulation sheets or layers of cardboard under rugs/mattresses to add extra insulation.
- **Water proofing:**
Water leaks can be blocked by tarpaulins or plastic sheeting.
- **Draught/wind proofing:**
Draft proofing to close gaps and holes preventing heat loss and inlet of cold air from shelter. The objective is to create 'warm rooms', making bedrooms and living rooms draught proof. These are some possible actions:
 - Block draughts by plastic sheeting, tarpaulins, or blankets over gaps.
 - Fill small holes/gaps in walls or around fixtures.
 - Seal windows by using self-adhesive foam strips to fill gaps and/or tape clear plastic sheet inside frame (creates an insulating air pocket)
 - For doors: use self-adhesive foam strips or brushes to stop gaps. Hang a curtain or blanket inside door to insulate and roll a blanket up to cover gap at bottom.
 - Build low walls (or excavating downwards if there is no risk of flooding). Additional tools may be required to complete this.
 - Add insulation to roof and or walls, creating additional layers of structure on wall and roof to generate insulating air pockets. If possible fill gaps with insulating material
- **Heating:**
Heat the occupied rooms using a suitable heater. The use of stoves to heat internal spaces is dependent on the fuel availability, and choice of stove must take into account of where the fuel comes from. Cooking and heating functions of stoves should be considered separately and care needs to be taken with reducing fire risk. Smoke is a common cause of respiratory infections and eye disease. Care should also be taken with toxic exhaust gases such as carbon monoxide build up. Leaving some ventilation is critical.

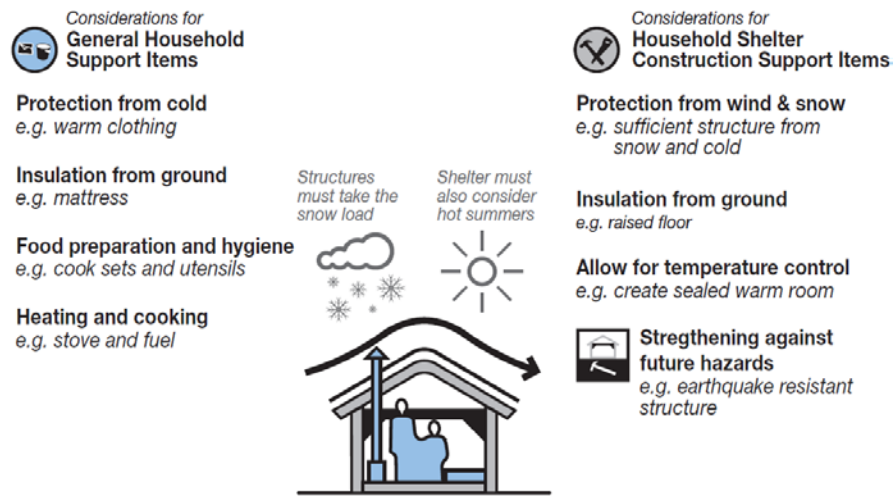
Winterisation Priorities		
Personal Insulation	Personal	Clothes, blankets
	Bedding	Mattress
Ground Insulation	Prevent Heat loss	Raised wooden floors, foams
	Prevent Damp	Plastic sheeting
Water Proof	Block leaks	Tarpaulin, plastic sheeting
Wind Proof	Block Draughts	plastic sheeting, canvas, blankets
		building low walls, excavating downwards (if no flooding risk)
Heating	Rise Temperature	Stoves, fuel

