

Overview of winterisation needs and response

OVERVIEW

An estimated 1.7 million people need winterisation assistance before the upcoming colder temperatures in Ukraine (OCHA 15/07/2022). Temperatures are expected to start dropping in October and reach their lowest in January–February (Weather Atlas accessed 14/07/2022). The conflict resulting from the Russian invasion that began on 24 February 2022 has damaged homes, as well as gas, electricity, and heating infrastructure, putting additional people at risk of having insufficient heating or insulation to deal with harsh winter conditions. The situation is particularly concerning for IDPs living in collective centres and people living in damaged homes or homes needing renovation, especially in rural areas.

Winter conditions will also affect humanitarian access. Snow and ice on the roads make travel challenging and unpredictable, especially away from the main highways. This issue is particularly a concern in areas with mine and unexploded ordnance contamination, as slipping off the road could mean landing in a contaminated field.

On 30 July, President Volodymyr Zelensky called on the remaining population in government-controlled areas of Donetsk oblast to evacuate, in part because of damages to households and interrupted gas, electricity, and water supplies heightening the danger of facing a winter season without the ability to keep warm (BBC 31/07/2022). The intensity of the conflict and the extensive damages to water and gas infrastructure mean that it would be impossible to guarantee service during winter (OCHA 29/07/2022).

DRIVERS OF WINTERISATION NEEDS

Winter weather conditions

Temperatures typically decrease by October, when, for example, in Kyiv, average temperatures range between 5–12° C (Weather Atlas accessed 14/07/2022). In December, temperatures in Ukraine average from – 14° C to – 25° C (OCHA 15/07/2022). Chernihiv, Chernivtsi, Donetsk, Ivano-Frankivsk, Kharkiv, Luhansk, Sumy, Zakarpattia, and Zhytomyr are the oblasts with the highest number of days when the temperature drops below 0° C annually (REACH 19/07/2022).

Local authorities typically announce the start of the heating period and begin providing heat via centralised heating facilities, when the mean daytime temperature drops below 8° C for three days in a row. On average, these conditions are met on 14 October, but the difference between the colder northern, western, and eastern oblasts and the warmer southern oblasts reaching these conditions could be up to 20 days. The heating period typically ends around April, following eight consecutive days of mean daytime temperatures above 8° C (REACH 19/07/2022).

Cold waves, characterised by a rapid drop in air temperature, or sustained periods of excess cold can lead to additional disruptions and an increased risk of accidents on roads or transport infrastructure. Frozen water pipes and damaged power lines would also further disrupt service delivery. Ukraine experienced cold waves in 2006, 2012, and 2017. In 2006, 884 people died from the cold temperatures, and 2,045 children were evacuated from their homes because of a lack of heating (REACH 19/07/2022).

Damages to infrastructure

War damages have affected the infrastructure needed for heating, such as water, gas, and centralised heating systems. As at early June, the conflict had damaged 5,000km of gas pipelines, 3,800 gas distribution facilities, and 200 gas-fired boiler plants throughout the country (Wilson Center 05/07/2022). The conflict had also affected 13 thermal power plants as at early July, with the most severe damage reported in Chernihiv, Dnipropetrovsk, Donetsk, Kharkiv, Luhansk, and Poltava oblasts (REACH 19/07/2022). In areas where the conflict is more active, meaningful repairs may be impossible because of security concerns (OCHA 15/07/2022).

ACAPS has collected data on damages to civilian infrastructure reported in public sources since the invasion started. As at 16 August, the dataset contained 6,582 recorded damages; 11.84% of these affected gas supply systems, 9.04% electric supply systems, and 1.49% heating and water facilities. Donetsk, Kharkiv, Luhansk, and Mykolaiv oblasts had the highest number of recorded damages to gas, electricity, heating, and water infrastructure (ACAPS accessed 16/08/2022).

