



**Shelter Cluster Ukraine**

ShelterCluster.org

Coordinating Humanitarian Shelter

## **Winterization Recommendations 2018-2019**



## 1. Winterization context and objectives

After almost four years of humanitarian response to the Donbas crisis, the conflict is not completely frozen and affects the lives of thousands of IDPs, returnees, non-displaced people and hosting communities.

Due to the extent of the needs, the focus of the Shelter/NFI sector had to remain mostly limited to areas with difficult access, limited basic services and insecure (locations along the Line of Contact (LoC)) or not sufficiently covered by humanitarian assistance (non-government-controlled areas (NGCA)).

In the first half of 2018, the conflict has caused new damage to more than 500 houses on both sides of the LoC, which adds to the backlog of houses damaged in the previous three years. Since the start of the crisis, the joint efforts of local authorities, communities and shelter agencies in repairing houses is resulting in a general reduction of the number of families in need of shelter assistance. This positive trend in shelter, though, does not apply to the need for winterization assistance: four years of crisis have prevented the majority of the conflict-affected people from recovering or replacing their primary or complementary income-generating activities; and now more people than before have exhausted their financial means and are not able to prepare adequately for the coming winter.

More people than in the previous years will depend on external aid to access means to cope with the cold season, making Winterization the largest life-saving activity in the country. Even considering governmental assistance, the role of humanitarian actors will still be pivotal; and not only in providing in-kind or cash assistance but, in some case, also in reaching out locations of particularly difficult access: last winter, for instance, agencies delivered coal to families living in unsafe area, that no private supplier wanted to reach.

All information included in the present document is the result of consultations with the main Cluster's partners, in both GCA and NGCA, who contributed to update the last year's Recommendations - on which this document is largely based - building on the experience developed in the previous four winterization cycles.

Consultations with partners were useful also to create a conducive environment for an effective coordination among partners in advocating, planning and later implementing the response.

## 2. Winterization summary and key recommendations

### Priority areas

GCA	First priority:	locations within 0-5 km of the LoC (Line of Contact)
	Second priority:	locations within 5-20 km of the LoC
NGCA	First priority:	locations within 0-5 km of the LoC, areas of return
	Second priority:	locations within 5-20 km of the LoC

### Target groups

IDPs, returnees, non-displaced people who are unable to access basic winterization means, with priority to families who - or whose members - present one or more of the following situations or vulnerabilities:

- Older person (60+) unable to care for self
- Disabled or serious medical conditions
- Single parent
- Large family
- Pregnant woman
- Separated or unaccompanied child (<18)
- Child associated with arm forces
- At risk of or survivor of SGBV
- LGBTI at risk of violence
- Marginalised from community
- Pensioner
- Unemployed / Low income
- House damaged by conflict
- Long or multiple displacement
- No civil documentation
- No access to state services

## Recommended activities (by area)

			solid fuel		multi-funct.	house insulation			winter NFI (includ. clothing)		stoves	
			in kind	cash	cash	in kind	cash	mixed	in kind	cash	in kind	cash
GCA	Not connected to gas lines	0-5 km from LoC	+	+	+				+	+		
		5-20 km from LoC		+	+	+	+	+		+		
	Connected to gas lines	0-5 km from LoC			+				+	+		
		5-20 km from LoC			+	+	+	+		+		
NGCA Donetsk	Not connected to gas lines	0-5 km from LoC	+						+		+	
		5-20 km from LoC	+			+			+		+	
	Connected to gas lines	0-5 km from LoC							+			
		5-20 km from LoC				+			+			
NGCA Luhansk	Not connected to gas lines	0-5 km from LoC							+			
		5-20 km from LoC							+			
	Connected to gas lines	0-5 km from LoC							+			
		5-20 km from LoC							+			

### Key recommendations

- Similarly to last year, the increasing numbers of vulnerable families eligible for assistance - if not matched by a proportional allocation of funds - will force agencies to apply even **stricter prioritization** criteria in the selection of target groups, areas and activities.

Blanket cover of villages or neighbourhoods will no longer be possible; and in the specific case of solid fuel, it will be preferable to reduce the number of recipients, but to assure the supply of sufficient quantities to cover the entire cold season.

