Ukraine Conflict – Updated Environmental Fact Sheet #2
July 2022

Introduction

An initial Fact Sheet: Ukraine Environment Considerations was issued in March 2022. The current Fact Sheet updates and expands on the information originally provided. This Fact Sheet content covers environmental issues arising from the ongoing conflict. A subsequent will address integrating environmental considerations into recovery planning and implementation.

Although the focus of the Fact Sheets is on shelter and settlements, the information provided is generally useful to all humanitarian and recovery programming.

Information on Environmental Issues – Due Diligence to Do No Harm

A significant operational issue arising with the conflict in Ukraine is that large scale environmental damage and contamination are occurring in densely populated urban areas and less densely populated, but economically important, rural areas. The environmental impacts are in addition to environmental issues existing before February 2022, some of which were related to earlier fighting in the Donbas region of Ukraine.

A major challenge for humanitarian organizations is to ensure that assistance is provided with due diligence to avoid harm, in:
- Where the assistance is provided, e.g., not in environmental hot spots,
- The way assistance is provided, e.g., not encouraging unsustainable exploitation of natural resources, and,
- What the assistance is intended to be used for, e.g., providing stoves in urban areas which do not match the fuels available and lead to possible carbon monoxide poisoning.

There is a significant body of information on environmental issues in Ukraine which can be used in assessments, planning and operations, with information expanding daily. Key sources include[1]:
- **Environment Working Group on the Humanitarian Response platform**: https://www.humanitarianresponse.info/en/operations/ukraine/environment, including
  - Ukraine: List of Environmental Data and Maps - 28 JUN 2022 [EN]
  - Ukraine: DEC Ukraine Humanitarian Appeal
  - Ministry of Environmental Protection - Digest
  - Nuclear Safety and Security in Ukraine - Updates
  - Ukraine Environment Newswire
- **Assessment registry** (for all planned, ongoing and completed assessments): https://www.humanitarianresponse.info/en/operations/ukraine/assessments
- **Ecodozor: Environmental Consequences and Risks of the Fighting in Ukraine**. Managed by Zoï Environment Network, OSCE Ukraine and the UN Environment Programme (https://ecodozor.org/index.php?lang=en).
- **PAX: Incident Monitoring and Database**. PAX, a Dutch peace organization, and Centre for Information Resilience, have established an open source data base which collects information to monitor the direct and indirect environmental impacts of the conflict in Ukraine. Access to the data based is available upon a request to Wim Zwijnenburg (Zwijnenburg@paxforpeace.nl).
- **The Conflict and Environment Observatory (CEOBS)** maintains a database of incidents and can provide technical advice on contaminated land, environmental

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[1] Some information adapted from the Coordination Meeting of the Environment Working Group in Ukraine meeting of 14 June 2022.

considerations in mine action and air quality. Contact Doug Weir (doug@ceobs.org) concerning access to the data base and advice.

- **EcoAction: Damage Assessment and Green Recovery**. Developed by the Ukrainian NGO EcoAction, the map brings together information on potential negative environmental impact from Ukrainian sources using open sources in cooperation with the Ukrainian Ministry of Environment.
- **IMPACT: Environmental Impact Assessment and Use of FEAT**. The Fast Environmental Assessment Tool (FEAT) is designed to rapidly assess the potential risks from exposure to hazardous substances due to unplanned releases. For Ukraine, IMPACT is using secondary data, satellite images and damage reports to identify areas which might be affected by the release of hazardous substances. More information is available here: https://www.impact-initiatives.org/where-we-work/ukraine/.

Information on environmental issues before February 2022 is available from the following sources:
- A 2007 broad and accessible overview under the Environment and Security initiative (ENVSEC), regional scope thus also including Belarus and Moldova: https://zoinet.org/product/envsec-eastern-europe/
- Pre-conflict situation in the Donetsk oblast, by UNEP https://zoinet.org/product/coalland-donetsk/
- A 2017 comprehensive assessment with the OSCE of the environmental consequences of Donbas conflict (with quite a few references too) https://zoinet.org/product/east-ukraine-env-assessment/ and 5-years-after-2014 infographics https://zoinet.org/product/east-ukraine-5y-fighting/.
- National reports about the state of the environment in Ukraine (in Ukrainian) https://mepr.gov.ua/timeline/Nacionalni-dopovidi-pro-stan-navkolishnogo-prirodnogo-seredovishcha-v-Ukraini.html
- Short summary in English as part of Ukraine's cooperation with the European Environment Agency (2018) https://eni-seis.eionet.europa.eu/east/governance/project-documents/CountryBriefing_Ukraine_tlac.pdf
- Regional reports about the state of the environment in specific oblasts (in Ukrainian) https://mepr.gov.ua/timeline/Regionalni-dopovidi-pro-stan-navkolishnogo-prirodnogo-seredovishcha.html
- English summary of the pre-conflict situation in the Donetsk oblast (2018) https://zoinet.org/product/land-of-our-concern/
- Institutionally focused assessment by the World Bank https://openknowledge.worldbank.org/bitstream/handle/10986/24971/Ukraine000Coun0ironmental0analysis.pdf?sequence=4&isAllowed=y
- Brief summary by WWF https://wwfeu.awsassets.panda.org/downloads/_2020____web.pdf