Reductions in gas supply

Service delivery

Damage to the supply lines and critical gas infrastructure has left most of Donetsk and Luhansk oblasts without gas. Kharkiv, Kherson, Mykolaiv, and Zaporizhzhia oblasts also face the biggest challenges with gas supply because of such damage. Over 236,000 people are without gas across the country (Dixigroup 11/08/2022).

Gas supply

Ukraine is facing a strain on its natural gas supply. In early July, the country had only slightly more than half of its target gas storage. A reduced supply of gas for European countries by Russia and a planned reduction in imports of Russian gas by the EU have reduced the quantity of natural gas available for Ukraine (NYT 02/08/2022). The country imports its gas from Europe, part of which reaches Europe via pipelines running from Russia through Ukraine. Those pipelines also help maintain adequate pressure in the Ukrainian gas network. The country has not directly bought gas from Europe since 2015 (Reuters 24/02/2022 and 26/07/2022).

Interrupted heat and electricity supply

Impact of conflict on power and thermal plants

The conflict affected 13 thermal power plants between 24 February and 5 July, mostly in Chernihiv, Dnipropetrovsk, Donetsk, Kharkiv, Luhansk, and Poltava oblasts (REACH 19/07/2022).

On 22 February, before the official start of the Russian invasion, the Luhansk power plant in Shchastia city came under heavy artillery fire from non-government-controlled area (NGCA) forces and stopped producing electricity. NGCA authorities and Russian forces currently control the area. According to Russian officials, the power plant had partially been restored as at 7 May (Kyiv Post 22/02/2022; Neftegaz 31/05/2022).

The Zaporizhzhia thermal power plant and Zaporizhzhia nuclear power plant, both important heat and energy sources, are also under the control of Russian forces (REACH 19/07/2022), who have mined the power plant and are assumed to be using the nuclear power plant. The situation creates a high risk of conflict affecting the plant, with consequences ranging from disrupted electricity supply to a nuclear accident (Ukrinform 15/08/2022; The Moscow Times 15/08/2022). The risk of a nuclear accident from a direct hit on the plant is low, although any interruption of electricity supply to the plant, along with damaged and inoperable backup generators, could lead to the overheating of the reactor core and subsequent release of radioactive activity (BBC 20/08/2022).

Electricity supply

As at 10 August, around 635,000 people were without electricity in Chernihiv, Dnipropetrovsk, Donetsk, Kharkiv, Luhansk, Mykolaiv, Odesa, and Zaporizhzhia oblasts (Dixigroup 11/08/2022). Damage to electricity infrastructure caused the remaining population in eastern and southern oblasts most heavily affected by the conflict to face an irregular supply of electricity (OCHA 13/07/2022). The situation can lead to interrupted heating for households relying on electrical radiators as well as disruptions to water and heat distribution systems.

Following the Russian invasion, the EU and Ukraine decided to accelerate the process of connecting their power grids, allowing Ukraine to import electricity in case of a large disruption from damage to electricity generation plants or to export electricity and generate income in case of excess production. The synchronisation of the European and Ukrainian power grids had been planned since 2017 and was originally scheduled to be completed in 2023. By 30 June 2022, initial cross-border electricity transfers with Romania were established, with further plans for the same with Hungary and Slovakia (USAID 14/07/2022; Reuters 01/03/2022).

Displacement

Displacement caused by cold weather

Beyond conflict displacement, the upcoming winter will be a driver of displacement, with the IOM indicating that 22% of surveyed respondents, including 26% of IDPs, expected needing to leave their current housing before winter because of insufficient heating (IOM 29/07/2022). Many of the collective centres housing IDPs are not ready for winter temperatures (OCHA 15/07/2022; KII 09/08/2022). Because of the potential displacement, people in areas closer to the frontlines may be reluctant to invest in winterisation improvements for their housing (KII 05/08/2022 b).