- Areas within **5 km of the LoC** remain the highest priority; but agencies planning winterization activities are also invited to maximize opportunities to provide assistance in **NGCA**, with particular focus on Donetsk NGCA.
- In **GCA**, wherever possible, agencies should explore ways to provide longer-term recovery-oriented assistance, that increases the target communities' resilience (insulation, more efficient stoves).
- Heating** is the priority need for both sides of the contact line. While coal remains the key source in Donetsk NGCA, alternative forms of fuel should be further explored in GCA, due to the supply difficulties related to the humanitarian blockade.
- Shelter insulation** is a key way to make homes more resilient during the winter, increase overall energy efficiency, in this way reducing the cost of utilities.
- In GCA, **monetized winter assistance** should be prioritized, according to the beneficiaries' vulnerability criteria, the proximity of functioning markets and the availability of the needed winter items.

- Community facilities and **infrastructure projects** should also be considered - in particular in partnership with local authorities - as part of the efforts to stimulate community recovery.
- Winterization assistance should be delivered ahead of the start of the cold season, to allow target groups to plan and prepare themselves for the winter.

As in previous years, late programmes - starting in January-February - can also be considered, especially in case of late start of low temperatures. Late programmes should focus on families who - in the first round of selection - were considered able to cope with the winter, but are now in need of assistance. In this case, of course, the extent of the assistance should be proportional to the number of months to be covered.

- For any type of winterization assistance, **post-distribution monitoring** (PDM) is recommended, to evaluate the impact of the activities on the recipients. The Shelter/NFI Cluster has proposed a list of core questions that every PDM questionnaire should include. This will allow the Cluster to compile a multi-agency comprehensive overview of the winterization campaign, to be used as the basis for the planning of the next winterization.

### 3. Heating

#### (a) GCA

GCA		unit price (USD)	tot cost (USD/season)	notes
Quantity for one family for one season				
Coal	recommended	4 t	140	560 Unit price doesn't include transportation
	minimum	2 t		
Firewood	recommended	8 m3	28	230 Unit price doesn't include transportation. Cheaper than coal, but requires tending. Not recommended for elderly or disable.
	minimum	4 m3		
Briquettes	recommended	4,5 t	132	600 Unit price doesn't include transportation. Easier to handle than coal. Recommended in case of unavailability of coal.
	minimum	2,25 t		
Pellets	recommended	6,0 t	121	720 Unit price doesn't include transportation. Easier to handle than coal (recommended for elderly); requires special stoves
	minimum	3,0 t		
Gas	recommended	2.400 m3	0,264	640
	minimum	1.200 m3		
Electricity	recommended	24.000 kW	0,038	900
	minimum	12.000 kW		
Centralised heating	recommended	15 Gcal	45	680
	minimum	7,5 Gcal		

**Note:** the table above compares the costs of different sources of heating; its purpose is to provide guidance when choosing the type of intervention.

The suggested “quantity for one family for one season” refers to the indicative rough average quantity necessary for each type of source to produce 20 gigacalories, which is here assumed to be roughly equal to 80% of the heating needs of an average family for one winter (for “Central Heating”, though, the recommended quantity is set at 10 Gcal in consideration of the smaller volume of apartments, compared to individual houses).

### Solid fuel

The provision (in kind or in cash) of coal, firewood, briquettes or pellets remains a core activity in the winterization response. Some of the problems reported in last year's recommendations - mainly poor quality of the material, rising prices, and challenges with procurement - still require attention and need to be taken into consideration - along with the type of area, vulnerability and need - when planning the response.

### Stoves

As per the past years' winterization, the provision of *bruzhika* stoves proves to be an effective response in case of disruption of supply lines, for instance in the aftermath of the damage to civilian infrastructure. It is recommended to complement the provision of the stove with the supply of a suitable amount of fuel<sup>1</sup>, and - more important - to make sure that fuel is accessible by recipient families.

(see also *Annex 1 - Awareness of risks of Carbon Monoxide poisoning*)

### Utilities

Monetized assistance can be provided to help vulnerable families with the payment of utilities during one season. As any other cash-based intervention, eligibility precondition is that the beneficiary is not already receiving similar assistance from the Department of Social Protection. It is recommended that, in addition to distribution of cash, agencies undertake regular protection and shelter monitoring according to the indicators found in the 2017 Shelter Cluster's guidelines on monetization<sup>2</sup>.

Agencies should align their monetized support with both the existing housing and utility subsidy from the state and the current prices of utilities. Some publicly available information on the State Statistics can be found in the footnotes<sup>3</sup>.