Debris Management
The scale of destruction of the physical environment presents a debris management challenge which likely exceeds any disaster event in the past 80 years. This debris, including that from infrastructure which needs to be deconstructed, needs to be removed before rebuilding, or even before establishing emergency or transitional shelter. In general, 90% of debris can be reused, repurposed or recycled, steps which facilitate immediate shelter and recovery and can reduce the need to quarry, produce and import construction materials. Debris which is not processed for reuse, recycling or other purposes likely will result in long term environmental damage.

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environmental hazards, ranging from half-empty household chemical containers, to large stocks of hazardous material in industrial facilities, warehouses and commercial stores to a common presences of asbestos (discussed below). Properly designed debris management plans will take these environmental hazards into account, reducing the risk of damage to the environment and to those involved in clearing debris and preparing damaged structures for repair or replacement.

General guidance on debris management is available from the publication [Disaster Waste Management Guidelines](). Technical support on debris management issues is also available, from the Joint UNEP/OCHA Environment Unit, UN agencies and several donors. Requests for support can be channeled through the OCHA Environmental Field Advisor for Ukraine (tanya.grygaski@un.org).

In addition, UNDP is working with the State Emergency Services of Ukraine on debris clearance, demolition and other debris recycling & management tasks. UNDP is working with UNOSAT and NASA on assessing quantities and mapping locations with a high density debris and developing an application for building damage assessment. (UNDP is interesting in working with others on debris management given the scale of the problem in Ukraine.) For further information, contact Martin Bjerregaard (martin.bjerregaard@undp.org).

Exploded and Unexploded Ordnance[2]
The remnants of exploded, partially exploded or unexploded ordnance are likely to be found almost anywhere in Ukraine. Exploded or partially exploded ordnance can result in soil and eventually ground water contamination. Disposal of unexploded ordnance through in situ or large-scale explosive disposal can also lead to soil and, in the case of large-scale disposal, ground water pollution.

Air pollution from large scale disposal of ordnance can pose a threat to individuals with respiratory problems. This air pollution can spread contaminants over local areas, leading to soil contamination of potential risk to human health. Although these plumes can be expected to dissipate quickly, their scale and existence should be minimized by avoiding disposal activities in locations near residential areas or on-going farming or animal raising.

For exploded or partially exploded ordnance, particularly where large numbers of munitions were used in one location, soil testing is needed to assess the severity of any possible soil pollution. Ground water should also be tested where the height of the ground water table, soil, geology and depth of craters indicates possible or potential contact of explosive remnants with ground water. Locations in proximity to active drinking water wells and boreholes should be prioritized for testing.

Ordnance disposal pits can create artificial ponds, leading to ground water pollution as well as being breeding sites for insects. These sites need to be rehabilitated to preexisting condition and any pollution sources need to be removed and remediated.

As a general approach, a categorical environmental impact assessment[3] should be done for locations (e.g., factories) where large volumes of ordnance have been used or destroyed, such as damaged weapons storage sites. This categorical assessment does not need to include actual testing of sites, but would lay out procedures to assess, categorize and address the risks posed in these types of sites which would be followed in ordnance disposal or site clean-up plans.

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[2] Based on input from the Conflict and Environment Observatory.
[3] A categorical assessment covers environmental issues for a category of possible treats to the environment and are more time and cost efficient than site-by-site assessments.

Large scale disposal sites should have specific environmental management and monitoring plans for air, soil and ground water pollution based on a categorical assessment. For disposal of individual or a small number of ordnance, a practice guide should be developed to limit air, water and soil pollution.