Cold Climate considerations for NFIs

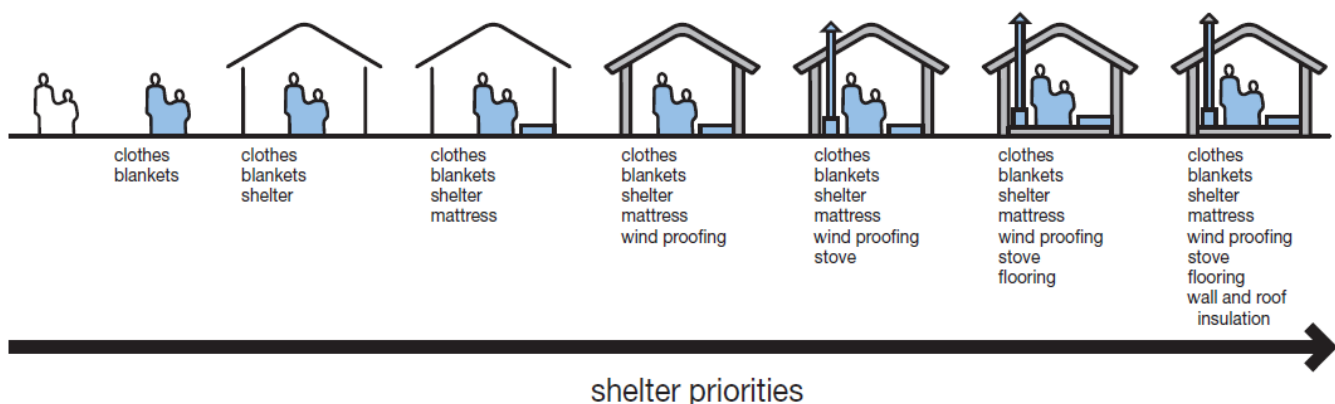
In cold climates, with temperatures below freezing, people will die within one day without adequate protection from the elements. In addition, rain and wind increase heat transfer away from the body. Therefore survival is often dependent upon prioritising the distribution of NFIs to best provide thermal comfort.

Acute Respiratory Infections (ARIs) are also a particular concern in cold climates and NFIs should be selected to minimise this. Appropriate clothes, blankets and insulation from the ground and the provision of stoves with adequate ventilation both prevent low body temperature and reduce the need for people to gather very closely for warmth.

NFI considerations for cold climates:



The figure below illustrates the order of priority for NFI distributions in cold climates.



¹ Reference Image: Selected NFI for shelter

² Reference Image: Selected NFI for shelter

Winterisation support items	
Clothes, Blankets	To prevent heat loss.
Mattress	To prevent conductive heat loss
Floor mats	A groundsheet under the insulating floor mats may be useful so that the floor mat does not become wet and lose its insulating properties – http://sheltercluster.org/sites/default/files/docs/technical_annex_foam.pdf , http://sheltercluster.org/sites/default/files/docs/technical_annex_tarpaulins_05.08.2015.pdf
Stoves	Since it is cold outside, people will generally cook indoors and the stove will also function as a space heater. This leads to indoor air pollution, which is a major cause of ARIs. Therefore, stoves should be distributed with flues to ventilate the shelter.
Cook Sets	Due to the cold, people will need to heat large volumes of water to wash in and so maintain personal hygiene. A large vessel for boiling water should be distributed for this.
Lighting	A higher priority in cold climates than others since more time is spent indoors and there are fewer hours of daylight, see - http://sheltercluster.org/sites/default/files/docs/technical_annex_solar_lamps.pdf

- **Fire risk**

Temporary shelters are highly inflammables. In order to prevent fire risk, the following fire prevention messages should be disseminated among the communities:

- Stoves and chimneys should not touch burnable materials like tarpaulins, plastic sheets.
- Chimneys should go through a solid wall or through a fire-proof plate.
- No open fires or bare flames should be placed inside shelters.
- Candles must be placed in lamps or in jars. Never leave a candle lit while sleeping or when leaving the shelter.
- Additional community preparedness strategies should include the setup of community fire committees, for training and firefighting and the creation of fire stations with buckets, sand, fire beaters and fire extinguishers.

IMPORTANT: When considering support in-kind for stoves in displacement sites it is important to co-ordinate with the CCCM cluster and camp management at the site to ensure that stoves are appropriate in terms of not increasing fire risk and the sourcing of fuel.

- **Ventilation**

Ventilation is important to reduce the risk of carbon monoxide poisoning in case of having a gas heater, and to avoid the build-up of moisture and mould.

Some of this moisture might be caused by leaking roofs/fittings but most likely it is produced by internal airborne moisture condensing on cold walls/ceilings. This moisture creates the perfect environment for mould growth. Rooms that create moisture such as bathrooms kitchens should have good ventilation to allow this moisture to escape and avoid condensation.

People also produce a lot of moisture (breathing and sweating), with the high occupation rate of rooms it is also recommended that a small amount of ventilation (100cm²) is maintained in these rooms or they should be regularly aired.

Needs Survey and Markets Availability Assessment ³

In order to capture the perception of communities as their winterisation needs, a standardised survey was disseminated to agencies to conduct some rapid focus group discussions at a range of altitudes across the districts. Results from surveys conducted in displacement camps have been incorporated as well (DTM data).

Along with this, a simple quick assessment of available quantities and quality of required winterisation items in local markets was conducted.