## (b) NGCA

NGCA Donetsk		unit price (USD)	tot cost (USD/season)	notes
Quantity for one family for one season *				
Coal	recommended	4 t	90	360 Unit price doesn't include transportation
	minimum	2 t		
Firewood	recommended	8 m3	25	200 Unit price doesn't include transportation. Cheaper than coal, but requires tending. Not recommended for elderly or disable.
	minimum	4 m3		
Briquettes	recommended	4,5 t	100	450 Unit price doesn't include transportation. Easier to handle than coal. Recommended in case of unavailability of coal.
	minimum	2,25 t		
Gas	recommended	2.400 m3	0,040	100
	minimum	1.200 m3		
Electricity	recommended	24.000 kW	0,020	370
	minimum	12.000 kW		
Centralised heating	recommended	6 months	10,00	60
	minimum	3 months		

(\* see explanatory note on the bottom of the table related to GCA)

<sup>1</sup> In 2016 a mixed-modality approach was also tested, with a start-up (stove) in kind and the reminder (fuel) in cash.

<sup>2</sup> <https://www.sheltercluster.org/ukraine/documents/guidance-monetization-shelter-nfi-humanitarian-response-ukraine>

<sup>3</sup> Average price of natural gas, Average price of electricity, Average subsidy given for gas heating per household:

<http://www.nerc.gov.ua/?id=18947>

Average wage: [https://ukrstat.org/en/operativ/operativ2016/gdn/reg\\_zp\\_p/reg\\_zpp16\\_e.htm](https://ukrstat.org/en/operativ/operativ2016/gdn/reg_zp_p/reg_zpp16_e.htm)

<b>NGCA Luhansk</b>		unit price (USD)	tot cost (USD/season)	notes	
Coal	recommended	4 t	50	200	Unit price doesn't include transportation
	minimum	2 t	50		
Firewood	recommended	8 m3	16	130	Unit price doesn't include transportation. Cheaper than coal, but requires tending. Not recommended for elderly or disable.
	minimum	4 m3	16	65	
Gas	recommended	2.400 m3	0,045	110	
	minimum	1.200 m3		55	
Electricity	recommended	24.000 kW	0,023	550	
	minimum	12.000 kW		275	
Centralised heating	recommended	N/A	N/A	N/A	
	minimum	N/A		N/A	

(\* see explanatory note on the bottom of the table related to GCA)

#### *Solid fuel*

Donetsk NGCA - This is the region with the most acute need for assistance in terms of fuel for heating: an estimated 21,000 HHs are in need of coal in Shakhtarsk, Yenakieve, Torez, Snizhne, Makiivka, Debaltseve and Starobesheve, and the Horlivka, Novoazovsk and Telmanove districts.

The challenges in procuring and delivering solid fuel faced in the previous years in GCA are not so acute in Donetsk NGCA. Geographically, villages that are less accessible during the winter months may need a blanket coverage. In larger cities with easy access, depending on specific vulnerability criteria of beneficiaries, humanitarian coverage could be at least 30-50% of the original need as identified by partners.

Luhansk NGCA - The de facto authorities' programmes in support of the most vulnerable groups are confirmed also in 2018-19 and supply of solid fuel by humanitarian agencies is not indicated as a priority.

#### *Stoves and Electric heaters*

Donetsk NGCA - The prepositioning of an emergency stock of electric heaters is recommended. In case of impossibility to deliver solid fuel or disruption of the gas supply, electric heaters would be the best response, as the electricity system tends to be reliable, and the first to be repaired. However, due to limited capacity of the electrical grid, this is only a contingency measure and should not be part of regular programming.

Similarly, the prepositioning of an emergency stock of stoves is also recommended, for cases in which the supply of electricity is disrupted (see also *Annex 1 - Awareness of risks of Carbon Monoxide poisoning*), for instance in the aftermath of the damage to civilian infrastructure

Luhansk NGCA - The same considerations expressed for Donetsk NGCA apply also to Luhansk NGCA.

#### *Utilities*

Donetsk NGCA - The relatively cheap prices in NGCA compared to GCA are a pull factor and a cause for involuntary displacement and return for those in GCA who face the burden of the rising cost of utilities. Donetsk NGCA de-facto authorities have also in 2018 a program to provide solid fuel to families whose house was damaged during the conflict.

Luhansk NGCA - In general, price of utilities is significantly cheaper than in GCA, and this has represented a reason for return rather than a humanitarian concern.