It is currently unclear if or to what extent depleted uranium has been used in fighting in Ukraine. Russia has several large caliber tank rounds in service that have a depleted uranium core. The most likely source of inhalational exposure of depleted uranium particulate will be through activities in and around damaged military vehicles. If depleted uranium has been used at any scale, then specific procedures should be put in place to assess and limit exposure. UNEP experiences from conflicts in the Balkans and Iraq[4] can be used as reference point for these efforts. It is unlikely that the presence of depleted uranium will be immediately obvious. Therefore all damaged armored vehicles should be treated as suspect. It should also be noted that damaged armored vehicles may also contain unexploded ordnance, explosive armor plating and a range of pollutants.

The Challenge of Asbestos
Asbestos is a well-documented environmental health hazard that has long term serious health impacts. As a legacy from the Soviet Union, asbestos is widely present throughout the built environment in Ukraine, from house roofs to large industrial sites.

A more detailed discussion of asbestos and Ukraine is available in [Rebuilding Ukraine: The Imminent Risks from Asbestos](), noting that asbestos poses a significant threat to those involved in search and rescue, firefighting, emergency demolition, debris management, cleanup and reconstruction. Poor management of asbestos-contaminated debris can increase this risk (e.g., broken asbestos sheeting further crushed and scattered across the affected area), and can create conditions which necessitate restricting the field presence of humanitarian personnel due to health and safety concerns.

General guidance exists on safe management of asbestos[5]. UNDP is currently developing specific guidance for safe asbestos management for Ukraine. For more information, contact Martin Bjerregaard at [martin.bjerregaard@undp.org](). Given the historical widespread use of asbestos in Ukraine and the high level of damage to the built environment, asbestos awareness and management need to be part of all field operations plans for shelter, communal shelters, water and sanitation, agriculture, food security, health and education.

Shelter, Collective Center and NFI (Non-Food Items).
The Ukraine Shelter Strategy[6] focuses on two objectives:
- Most vulnerable people affected by conflict (displaced and non-displaced) have access to adequate shelter and NFI assistance (in kind and in cash modalities), and
- Most vulnerable people affected by the conflict receive shelter.

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[4] See https://www.unep.org/explore-topics/disasters-conflicts/what-we-do/preparedness-and-response/post-crisis-environmental-0.

[5] See https://eecentre.org/resources/asbestos-and-humanitarian-response-a-life-threatening-humanitarian-challenge/.

[6] https://sheltercluster.s3.eu-central-1.amazonaws.com/public/docs/20220614_UKR_Shelter%20Strategy_220619_092728.pdf?VersionId=_Lz2Q7P8SkGEUeAZXPuuyZk5Tqo.D0G4

Collective centers are considered only as the last resort shelter option for displaced populations"[7]. Current sectoral operations focus on (1) assessments, (2) light and medium repair kits, (3) non-food items, (4) rental and cash assistance[8] and (5) Collective Centers.[9]

Key actions in this sector include:
- Incorporating environmental impacts into assessments. See above regarding UNDP work on building damage assessment. Tools such as NEAT+ or the Rapid Environmental Impact Assessment (see below) can be used for this integration process, <u>particularly in integrating environment-focused topics into other assessment tools and efforts.</u>
- Establishing asbestos management and awareness plans for household repairs and communal center support (see above and below).
- Establishing a market monitoring process for construction materials, including sand and locally harvested wood. A need to repair and rebuild in combination with rental and multi-purpose cash assistance[10] and remittances will increase market demand for building materials. Supply system limitations will likely drive-up costs and lead to an over exploitation of local natural resources, particularly for sand and wood.
- Implement environmental due diligence criteria for rental housing and collective centers. For rental housing, the intent is to ensure occupants are safe from natural hazards, as well as asbestos in the case of repaired housing.
- For collective centers, environmental due diligence is needed as a center:
  - May be constructed using asbestos, for which specific risk management measures would be needed.
  - May have been used to manufacture or store hazardous materials or be in a location affected by environmental contamination (e.g., converting warehouses to communal living).
  - May be in locations subject to flooding or other natural hazards.
  - May needed expanded waste management capacities, in the center (e.g., expanding sewage management systems) and off site (e.g., expanded local land fill and recycling capacities).
  - Will need to plan for heating water, providing energy for cooking and providing heating during the coming winter (see below).
  - Needs to have a fire[11] and safety plan.
- Adapt the light and medium shelter assistance kits based on verified repair needs, reflecting the fact that significant damage has occurred to urban housing compared to earlier phases of the conflict. This adaptation needs to:
  - Provide the most technically appropriate assistance to those in most need,
  - Consider options for debris reuse, and
  - Plan for one-warm-room sheltering options for the coming winter in damaged housing units (see below).

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[7] See https://reliefweb.int/attachments/f60b5ba3-2f9e-3e4a-9524-27459aec0543/Ukraine%20Flash%20Appeal%20%28March%20-%20May%202022%29%20%5BEN%5D.pdf.