Non-displaced elderly people

Many of the people who chose to remain in the hardest-hit areas of eastern and southern oblasts, either because of mobility issues or simply out of reluctance, are elderly people (HelpAge 01/08/2022). The people they previously relied on for daily assistance, however, may have been displaced, leaving them without help before the winter season (HelpAge et al. 15/06/2022). Before the Russian invasion, people over 60 years of age made up 30% of the people in need of assistance in Luhansk and Donetsk oblasts (OCHA 11/02/2022).

Difficulty accessing winterisation items

Decreased financial means

Despite their awareness of the need to stock up on heating fuel, buy appliances, and repair and better insulate their homes, the population cannot always afford to do so because of decreased incomes and increased consumer prices (KII 05/08/2022 a; KII 07/08/2022 a; KII 07/08/2022 b; KII 09/08/2022; OCHA 15/07/2022). In July, year-on-year inflation was 22.5% and 19% for household appliances (NBU 15/08/2022).

Market accessibility and availability of items

Some people may not have access to functioning markets for required winter supplies. This situation is particularly a concern in Sumy, Kharkiv, and the NGCAs of Donetsk and Luhansk oblasts (OCHA 15/07/2022). Even if people manage to purchase heating supplies or construction materials, getting them delivered can be problematic because of disrupted road transport, especially in areas closer to the frontlines (KII 05/08/2022 b). As people have already been buying fuels and heating equipment for at least a month, local stocks have also been depleted. This situation has been reported in Sumy and Mykolaiv oblasts (KII 07/08/2022 a; KII 09/08/2022).

HEATING METHODS IN UKRAINE

District heating

District heating is a form of public heat distribution where a central heat generation plant provides heat to an entire neighbourhood. This method heats roughly 40% of the population, mostly in urban areas in Kyiv city and the East and South macroregions (KeepWarm 2019; IOM 29/07/2022). Natural gas is the most used fuel for district heating, although biomass is increasingly being used to decrease reliance on natural gas. In 2021, biomass represented 9% of Ukraine's heat production (KeepWarm 2019; RFE/RL 21/11/2021).

District heating infrastructure in Ukraine has not seen much renovation or improvement since the Soviet era, making it inefficient and expensive for public authorities. Around 1,600 district heating companies owned by municipalities locally manage the system (USAID 07/08/2020). The below-market prices that municipal district heating companies charge do not allow them to cover their costs or invest in improvements, and around 60% of generated heat is lost in the network or during use in buildings (WB 24/05/2012; IEA accessed 10/08/2022). The rate of malfunction per kilometre of a district heating network is approximately ten times higher than that of a well-maintained modern system (IEA accessed 10/08/2022).

The share of urban households relying on district heating fell from 89% in 1995 to 55% in 2018, largely because of public discontent with service delivery. As a result, existing district heating infrastructure has become oversized compared to the demand, increasing its inefficiency (USAID 07/08/2020).

Heat and electricity generation are closely linked, as some plants generate both heat and electricity, and some phases of the heat and water supply process also need electricity (REACH 19/07/2022; EBRD accessed 19/08/2022). In 2021, 55% of electricity generated in Ukraine came from nuclear energy, 24% from coal, and 7% from gas (Our World in Data accessed 16/08/2022).

Before 24 February, several local Ukrainian administrations had been partnering with international institutions and individual countries to begin modernising their district heating plants and networks and make them more efficient and sustainable (Bioenergy International 15/12/2021; UNEP CCC 2020; EBRD accessed 18/08/2022). The invasion has likely affected these efforts, especially for incomplete projects in areas not currently under the control of the Government of Ukraine.

Individual heating

Individual heating systems in Ukraine are mostly used in rural areas. Poor service delivery from local district heating companies has also led some urban residents to disconnect from centralised systems (USAID 07/08/2020; CASE Ukraine 03/2007). The main methods for individual heating are boilers, stoves, and electric radiators. Heating fuel comes from gas, coal, firewood, briquettes, pellets, or electricity in the case of radiators (Shelter Cluster 29/07/2019). Gas heaters represent the largest share of heating methods in the Centre, North, and South macroregions (IOM 29/07/2022).