## 4. Personal insulation

### (a) GCA

Financial constraints limit the purchase capacity of both displaced and non-displaced population. This includes of course winterization items - like jackets, hats, thermal underwear, blankets - used for personal insulation.

In the past two years, winterization programmes that helped IDPs and other conflict-affected groups purchase basic winter items had in general a particularly relevant impact.

Such interventions should of course be informed by an assessment of local markets (where most of the potential beneficiaries usually purchase these items) and be followed by a PDM (post-distribution monitoring) campaign.

### (b) NGCA

Donetsk NGCA - Similarly to GCA, financial constraints limit the purchase capacity also of residents of NGCA, where basic items - including winterization items - are no longer affordable for vulnerable families.

Personal insulation - and in particular adequate winter clothing - remains one of the primary needs. Humanitarian actors estimate that in the last years only a small percentage of people in need were assisted (less than 1/3, in 2017), and mostly with in-kind projects, as cash-based interventions are still hindered by the functioning of the banking system.

A winter clothing set may include a double-layered coat, thermal underwear, a scarf, a winter hat, and socks.

Luhansk NGCA - The considerations referred to Donetsk NGCA apply to Luhansk NGCA as well, where in many cases the access to functioning markets is even more difficult.

Winter Clothing set Recommended quantities (per person) and indicative prices		
Item	Qty	Cost
Winter jacket	1	75 USD
'Valienke' felt boots	1	13 USD
Thick socks	2	3 USD
Woolen Hat	1	5 USD
Woolen scarf	1	5 USD
Thermal underwear	1	25 USD

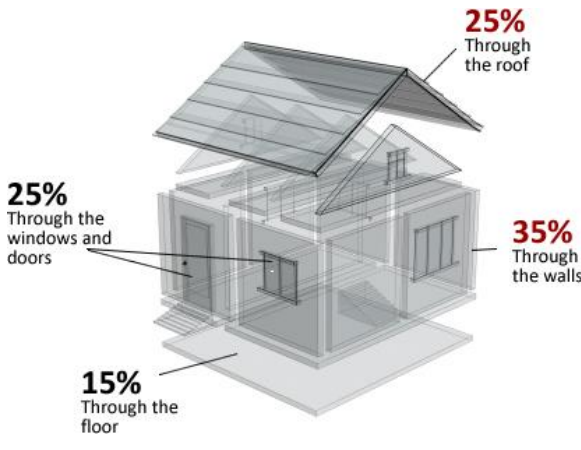
## 5. Shelter insulation

Considering the limits of gas systems (due to escalating prices, but also - in areas directly affected by the conflict - to the frequent service disruptions), and with the crisis turned into a prolonged situation, shelter insulation represents the most effective long-term solution in both GCA and NGCA for properly winterized and therefore more energy-efficient homes and for reducing the cost of utilities over time.

The purchase and installation of insulation material represents an effective assistance not only for non-displaced population along the LoC, but also for IDPs, as high costs of utilities remain a major concern for the most vulnerable displaced families.

On a longer-term perspective, and especially when assisting families with two or more members, agencies should consider the opportunity of adopting a higher standard than the "one-warm-room" principle recommended by the Cluster in the earlier stages of the response.

Shelter insulation options are presented in the following tables.

Diagram	Element / Heat loss	Recommendations
 <p>Diagram only for individual house. Heat loss could significantly change according to design premises (multi-storey etc.)</p>	<b>Windows<sup>4</sup> and other openings</b> <b>25 - 35%</b> <i>[priority]</i>	<i>Primary point of heat loss: Even if undamaged, double glazed windows of poorly heated premises could be upgraded by adding an extra layer(s) of transparent plastic sheeting, insulation foam or tape</i>
	<b>Doors and windows</b> <b>15 - 25%</b> <i>[priority]</i>	<i>If existing draft, glass or rock wool panels on ceiling.</i>
	<b>Roof</b> <b>25 - 35%</b> <i>[optional]</i>	
	<b>Floor</b> <b>10 - 20%</b> <i>[optional]</i>	<i>If ground floor or without wooden/linoleum cladding, matt or carpet like material could improve</i>
	<b>Wall (external)</b> <b>10 - 20%</b> <i>[optional]</i>	<i>Usually too expensive for humanitarian interventions, but could be considered part of recovery</i>
	<b>15%</b> Through the floor	