[8] "Cash" assistance is being provided through a number of mechanisms.

[9] There are both Shelter/NFI and Camp Coordination and Camp Management Clusters established in Ukraine, with some overlap in terms of support to collective centers.

[10] Over $US 24 million in multi-purpose cash grants have been distributed in Ukraine, with some of this support likely going to building repairs and market purchases. The availability of rental assistance in expected to increase physical conversion of housing to rentals even as the total housing stock is reduced.

[11] Fire safety plans reduce the likelihood that a fire will destroy a facility and contents and require additional resources which would otherwise not the be the case and thus not increasing the environmental footprint of the center.

- Implement intervention-specific environmental management plans. These plans are generic for types of interventions (e.g., light repairs, heating communal centers) and based on established environmental impacts and management methods. <u>As the plans would be generic there would be minimal or no need to adapt them to a specific location or intervention.</u>[12]

Energy

Ukraine has a diversified energy supply. While the conflict can be expected to reduce part of the 30% of the country's energy budget provided by coal, Ukraine has, in the past, also imported coal to meet needs. A reduction in industrial and commercial activities could mean that net supplies of coal and several other energy sources may, in theory, exceed demands for the near term. The opposite may be true for gasoline and diesel fuels, where damage to refining capacities and port blockades may limit supplies and raise costs.

A significant challenge regarding energy is more likely in the reliable distribution of available energy sources. It is likely that urban areas will have greater – in number and reliability – access to energy than rural areas, although the urban situation may degrade as a result of damage and increased strain on delivery systems during winter.

From an environmental perspective, the provision of energy should:
- Prioritize the use of less polluting over more polluting sources of energy when possible.
- Prioritize life-supporting energy assistance where necessary due to supply or transmission limitations. This would mean first allocating energy to hospitals, water supply, telecommunications, communal centers and similar critical facilities, with rationed energy supplies in support of the one-warm-room approach during winter.

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[12] Intervention-type-specific environmental management plans have been used by, for instance, USAID in conflict/post conflict situations in Afghanistan, Indonesia, Uganda and West Bank/Gaza in a way which did not slow operations. See https://www.environmentalpeacebuilding.org/assets/Documents/LibraryItem_000_Doc_074.pdf.

- Be based on a diversity of sources at the user level. This may mean access to electricity, natural gas, a wood burning stove and solar charger and lights to anticipate that at least one source will always be available, and that sources may rotate in availability – such as natural gas for cooking or electricity in the evening.

These considerations need to be an integral part of NFI assistance (including stoves), stand-alone energy supplies for communal centers and for critical areas of water, sanitation and hygiene, telecommunications, health care and the provision of basic services.

While energy and winterization issues overlap, reliable energy is critical for livelihoods, health care and associated services, food production and processing, hygiene and sanitation, and other critical needs during the whole year.

Winterization
An Intercluster winterization plan is under development. It is likely that the plan will focus on the one-warm-room approach, as has been done previously in Ukraine.[13] UNOPS has also established a technical working group on district heating, as the level of

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Stoves, Fuel and Safety

If solid fuel burning stoves are provide as part of NFI or winterization assistance, the following points should be considered:

The size of the stove and intended fuel should match the expected use. Stoves intended for heating using coal can be relatively small. Stoves for heating water for bathing and cooking need to be larger. While coal is more energy dense, wood, particularly in rural and peri-urban areas, may be more accessible and more easily manageable with a larger, multi-purpose stove. Note that not all solid fuel stoves work equally well with coal and wood.

Training should be provided on the efficient and safe use of stoves provided, particularly for urban dwellers who may not have experience safely using solid fuel stoves. (Such training needs to be gender-and age aware as management of a multi-purpose stove may be shared across a family unit.)

The logistics of solid fuel demand and delivery should be worked out in detail. An EMMA assessment and monitoring of solid fuel markets should be done to ensure that demand does not lead to severe price inflation or excessive extraction of wood in the place of more expensive coal.

Stoves should be provided with floor protectors, heat barriers, appropriate chimneys, window inserts and carbon monoxide monitors, as well as fire safety training. **Carbon monoxide monitors are particularly important when stoves are part of a one-warm-room approach, as several people may sleep or work next to a stove which may be installed without a formal safety inspection.**

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centralized heating is significant in most urban areas. Further information is available in this report from the Ukraine Shelter Cluster Technical Working Group.