The main objective is to provide information to donors and agencies on recommended packages and approximate costs, and to ensure an equitable and effective approach to winterization support to make sure that EQ affected households get the support they require.

The survey structure consisted on 32 focus group discussions, conducted by 8 organisations across 19 VDC's in 5 districts (Gorkha, Rasuwa, Sindupalchowk, Dolakha and Ramechhap). Approximately 420 persons were interviewed over 3 weeks during August 2015 through altitudes varying from 753 m to 3000 m.

Answers were analysed depending on altitude and expected winter housing scenario.

Surveyed altitudes	
Low	below 1500 m
Medium	between 1500 m-2000 m
High	Above 2000 m
Very high	Above 2300 m

Expected winter housing scenario
Low/ Mildly damaged house
Repaired/ reconstructed house
Temporary shelter
Temporary shelter in displacement camps

- Winter preparedness:** Over 90% of all households surveyed did not feel adequately prepared for winter, peaking at 100% of households above 2,000m.

When asked about their preparation strategy for winter the majority of those interviewed planned first and foremost buy clothes (52%), then secondly to buy more blankets (37%). Notably though, the majority of those at altitudes below 1500 stated they did not really have any strategy (62%), presumably due to less concern about winter, while mid altitude strategies were more diverse but mainly focused on buying clothes(70%) and blankets (60%), due to better access to markets.

High altitude strategies however included a much greater focus on stocking up on firewood (49%) and food (39%). Most people plan is to remain at their winter house, gathered around their stove. During winter they would only leave the house to use the toilet or visit the health post. At very high altitudes, 100% of respondents plan to move to lower altitude for winter.

Households living in displacement camps are mainly planning to remain in their sites (76%), and 19% have intention of moving.
- Adequacy of resources for winter:** Over 90% of respondents felt they did not have adequate resources for this winter, rising to 100% in higher altitudes and dropping down only as far as 79% in lower altitudes.

Households living in displacement camps stated that the majority of shelters at their sites are not suitable for winter (85%).
- Expectations of support:** Approximately 50% of all respondents stated they only needed a little additional support, with little variation for altitude. While around 30% felt they would need quite a lot of support, notably 59% in lower altitudes and 28% in medium altitudes.

³ Survey results for HH living in temporary shelters and displacement camps can be found on SC website: www.sheltercluster.org

Expectation that they would actually receive support were highest at lower altitudes (84%) diminishing to 25% at high altitudes. The vast majority expected they would receive support from NGO's (32%) or the government (24%), with very few expecting that extended family or friends would assist (2%)

- **Specific needs:** [Blankets](#) and clothes are the highest cited need. Notably 90% of households felt they simply did not have adequate warm clothes for winter. Cash was not significantly requested.
In some VDC's shelter material to repair houses that were damaged by the earthquake was also expressed as a need. At higher altitudes the listed needs were much diverse highlighting solar lights and fuel.
In Displacement camps, the first most needs for winter are blankets (26%), heaters (16%) and foam mats (15%). The second most needs are blankets (34%), winter clothes (19%) and foam mats (13%). The third most needs are winter clothes (18%), foam mats (17%), mattress/beds (14%).
- **Assistance received to date:** 86% of total respondents across altitudes and locations had received tarpaulins, 62% had received government cash assistance, 43% had received CGI and 0% had received cash from NGO's.

Market assessment results ⁴

Results from 6 Organizations along 5 Districts (Gorkha, KTM, Rasuwa, Sindupalchowk, and Tanahun) and 5 VDCs have been used to calculate the basket value for cash transfer.

Assessment results didn't provide a clear idea of the market's supply capacity but only the available items at the time of the survey. The main finding that can be extracted from the analysis is that a wide variety of clothes are available at local markets. Diverse type of blankets can be found as well, however, prices were significantly higher than in Kathmandu. Limited supply of improved cooking stoves and solar lamps were available in local markets. Tarpaulins were easy to get but they didn't comply with the required minimum quality standards. Foam was widely available but in limited range of density/thickness.

When minimum standards cannot be found in local markets or prices are too expensive, some items may be procured from Kathmandu or internationally. Clothes particularly should be procured locally.

Targeting and Prioritisation

According to the results of the survey, prioritisation should include:

- Heavily damaged or totally destroyed households
- Higher altitudes areas should be prioritised first:
 - From 1500 m to 2000 m or known cold areas for General Package
 - Above 2000 m for supplemental package
- A targeted approach is recommended rather than blanket distribution
 - Prioritising most vulnerable households as per existing cluster and district government selection guidance.
- It should be noted that some families may have either sufficient remnant resources from their prior home, or have already received sufficient assistance with some items such as blankets or tarpaulins.