Glazing			
#	Item	Quantity	Price est.
1	Windows complete	2 m <sup>2</sup> to 4 m <sup>2</sup> according to house and family composition	70 USD/m <sup>2</sup> Up to 277 USD for large house/family
<i>or</i>	<i>Individual house with double glazing replacement and insulation all around opening perimeters</i>	<i>Up to 7 or 8 windows per individual house</i>	<i>Around 37 USD/ m<sup>2</sup> Up to 278 USD/house</i>
2	Glazing only -6mm preferably-	80 m <sup>2</sup>	6.9 USD/ m <sup>2</sup>
3	Insulation tape (by linear metre, LM)	20 LM according to # and size of opening	2 UAH/LM 2 USD/room
4	Insulation foam	0.5 can / window	74 UAH/can 1.6 USD/room

Roofing insulation			
#	Item	Quantity	Price est.
1	Glass wool roll 100mm 6 m <sup>2</sup> each	80 m <sup>2</sup>	185 USD/house
2	Vapour barrier	80 m <sup>2</sup>	38 USD/house

<sup>4</sup> Heat loss estimation refers to undamaged windows.



## 6. Community facilities and infrastructure

The winterization response includes projects that aim at assisting community facilities and infrastructure - like schools, hospitals, collective centres - that provide services to a community, and represent also a heating point for the members of that community.

Examples of activities in the area of community facilities and infrastructure include:

1. Support to vulnerable IDPs residing in Collective Centres
2. Support to schools, hospitals, and communal areas where small communities may depend on one heating source for their entire community.
3. Provision of supporting materials to private or state companies who are able to conduct larger infrastructure projects.

## 7. Winterization, Recovery and Livelihoods

In government-controlled areas, emphasis should be put on recovery and on increasing local population's preparedness to the cold season.

Already in 2017 the Shelter Cluster and the Food Security and Livelihoods Cluster started to brainstorm together on activities that may represent an effective response to winterization needs, and at the same time facilitate recovery and stimulate the creation of new livelihood opportunities for communities affected by the conflict.<sup>5</sup>

Three interesting examples from the 2017 recommendations are reported in Annex 2.

## 8. Government Support Programs

### (a) GCA

In Ukraine, the percentage of IDPs who received state subsidies for utilities was lower than the percentage related to the general population<sup>6</sup>. The Housing and Utility Subsidy assists vulnerable households with heating and utility expenses for natural and liquid gas, and various forms of utilities: water, electricity, hot water, etc. Since Ukraine began to undertake changes consistent with their International Monetary Fund reform package, the average household has noticed that the expense of their utility and heating costs has steeply risen, as the government no longer directly subsidizes the companies that provide such services. In order to make these subsidies more targeted to the most in need and efficient for the overall Ukrainian economy, the Ukrainian government introduced already in 2017 new provisions in the legislation:

1. Households are not eligible if they already have debts for housing and communal services.
2. The time-period of the subsidy is now adjusted to the end of the heating season, and applications outside of the heating season will not be considered.
3. Local governments now have their own jurisdiction to grant additional subsidies depending on whether they have local budgets.
4. Conflict affected populations will face additional restrictions to receiving the subsidy. Due to amendments to Resolution 505, it is increasingly difficult for IDPs who own property in government-controlled areas to receive a housing and utility subsidy with a few minor exceptions

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<sup>5</sup> <http://fscluster.org/ukraine>

<sup>6</sup> World Bank: <http://documents.worldbank.org/curated/en/571011497962214803/pdf/116489-WP-PUBLIC-138p-GSUGL-UkraineSurveyResearchWithAnnexes.pdf>

including whether the private property is found in one of the communities along the contact line where authorities are not able to exercise their normal jurisdiction. Those who had their homes damaged must present a certification of damages, which testifies to the technical state of their housing conditions.<sup>7</sup>

Due to decreased humanitarian financing, it will be essential for the authorities in government-controlled areas to ease the burden of conflict-affected individuals for the expense of these materials to smooth their recovery. Shelter Cluster actors should work closely with Protection Cluster partners to publicize information about subsidies and refer families for legal assistance about how to access subsidies.

**(b) NGCA**

In July 2017, Donetsk NGCA de-facto authorities declared that damaged houses or apartments could receive an exemption from utilities. A special commission has been established to determine whether a suspension case should be accepted or rejected and what the appropriate exemption calculation on utilities should be.

