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| **Research Terms of Reference**  **Decontamination Support Assessments**  **UKR2405**  **Ukraine** | |
| **30/05/2024**  **Version 1** | **C:\Users\Megan\AppData\Local\Microsoft\Windows\INetCache\Content.Word\REACH logo white (for a coloured background).jpg** |

# Executive Summary

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| **Country of intervention** | Ukraine | | | | | | | |
| **Type of Emergency** | □ | Natural hazard | **x** | Conflict | | | □ | Other *(specify)* | |
| **Type of Crisis** | □ | Sudden onset | □ | Slow onset | | | **x** | Protracted | |
| **Mandating Body/ Agency** | BHA | | | | | | | |
| **IMPACT Project Code** | *64BAO* | | | | | | | |
| **Overall Research Timeframe** *(from research design to final outputs / M&E)* | 01/06/2024 to 31/05/2025 | | | | | | | |
| **Research Timeframe**  **Study 1** | 1. Start collect data: 01/07/2024 | | | | 5. Preliminary presentation: 01/10/2024 | | | |
| 2. Data collected: 15/07/2024 | | | | 6. Outputs sent for validation: 01/11/2024 | | | |
| 3. Data analysed: 10/08/2024 | | | | 7. Outputs published: 01/12/2024 | | | |
| 4. Data sent for validation: 11/08/2024 | | | | 8. Presentation: 15/01/2025 | | | |
| **Study 2** | 1. Start collect data: 01/09/2024 | | | | 5. Preliminary presentation: 01/12/2025 | | | |
| 2. Data collected: 15/09/2024 | | | | 6. Outputs sent for validation: 31/01/2025 | | | |
| 3. Data analysed: 10/10/2024 | | | | 7. Outputs published: 01/02/2025 | | | |
| 4. Data sent for validation: 11/10/2024 | | | | 8. Presentation: 15/02/2025 | | | |
| **Study 3** | 1. Start collect data: 01/11/2024 | | | | 5. Preliminary presentation: 01/02/2025 | | | |
| 2. Data collected: 15/11/2025 | | | | 6. Outputs sent for validation: 15/04/2025 | | | |
| 3. Data analysed: 10/12/2025 | | | | 7. Outputs published: 31/05/2025 | | | |
| 4. Data sent for validation: 11/12/2025 | | | | 8. Final presentation: 20/06/2025 | | | |
| **Number of assessments** | **x** | Single assessment (one cycle) | | | | | | |
| □ | Multi assessment (more than one cycle) | | | | | | |
| **Humanitarian milestones**  *Specify* ***what*** *will the assessment inform and* ***when***  *e.g. The shelter cluster will use this data to draft its Revised Flash Appeal;* | **Milestone** | | | | **Deadline (can be tentative)** | | | |
| □ | Donor plan/strategy | | | \_ \_/\_ \_/\_ \_ \_ \_ | | | |
| □ | Inter-cluster plan/strategy | | | \_ \_/\_ \_/\_ \_ \_ \_ | | | |
| **x** | Cluster plan/strategy | | | Ongoing interventions from WASH and FSL partners. | | | |
| **x** | NGO platform plan/strategy | | | Ongoing actions from the NGO forum “Green Reconstruction of Ukraine” | | | |
| □ | Other (Specify): | | | \_ \_/\_ \_/\_ \_ \_ \_ | | | |
| **Audience Type & Dissemination** *Specify* ***who*** *will the assessment inform and* ***how*** *you will disseminate to inform the audience* | **Audience type** | | | | **Dissemination** | | | |
| □Strategic  **x** Programmatic  **x** Operational | | | | **x** General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors)  **x** Cluster Mailing (Education, Shelter and WASH) and presentation of findings at next cluster meeting  **x** Presentation of findings (e.g. at HCT meeting; Cluster meeting)  **x** Website Dissemination (Relief Web & REACH Resource Centre)  **x** Bilateral dissemination to local authorities | | | |
| **Stakeholder mapping** *Has a detailed stakeholder mapping been conducted during research design to identify all actors that could* ***contribute*** *to and/or* ***benefit******from*** *the research?* | **x** | Yes | | | □ | No | | |
| **General Objective** | Support localized decontamination[[1]](#footnote-2) efforts in areas at heightened risk of contamination due to an escalation of hostilities since February 2022 by consolidating, generating and operationalising information and data on conflict-induced contamination and its impact on people’s health, livelihoods and the environment, to enable transparent, efficient, and data-driven decision-making. | | | | | | | |