Disruptions to service delivery resulting from conflict damages are more likely to affect households relying on gas and electricity for individual heating.

NEEDS

Clothing and household items: the biggest reported winterisation need across all population groups (IDPs, non-IDPs, and returnees) is winter clothing and household items, including appropriate blankets and footwear (IOM 29/07/2022; KII 05/08/2022 b; OCHA 15/07/2022).

Heating and fuel: assistance for heat provision includes heating appliances, such as stoves, radiators, boilers, and heaters, as well as solid heating fuel (coal, pellets, or wood) (OCHA 15/07/2022; KII 09/08/2022; KII 07/08/2022 b; KII 05/08/2022 a; KII 05/08/2022 b).

Insulation, repairs, and shelter: assistance is required to improve the insulation of homes and collective centres currently hosting IDPs. IDPs in collective centres who are inadequately prepared for winter will need to be housed in appropriate shelters. Homes that have been damaged also need to be repaired before winter. Livestock shelters need to be taken into account to ensure the survival of livestock over the season (OCHA 15/07/2022; KII 05/08/2022 a; KII 05/08/2022 b; KII 07/08/2022 b).

Construction materials and capacity: construction materials are needed for those who are able to conduct their own repairs but do not have the financial means or access to functional markets to buy them. Additional capacity is needed to assist in community efforts to repair and winterise buildings (OCHA 15/07/2022; KII 05/08/2022 a; KII 09/08/2022).

Repairs of public infrastructure: local authorities need support in repairing damaged district heating, water, gas, and electrical infrastructure (OCHA 15/07/2022; KII 09/08/2022).

Water: water is likely to be needed in winter as water pipes are at risk of freezing and bursting, especially in buildings that will not be heated because of an interrupted gas supply. Pumps and wells are also susceptible to freezing, adding to the water service disruptions already caused by the conflict (ABC 10/08/2022; Wilson Center 07/02/2019).

Carbon monoxide awareness: as a general rule, the improper use of heating stoves at the household level can lead to carbon monoxide poisoning, so awareness-raising activities are needed in areas with a prevalent use of stoves (Shelter Cluster 29/07/2019).

THE MOST VULNERABLE GROUPS

People in remote and rural areas: households in rural and remote areas are more likely to reside in substandard housing inadequate for winter because of insufficient insulation and heating or potential damages from the war. Some IDPs have also moved into these substandard rural and remote homes (OCHA 15/07/2022; KII 09/08/2022).

Elderly people and people with limited mobility: these population groups will have more difficulties coping with stockpiling heating fuel or making repairs to their houses, particularly in rural areas or where most of the population has already evacuated (KII 05/08/2022 a; KII 05/08/2022 b; KII 07/08/2022 b; KII 09/08/2022).

IDPs in collective centres: according to government figures, there are currently 950,000 IDPs sheltering in 5,670 collective centres, such as dormitories, schools, gyms, and hotels, many of which are ill-equipped to deal with cold winter temperatures. Western and central oblasts have higher concentrations of collective centres (OCHA 15/07/2022; KII 09/08/2022).

Isolated inhabitants in areas damaged by the war: this population group is not connected to heating and electrical networks. In some cases, security concerns also prevent solid fuel deliveries, especially in central and eastern oblasts (OCHA 15/07/2022). As a result, the inhabitants run the risk of facing winter conditions without adequate heating.

People whose livelihoods have been disrupted by the war: people who have experienced a loss or decrease in income will struggle with purchasing winterisation items, especially with prices increasing in local markets (KII 05/08/2022 b). July figures from the National Bank of Ukraine placed the unemployment rate at 35% (5.2 million people) (The Kyiv Independent 21/08/2022).