According to this legislation, damage caused by the current crisis is qualified as deformation to the building, damage to the building's insulation and heating system, and damage to the load-bearing principle of the building. Households who have already repaired existing damages are ineligible. Owners or tenants must apply for such exemption to the de-facto authorities with necessary supporting documents (official inspection reports, photos, declaration of unsuitability of living). Within 10 days, the commission will inspect the damaged house or building and then in 30 days delivers its decision. Such a suspension can last no longer than 1 year, and the owner and tenant will have to reapply if they would like a second round of exemption<sup>8</sup>.

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<sup>7</sup> DRC Legal Alert June 2017

<sup>8</sup> HLP TWIG OHCR briefing note

## Annex 1 - Awareness of risks of Carbon Monoxide poisoning

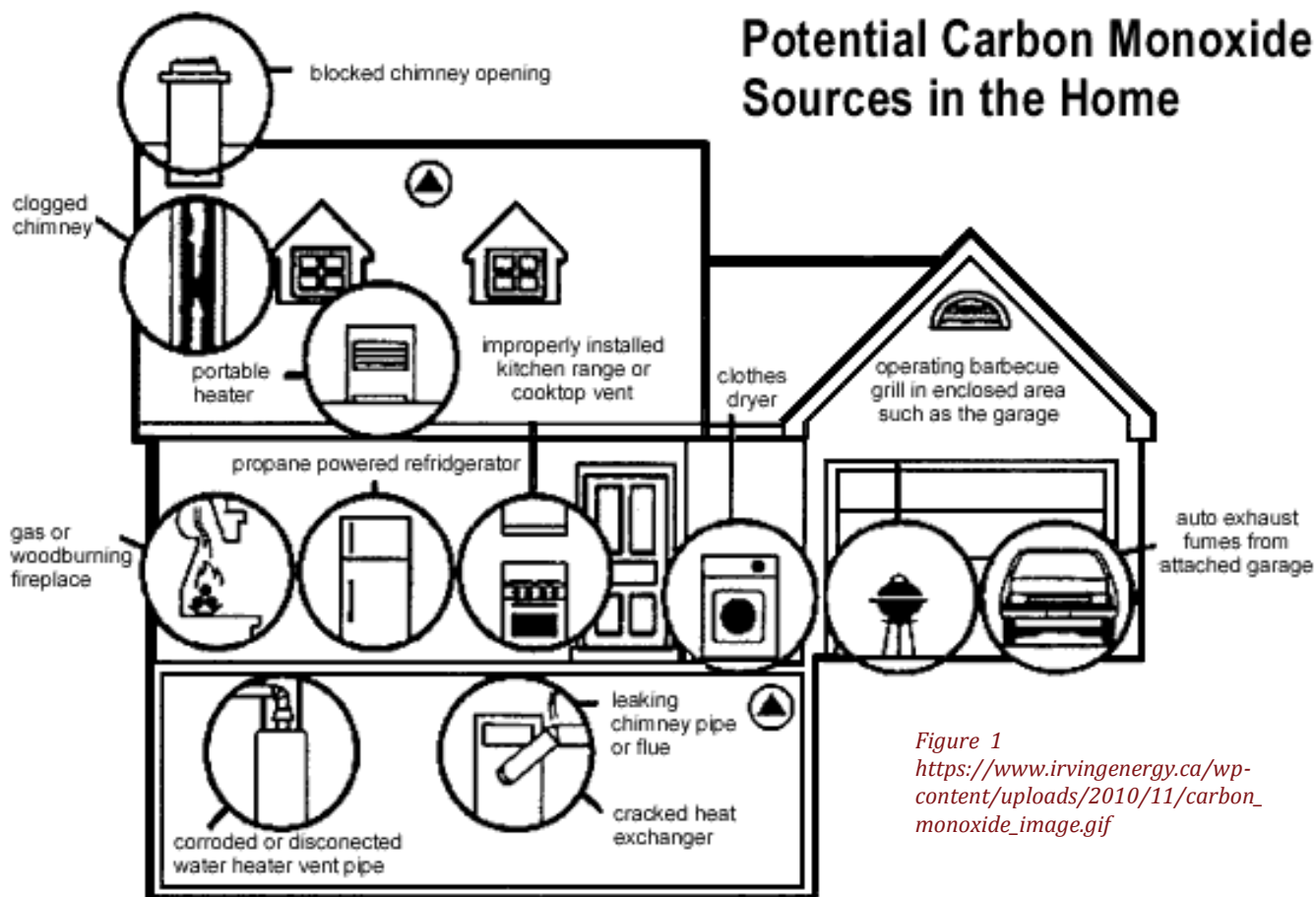


Figure 1  
[https://www.irvingenergy.ca/wp-content/uploads/2010/11/carbon\\_monoxide\\_image.gif](https://www.irvingenergy.ca/wp-content/uploads/2010/11/carbon_monoxide_image.gif)

Carbon Monoxide is a gas produced when operating a stove, and is toxic when encountered in certain concentrations. Agencies distributing stoves should make sure that recipients are aware of the risks and of the recommendations on a safe use.