| **Specific Objective(s)** | 1. Identify and consolidate existing information and data on different sources of war-induced contamination[[2]](#footnote-3) in Ukraine’s conflict-impacted areas to create a comprehensive inventory of contamination sources, pathways and their impacts.  2. Fill information gaps on localised war-induced contamination through primary data collection, water and soil testing, and remote sensing (see below for details), to develop refined, localised area profiles of the impacts of war-induced contamination on people’s health, livelihoods and the natural environment.  3. Inform the development and implementation of locally-relevant mitigation, humanitarian and recovery measures addressing the impacts of war-induced contamination.  4. Identify the technical capacity of local actors, such as local administrations and emergency response services, in utilizing geo-information technologies for data collection, analysis, and visualization in support of decontamination efforts. | | | | | | | |
| **Research Questions** | (1) What are current information gaps and needs in decontamination action and what improvements are needed to increase its efficiency?   * 1. What type of contamination data is available (incl. private company data) and to whom?   2. What are the information needs of actors working in the decontamination efforts?   3. What are the most effective approaches to formalizing data collection,analysis, and storing for enhancing operational efficiency?   (2) What are the impacts of conflict-induced contamination on people’s health, livelihoods and the environment?   * 1. What is the socioeconomic and environmental profile of the affected area?   2. What is the extent of measurable contamination (e.g., chemical, biological, physical, etc) in the selected areas?   3. In case of damage to industrial facilities in the area, what, if any, hazardous substances were released and how did this affect the environment (air, water, soil) and human health?   4. Is there evidence of subsequent cascading events, which have a negative impact on the the livelihoods of populations practicing smallholder framing?   (3) What practical measures can be implemented in the short- and medium-term to mitigate the impacts of conflict-induced contamination on people’s health, livelihoods and the environment?   * 1. What is the extent of measurable contamination (e.g., chemical, biological, physical, etc) in the selected areas of study?   2. How is access to provide aid impacted by contamination?   3. What information and in what format do humanitarian actors need to ensure the delivery of assistance to areas affected by contamination?   (4) What is the extent of soil and water contamination in areas under repeated stress from the conflict and how does it impact the access to safe water sources by the affected populations?   * 1. Is there baseline data on soil/water quality available to help identify the conflict’s impact?   2. If baseline data available, what gaps in the data on soil/water quality can be found?   3. If available, what are the most typically observed deviations from the baseline and threshold limit values in the selected areas?   4. If available, how large is the deviation from the baseline and threshold limit values in the selected testing sites?   5. Are there any changes to the selection or maintenance of water sources (irrigation and consumption) during the conflict?   6. Has access to safe water or land used for food production worsened?   7. Are there alternative options for safe water or land use in these areas?   8. Are there any local actions being taken to restore water or land quality?   (5) What feasible training and capacity-building initiatives can be implemented in the next year to empower local actors, including local administrations, communities and emergency responders, to address the impacts of conflict-induced contamination?   * 1. What are the most commonly identified needs of local actors, such as administrations and emergency response services, in conducting independent, localised contamination assessments which inform decontamination activities?   2. What training opportunities are available to the actors operating in the selected areas?   3. Is the technical/staffing support of local actors sufficient for the use of geo-information technologies?   4. How effective is the interaction (e.g., information flow, access to data) between local stakeholders, and how can it be improved through formalizing approaches to data collection, analysis, and visualization?   5. What specific GIS tools or datasets are most important for local actors in decontamination issues? | | | | | | | |
| **Geographic Coverage** | Pilot areas: Selected hromadas in Kharkivska oblast (to be confirmed)  Following areas will be determined upon outcomes of pilot and further stakeholder consultations. | | | | | | | |
| **Secondary data sources** | * *REACH’s Hazardous Events Monitoring Initiative (HEMI) database* * *United Nations Environmental Programme assessments and reports, such as “Rapid Environmental Assessment of Kakhovka Dam Breach” and “The Environmental Impact of the Conflict in Ukraine: A Preliminary Review”* * *Conflict and Environmental Observatory and Zoi Environmental Network reports, such as “Assessing Environmental Damage in Ukraine” and “The Environmental Consequences of the War Against Ukraine”* * *Ecodozor map* | | | | | | | |
| **Population(s)** | □ | IDPs in camp | | | **x** | IDPs in informal sites | | |
| *Select all that apply* | **x** | IDPs in host communities | | | □ | IDPs [Other, Specify] | | |
|  | □ | Refugees in camp | | | □ | Refugees in informal sites | | |
|  | **x** | Refugees in host communities | | | □ | Refugees [Other, Specify] | | |
|  | **x** | Host communities | | | **x** | Returnees | | |
| **Stratification**  *Select type(s) and enter number of strata* | **x** | Geographical #:\_ \_ \_  Population size per strata is known? □ Yes X No | □ | Group #: \_ \_ \_  Population size per strata is known?  □ Yes □ No | | | □ | *[Other Specify]* #: \_ \_  Population size per strata is known?  □ Yes □ No |
| **Data collection tool(s)** | **x** | Secondary data review | | | **x** | Semi-structured (Qualitative) | | |
| **x** | Remote sensing: AI-assisted crater detection | | | **x** | Remote sensing: land use change analysis | | |
|  | **Sampling method** | | | | **Data collection method** | | | |
| **Semi-structured data collection tool (s) # 1** | x Purposive  x Snowballing  □ [Other, Specify] | | | | x Key informant interview (Target #): 8-12 per area  □ Individual interview (Target #):\_ \_ \_ \_ \_  □ Focus group discussion (Target #):\_ \_ \_ \_ \_  □ [Other, Specify](Target #):\_ \_ \_ \_ \_ | | | |
| **Semi-structured data collection tool (s) # 2** | x Purposive  x Snowballing  □ [Other, Specify] | | | | □ Key informant interview (Target #):\_ \_ \_ \_ \_  □ Individual interview (Target #):\_ \_ \_ \_ \_  x Focus group discussion (Target #): 2-3 per area  □ [Other, Specify] (Target #):\_ \_ \_ \_ \_ | | | |
| **Disaggregation by gender and age**  *Are you planning to conduct sex/age disaggregated analysis?* | Gender | | | | Age | | | |
| x | Yes | | | □ | Yes | | |
| □ | No | | | x | No | | |
| **Data management platform(s)** | x | IMPACT | | | □ | UNHCR | | |
| **Expected ouput type(s)** | □ | Situation overview #: \_ \_ | □ | Report #: \_ \_ | | | **x** | Profile #: 3 |
| □ | Presentation (Preliminary findings) #: \_ \_ | **x** | Presentation (Final) #: 3 | | | □ | Factsheet #: \_ \_ |
| □ | Interactive dashboard #:\_ | □ | Webmap #: \_ \_ | | | □ | Map #: \_ \_ |
| **Access** | □ | Public (available on REACH resource center and other humanitarian platforms) | | | | | | |
| x | Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms) | | | | | | |
| **Visibility** | REACH, Zoi Environmental Network, UADamage | | | | | | | |
| ***Donor:*** *BHA* | | | | | | | |
| ***Coordination Framework:*** *N/A* | | | | | | | |
| ***Partners:***Zoi Environmental Network, UADamage | | | | | | | |