Calculation of Winterisation Target Population

Based on Digital Elevation Model (DEM), zones between 1500 m to 2000 m and above 2000 m have been identified and its areas (ha) have been calculated. For each zone, density population data has been extracted using worldpop.org.uk source based on census 2011, projected for 2015.

Population of zones has been calculated based on population density and area, and it has been broken up per administrative division of districts.

⁴ Market assessment results can be found on SC website: www.sheltercluster.org

The following assumptions have been considered:

- Using DRR portal damage data with some cross referencing to Shelter Cluster assessment from May and June, 70% of households with fully damage houses will be living in temporary shelters and 60% of households with partially damaged houses will be living in temporary shelter at start of winter.
- Shelter Cluster assessment from May/June indicated that 14% of households had taken some steps to self-recover.
- From the winterisation survey 90% of respondents stated that they do not feel prepared for winter.

Approximately 80.000 households need to be targeted with winterisation support. Indicative break down numbers can be found in the table below.

Note that part of the populations living in displacement camps is included in the total calculated population by altitude, as it follows:

60% of households living in camps are coming from locations that are 30 min away, whereas 28% of households are originally from places located 30min to 3 hours away from the camps. It has been estimated that 60% plus half of the 28% of households are coming from relatively close areas with same altitudes, hence, just 26% of the total population living in camps are coming from different areas and should be added to the total number of households in need of assistance in winter.

District	HH living 1500 - 2000 m est.	HH living above 2000 m est.	DRR portal Private houses fully damaged	DRR portal Private houses partially damaged	HH living Temp Shelters 1500 to 2000 m	HH living Temp Shelters above 2000 m	HH living in Camps from 1500 to 2000 m	HH living in Camps above 2000 m	26% HH camps from 3 hours away
Bhaktapur	3,128	20	28%	13%	800	0	0	0	0
Dhading	5,172	2,809	110%	4%	3700	600	0	1469	381.94
Dolakha	14,823	12,488	107%	7%	10500	3600	423	143	147.16
Gorkha	3,813	4,544	90%	20%	2600	700	819	5111	1541.8
Kabhrepalanchok	24,407	2,824	62%	29%	13400	500	0	0	0
Kathmandu	14,401	1,590	10%	13%	1900	100	0	0	0
Lalitpur	8,496	1,645	16%	7%	1200	100	0	0	0
Makawanpur	10,732	2,873	23%	20%	2700	300	0	373	96.98
Nuwakot	9,759	3,288	128%	7%	8200	1100	1012	0	263.12
Okhaldhunga	8,049	5,291	31%	10%	2000	500	175	0	45.5
Ramechhap	10,462	6,612	61%	30%	5700	1400	0	0	0
Rasuwa	2,547	3,206	116%	3%	1900	700	652	842	388.44
Sindhuli	3,677	248	32%	17%	1100	0	0	0	0
Sindhupalchok	16,174	9,496	96%	4%	10100	2000	276	3087	874.38
					65,800	11,600	3,357	11,025	3,739
				TOTAL	81,139				

Main concerns regarding winterisation targeting:

- Winterisation assistance will avoid displacement due to winter conditions, however people living in temporary shelter in climatically inappropriate environments shouldn't be promoted.
- Taking a targeted approach in elevated areas can penalise those that have self-recovered.

Implementation Modality

According to the results of the market availability assessment, recommended implementation modalities include through conditional cash, voucher systems or direct distribution.






- Agencies choosing to use conditional cash or voucher based systems should take every effort to ensure beneficiaries have reasonable access to markets capable of providing goods in sufficient quality, quantity at a reasonable price.
- Interventions to support market growth and expansion may be necessary in some areas to ensure conditional cash or voucher systems are successful in addressing urgent winter needs.
It is recommended to analyze the obstacles in the supply chain to see where amendments are needed.
Markets might not be functional in some areas due to several reasons i.e. poor roads infrastructure, lack of credit, lack storage capacity, lack of contact with suppliers, lack of know-how, or lack of demand.
- To ensure a real guaranteed demand, vouchers are the best solution. With a guaranteed demand and adequate time for placing orders/stocking-up, traders can cope with an increase in requests.
- For coping with weak supply chains, distribution of cash or vouchers over time and in different locations is recommended. This might result in additional work for the implementing agencies, but provides time for the local shops to adjust to demand.
- Direct distribution may be more appropriate for remote and higher altitude areas with limited market access.