Houses with functioning chimneys are better able to mitigate this risk, while those that do not have chimneys should be encouraged to regularly ventilate their homes by simply opening windows and other openings to allow fresh air in.

The risks of carbon monoxide poisoning are high without regular ventilation, because the gas is odourless and non-visible. Symptoms are similar to the flu. Beneficiaries should also have proper information about the physical symptoms of carbon monoxide poisoning including headaches, weakness, dizziness, nausea or vomiting, shortness of breath, blurred vision, or loss of consciousness<sup>9</sup>.

<sup>9</sup> <http://www.mayoclinic.org/diseases-conditions/carbon-monoxide/basics/symptoms/con-20025444>

## Annex 2 - Winterization, Recovery and Livelihoods. Three examples from 2017 winterization

### 1. Biofuel production press

In government-controlled areas of Ukraine, the quality and delivery of coal have become problematic due to the dynamics of the conflict. As any form of biomass can be used as a substitute to coal, agencies have experimented different options, like coal dust, sawdust, buckwheat, peat, wood, crop residue (corn or rice husks for example), animal waste, grass and brushwood as alternative heating sources<sup>10</sup>.

Prior to being ready to be used as a source of fuel for the winter, materials need to undergo several forms of processing<sup>11</sup>. In the case of wood briquettes, for instance, beneficiaries may use available wood-cutters or hand presses as physical production tools to reduce the size of the materials gathered for the production of the wood briquettes.

Once the items are prepared and cut, briquettes can be banded together using cellulose from wood-like materials, manure, and/or clay. A shredder and biomass briquette hand-press can cost less than 4000 UAH (some 150 USD). In some rural and farming communities, materials may already be available.

Biomass briquettes require twice as many tons of firewood or coal for one winter season as discovered by NRC Ukraine's pilot from 2016). The difference in energy produced depends on the type of biomass that beneficiaries will select. Due to the time and physical labour that this work entails, these activities should be programmed to run during the summer months in order to ensure that beneficiaries have enough briquettes to start the winter.

Regular monitoring of the households piloting such interventions is required during the project, because if materials are not properly compressed, the fuel source could burn at a faster rate than traditional coal or wood sources, which may leave beneficiaries unable to make it through a full winter using this source.

The opportunity for this type of activity to be further developed in the Donbass is rich, as Ukraine is already an exporter of such biomass pellets to countries such as Poland, the Czech Republic, and other countries in the EU<sup>12</sup>. Agencies who are already piloting this intervention have shared that they established relations with the local Forestry Department to agree that they would complement such interventions by replanting trees. In addition to promoting recovery of the local population, the activity will also promote the environmental rejuvenation of forests that were depleted due to conflict activity.

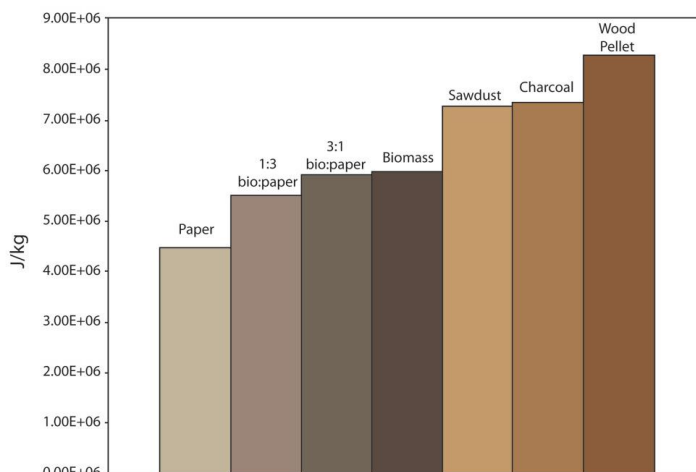


Figure 2- <http://biomassmagazine.com/articles/5148/biomass-briquettes-turning-waste-into-energy>