LOCAL AND NATIONAL RESPONSE

The Government of Ukraine

In anticipation of colder temperatures, the Government of Ukraine has enacted a plan that involves stocking up on heating fuel, such as firewood and coal. Wood stoves are being built and stocked (NYT 02/08/2022; KII 07/08/2022 b).

On 7 June, the Cabinet of Ministers of Ukraine published a resolution on the establishment of headquarters to prepare housing, communal centres, and energy supply for winter. The proposed actions included the repair of damaged housing and energy infrastructure, management of energy reserves, and facilitation of contracts among private organisations involved in gas supply, transportation, and heat generation (Cabinet of Ministers of Ukraine 07/06/2022).

On 29 July, the Ukrainian Parliament passed a law banning heating and gas price increases until six months after the end of martial law (OSW 02/08/2022). This law also allowed local authorities to prevent the raising of prices of heat and hot water for residents (Babel 19/07/2022).

Oblast and local authorities

As a result of the localised nature of heating concerns and infrastructures, oblasts and local authorities are conducting several winter preparations.

Infrastructure: city and rayon administrations are conducting checks of public facilities (including municipal halls and educational and medical facilities) and residential houses to evaluate their preparedness and potential repairs needed for winter. In conjunction with the Government of Ukraine, local authorities are working to enhance or repair the capacity of

the electric grid to partially substitute gas-based networks (KII 05/08/2022 a; KII 07/08/2022 a). The scale of assistance provided by municipalities to prepare residential buildings does not always suffice (KII 07/08/2022 b).

Stocks: oblast and local administrations are stockpiling strategic reserves of food and heating fuel (KII 05/08/2022 a; KII 07/08/2022 a).

Awareness: regional and local administrations are warning their residents about the need to prepare for possible cuts to gas and district heating supplies this winter (KII 05/08/2022 a).

Shelter: municipalities are preparing winterised collective centres and emergency tents to host the local community in case of disruptions to district heating in private homes (KII 05/08/2022 b; KII 07/08/2022 b; NYT 02/08/2022).

Local NGOs and volunteers

Cash assistance: one of the response activities reported by local NGOs is providing cash assistance and raising funds for the purchase of key winterisation products (KII 07/08/2022 a).

Clothing and household items: local NGOs and volunteer groups are gathering cold-weather clothing, footwear, and household supplies before autumn and winter (KII 07/08/2022 b).

Repairs and insulation: local NGOs are assisting the community in repairing damages or improving homes' insulation (KII 07/08/2022 a).

Logistics: some local organisations are providing logistical support for the purchase and delivery of winterisation supplies (KII 07/08/2022 a).

Residents' collectives: some residents' collectives are organising to improve insulation and repair heating systems and buildings. These collectives' abilities to make sufficient improvements to their buildings depend on their members' combined financial means (KII 07/08/2022 b).

Challenges faced by local NGOs and volunteers

Financial capacity: some NGOs and volunteers have reported limited responses to winter preparations, especially because of a lack of financial capacity. They are responding to the immediate needs of the population and will adjust their response once wintertime needs become more apparent and pressing (KII 05/08/2022 b; KII 09/08/2022). Other organisations are balancing between immediate needs and winterisation assistance given their limited financial capacities (KII 07/08/2022 b).

Staff and volunteer capacity: a local organisation currently engaged in winterisation response reported that its capacities are fully mobilised and that additional international assistance is needed (KII 07/08/2022 a). One organisation not currently providing winterisation support is conducting preliminary preparations (e.g. collecting information and securing suppliers) to provide appropriate assistance during winter (KII 05/08/2022 b).

LIMITATIONS

This report is based on publicly available information at the time of writing and five key informant interviews with local responders. The report aims to provide a quick overview of winterisation needs and challenges before the upcoming season. It is not a comprehensive analysis of all likely needs associated with cold temperatures in Ukraine. Local response activities are indicative and do not represent a comprehensive overview of all winterisation activities conducted at the local level in Ukraine.