Managing Transport-Related Carbon Footprints
The humanitarian community has been paying increased attention to the carbon footprint, or more accurately, carbon dioxide equivalents (CO_2 eq) of assistance operations. The general thrust of this attention has been to reduce and offset CO_2 eq to reduce the contribution of humanitarian operations to climate change.

A number of tools to assess the CO_2 eq are available or in development. The most immediate benefit comes from assessing the CO_2 eq of transport, for commodities (per ton/kilometer) and personnel (per passenger/kilometer). While urgent transport using aircraft will remain core to achieving humanitarian outcomes, assessing the CO_2 eq of different transport options based on the clear urgency of the assistance transported can enable

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[13] https://sheltercluster.s3.eu-central-1.amazonaws.com/public/docs/winterization_recommendations_eng_final.pdf.

assistance organizations to reduce the CO_2 eq generated in providing assistance while still meeting humanitarian objectives.

Online tools are available to generate CO_2 eq per ton/kilometer or passenger/kilometer. This comparison should become routine for transport decisions.

Managing Donations

Donations that are not based on assessed needs create significant environmental problems. The transport of unneeded donations generates CO_2 eq which would not otherwise be generated and absorbs logistical capacity that could be used for actual needs-based assistance.

In addition, unneeded donations will have to be disposed of, potentially overloading waste management systems and disposal sites even where waste management systems have reuse and recycling capacities. Drug donations are a specific problem, as they can contaminate disposal sites and groundwater if not managed correctly.

While donations can be useful, for operational as well as environmental reasons, they should **only be provided based on superficially assessed needs and with well developed transport and distribution plans**. Where possible, donations should be sourced as close to Ukraine as possible to limit transport-generated CO_2 eq.

Transition to Recovery

This Fact Sheet has focused on short term relief efforts. Even as the conflict continues, however, it is expected that in areas of relative tranquility repairs and rebuilding have already started. This rebuilding will be supported through a combination of savings, remittances, cash grants and shelter-sector assistances (e.g., light and medium house repair kits). A separate Fact Sheet will be issued covering the environmental aspects of recovery and rebuilding in the near future.

Standards and Guidance

The Reducing Environmental Impact in Humanitarian Response thematic sheets, based on the Sphere Standards for Humanitarian Assistance, are a one-stop source for standards, indicators and other guidance across all the major assistance sectors. Additional information on environmental guidance can be found at the end of the document in the *Guidance on environment in humanitarian action* section.

The Nexus Environmental Assessment Tool (NEAT+) is "is a rapid and simple project-level environmental screening tool … that allows humanitarian actors to quickly identify issues of environmental concern before designing longer-term emergency or recovery interventions." NEAT+ has modules which cover the general environmental aspects of a disaster and shelter, WASH, food and livelihoods as well as an urban-focused version. (A health module is in development.)

The Rapid Environmental Assessment in Disasters (REA) Guidelines are, in contrast to NEAT+, designed to identify and prioritizing an overall view of environmental issues related to a disaster or conflict based on inputs from affected populations and assistance providers. The REA can be used at a project or programming assessment level. REA content can be incorporated into other assessment tools and the REA structure can be used to analyze results

Green Recovery and Reconstruction Training Toolkit (GRRT) including ten modules that cover key sectors such as Strategic Site Selection and Design; Construction, Materials, and the Supply Chain; Water and Sanitation; Livelihoods; Environmental Impact Assessment; and Monitoring and Evaluation.

Technical advice can be requested from:
- The OCHA/UNEP Joint Environment Unit via the Ukraine Environment Field Advisor (tanya.grygaski@un.org).
- Environment and Disaster Management Program, WWF US via https://envirodm.org/contact/.
- Environment Community of Practice, Global Shelter Cluster via the Global Shelter Cluster Help Desk (supported via a grant from ECHO to the Global Shelter Cluster via UNHCR).

In addition, specialists on a range of environment-related issues are available through technical support arrangements, for instance NorCap (NEAT+ and energy), Swedish Civil Defense (environmental advisors) or CANADEM, through standby support agreements. Technical support on environmental issues can be requested by contacting the Joint Environment Unit via the Ukraine Environment Field Advisor (tanya.grygaski@un.org) or the Global Shelter Cluster Help Desk.

Produced by the Global Shelter Cluster Environment Community of Practice and WWF-US Environment and Disaster Management program with support from ECHO and UNHCR to improve the integration of environmental issues into shelter and settlements response.

Contact for further information: havedisastercallkelly@gmail.com

Learn more about the Global Shelter Cluster Environment Community of Practice:
- https://envirodm.org/resource/global-shelter-cluster-environment-community-of-practice/
- https://sheltercluster.org/community-practice/environment-community-practice

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