Figure 3- Hand press from NRC pilot project

<sup>10</sup> <http://www.developmentbookshelf.com/doi/pdf/10.3362/9781780447698.011>

<sup>11</sup> <http://www.developmentbookshelf.com/doi/pdf/10.3362/9781780445762.009>

<sup>12</sup> <http://biomassmagazine.com/articles/14090/eastern-europe-exporters>

## **2. Support to small businesses with production of winter items (especially GCA contact line)**

Construction and clothing companies are main source of winterization goods within areas of the former contact line. Livelihood activities could be targeted at these beneficiaries to be sustainable providers of personal winterization items as a source of their livelihoods. A social business activity could also be created where existing markets are encouraged to provide winter items to conflict-affected families at a lower price for several months. In the past, agencies in Ukraine have implemented voucher programs in GCA to stimulate these businesses while providing making these goods available to the conflict-affected.

## **3. Support of construction businesses in production of alternative forms of insulation and beneficiary access to purchase of the same.**

Due to the underuse of insulation and the conflict's negative impact on reliance on gas heating, agencies can consider supporting beneficiaries with the purchase and then subsequent installation of insulation of their households. As a job creation strategy, beneficiaries can be trained in the production of shelter insulation materials from available raw materials including straw bale or processed wheat and rice straw.<sup>13</sup> One of the cheapest eco-friendly construction techniques, straw bale is using the thermic insulation property of a medium thick wall to increase the energy efficiencies of the house which can be shaped into a modern design. The technology is functioning on the principle of walls made from large straw bales bonded together by planks every two layers and/or tied with a metallic cable. Usually straw bales for construction are prepared using the same machine but are more compacted and drier than the agricultural one.<sup>14</sup> A similar project of straw-bale product was piloted in Ukraine in 2016 in Khmelnytsky, Ukraine. By using a hydraulic press, the process of production requires two or three people to produce four to eight panels in one shift as the machine works at 3kW/h. The average dimensions of a straw-bale insulation panel is 1250\*3000\*400 weighing roughly 200 kg and panels will have a density of 100-130 kg/m<sup>3</sup>. To generate demand for such businesses, a secondary element of the program could use vouchers and technical assistance to help beneficiaries with the installation of such ecological fundamentals as insulation.<sup>15</sup>

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<sup>13</sup> <https://www.treehugger.com/green-architecture/greenbuild-agriboard-structural-insulated-panels.html>

<sup>14</sup> <http://home.howstuffworks.com/home-improvement/construction/green/straw-bale-house.htm>

<sup>15</sup> <http://eco-bud.com/cena-2>

## Annex 2 - PDM Indicators

This is the list of core questions that the Shelter Cluster recommends agencies to include in their Winterization PDM (post-distribution monitoring) questionnaires, in order to harmonise the collection of data and allow the consolidation of PDM findings from different agencies in one single document.

- Accommodation type (rented apartment, rented room, rented house, private owned household, hosting situation, collective centre, hotel, dormitory, other)
- Number of people per household
- Square meters or number of rooms as proxy if not available
- Heating type (Communal, electrical heater, coal stove, briquette/pellet, wood stove<sup>16</sup>)
- Damage or Non-Damaged accommodation – If Damaged (which category of damages<sup>17</sup>)
- Inspection of accommodation to check for adequate insulation: (no leaking roof & windows, cracks in the walls or floor, there are windows, doors and flooring)
- Rating of heating source as good or poor
- Number of months that the heating source lasts
- Sources of income and average income
- Average cost of rent per month from October-April
- Average cost of heating per month from October-April
  - > Pre and post installation of insulation
- Average cost of utilities per month from October-April
  - > Pre and post installation of insulation
- Average cost of water per month from October-April
- Availability of hot water
- Status: IDP, Non Displaced, Host Community
- Other vulnerability category: E.g. persons with disabilities, elderly persons, persons with chronic illnesses, large families, etc.

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<sup>16</sup> Wood stoves may be used in only very rare and particular cases due to the high-level risks of fire. Certain categories of vulnerabilities are not as easily able to operate these stoves. In case of traditional individual solid fuel stove, increasing the thermic inertia with burn brick masonry could be considered

<sup>17</sup> Refer to the Shelter Cluster's Note on Scale of Emergency for a summary of the categories of damages