Reference Documents, Maps and Links



- 2005, Winterisation technical guidelines for Pakistan, Emergency Shelter Cluster S. Asia Earthquake, Joseph Ashmore.
- Emergency shelter for Humanitarian relief in Cold Climates Policy and Praxis, Peter Manfield
- IASCs Selected NFI for Shelter
https://www.ifrc.org/PageFiles/95759/D.03.a.04.%20NFIs%20for%20Shelter_IASC.pdf
- Shelter Centre
<http://www.sheltercentre.org/>
- Winter criteria and Practical application of the winter criteria In extreme winter conditions, IFRC-SRU Winterization Conference 20th -21st May 2015, Vincent Virgo and Daniel Ledesma
<http://ifrc-sru.org/winterization-conference-2015-presentations-available-online>
- How to keep warm in winter [EN/AR], CARE
<http://reliefweb.int/report/syrian-arab-republic/how-keep-warm-winter-enar>
- Map Action, Nepal Earthquake Winterisation planning: mean January temperature in priority districts
https://www.humanitarianresponse.info/en/system/files/documents/files/ma113_v01_winterisation_a3-300dpi.pdf
- 2015 Nepal Earthquake-Technical Share- Winterisation Dropbox
<https://www.dropbox.com/sh/59218ukq68sm98f/AAAkjHvUHN5zTnGbYkS8FVlqa?dl=0>

General Package for altitudes above 1500 m in order of perceived priority. Total approximate value:

HH in Temporary Shelters: 101 \$ for Bulk Purchase, 126 \$ for Cash/Voucher. **HH in Displacement Camps:** 163 \$ for Bulk Purchase, 202 \$ for Cash/Voucher

Item	T Shelter QTY	Displ. Camps QTY	Description	Image	Bulk Purchase	Cash Transfer /Voucher
1. Clothes	3/HH	5/HH	<ul style="list-style-type: none"> • \$45 voucher or conditional cash as top to existing household clothing • Calculation Based on: \$15 per person for average family size of 5 Expectation that only 2-3 items will be needed per household 		Not Recommended	<ul style="list-style-type: none"> • \$45 HH Temp. Shelter • \$75 HH D. Camps
2. Blankets	3/HH	5/HH	<ul style="list-style-type: none"> • Based on target of 5 blankets per family taking into account prior recommended cluster distribution of 2 blankets and rescued household goods from prior to earthquake. • Intended as a top-up of existing capacity • Provided as 3 single or one double and one single blanket 		<ul style="list-style-type: none"> • \$30/HH Temp. Shelter • \$50/ HH D. Camps 	<ul style="list-style-type: none"> • \$45/HH Temp. Shelter • \$75 HH D. Camps
3. Sealing off kit	1/HH	1/HH	<ul style="list-style-type: none"> • TARPAULIN <ul style="list-style-type: none"> ○ Can be cut into sections to fill holes, cover gaps, waterproof floors or cover goods/crops 		• \$15/HH	• \$20/HH
	1/HH	1/HH	<ul style="list-style-type: none"> • ROPE AND TIRE WIRE <ul style="list-style-type: none"> ○ 25 m rope, 25m tie wire 			• \$5/HH
	6m2/HH	18m2/HH	<ul style="list-style-type: none"> • FLOOR/ BED FOAM <ul style="list-style-type: none"> ○ Foam sheet insulation, min thickness 12 mm, high density and close cell ○ Can be used for floor insulation, mattress, cut up for sealing off or wall insulation. 		<ul style="list-style-type: none"> • \$6/HH Temp. Shelter • \$18/HH D.Camps 	<ul style="list-style-type: none"> • \$8/HH Temp. Shelter • \$24/HH D. Camps

Supplemental Package for High Altitude and Cold Climates, above 2000 m. Total approximate value: 50\$ for Bulk Purchase, \$65 for Cash/Voucher

4. Wood Improved Cooking Stove	1/HH	1HH	<ul style="list-style-type: none"> • Only for high altitude areas • Low emission stove • Suitable for government stove subsidy 		• \$40	• \$50
5. Solar lamps	1/HH	1HH	<ul style="list-style-type: none"> • Can be hung on the ceiling or wall to provide ambient light • Can be carried as a lantern 		• \$10	• \$15