# Rationale

* 1. Background

After over eight years of conflict in Eastern Ukraine, hostilities escalated into a full-scale war from the 24 February 2022, following the Russian invasion into the country. More than two years later, the conflict has resulted in large scale internal and external displacement[[3]](#footnote-4), widespread destruction[[4]](#footnote-5), and a continuing humanitarian crisis. The war has also impacted industrial infrastructure and facilities throughout the country through long-range missiles and drone strikes[[5]](#footnote-6), with reports of chemical leaks into water bodies, soil and air, damaged sewage treatment plants, fires at damaged fuel depots and oil refineries, and damaged energy production facilities[[6]](#footnote-7). The conflict has also led to widespread contamination from unexploded ordnances (UXOs), explosive remnants of war (ERW), and debris from household and facility destruction (which may include hazardous materials, such as asbestos). These incidents present significant risks to human health, the natural environment, and the livelihoods it sustains.

A key challenge preventing local and international actors to address the impacts of conflict-induced contamination through short-term mitigation and long-term recovery measures is the fragmented and incomplete nature of localised data of contamination pathways and impacts. Consultations conducted by REACH with a range of actors[[7]](#footnote-8) found that detailed information on the location and level of both chemical and physical contamination is disjointed and requires consolidation to inform programmatic planning of response and early recovery actors. In turn, this negatively affects the strategic planning to develop risk mitigation strategies to protect environmental and human health.

To address these challenges, REACH will undertake a series of Decontamination Support Assessments (DSA) to support localised decontamination efforts in conflict-affected areas through consolidating, coordinating, and producing information and data on conflict-induced contamination, in order to improve the operational efficiency of decontamination efforts, facilitate restoration of access to agricultural lands, promote safe delivery of aid, and monitor and document soil and water documentation. Throughout this research cycle, REACH will engage with local stakeholders to ensure their continual involvement to maximise the value of research findings, consequently enabling to address stakeholder needs.

* 1. Intended impact

Decontamination Support Assessments aim to enhance localized decontamination efforts in conflict-affected areas by consolidating, coordinating, and generating comprehensive data on conflict-induced contamination. These assessments will formalize the collection and analysis of information, providing a transparent framework for data-driven decision-making. They will also monitor and document soil and water contamination, helping measure recovery progress, warn local populations of potential dangers, and track specific contamination events.

The assessments will provide valuable insights into localized contamination pathways and impacts, empowering both local and international actors involved in decontamination efforts to make informed, evidence-based decisions for ongoing or planned humanitarian interventions. These area-based studies will promote the restoration of local production cycles by accelerating agricultural land decontamination, supply chain recovery, and ecosystem restoration. Through primary qualitative data collection with impacted populations, these assessments will also shed light on the lived experience of conflict-induced contamination and perceived impacts on health, livelihoods, and overall well-being.

The resulting outputs, produced collaboratively, will be shared with relevant humanitarian and development actors, national and local governments, and NGOs working on decontamination efforts, WASH, and livelihoods programming. These products will enable decision-makers to better identify hazards that operational staff might encounter, optimize decontamination planning, and address gaps in consolidated data on contamination pathways within targeted areas.

* 1. Geographic coverage

The areas of study will be selected based on the following set of criteria:

* Industrial damage incidents (based on HEMI dataset with updates by the Zoi Environment Network)
* Shelling density
* Accessibility of the area
* Population density
* Size of the area
* Previous studies establishing base data
* Economic activity types in the area
* Stakeholder consultations

The pilot study will take place in a selected hromada, applying the geographic selection criteria outlined above. Based on the results of the pilot, further area selection will be made.

* 1. Definitions

Decontamination Support Assessments utilize the following definitions throughout the research cycle:

* *Decontamination* is understood as the efforts of removing the presence of contaminants (see definition of contamination) which adversely affect human health, livelihoods, and environment.
* *Contamination* is understood as the presence of a physical item and/or chemical or biological substance in water sources (including irrigation) and soil which renders them unsuitable, unfit, or harmful to human health and/or environment.

# Methodology

* 1. Methodology overview

Decontamination Support Assessments will use a mixed methods approach combining the several layers of information:

* Secondary data from different sources
* Data from REACH’s Hazardous Events Monitoring Initiative (UKR2302)
* Primary qualitative data
  + Key informant interviews
  + Focus group discussions
* Soil and water testing
* Remote sensing-based land use change analysis (performed with an external partner TBD)
* AI-assisted remote crater detection (through local partnership with [UADamage](https://www.uadamage.com/))

The research cycle uses data from REACH’s ongoing Hazardous Events Monitoring Initiative (HEMI, UKR2302) remote sensing using analysis (including land-use change analysis) through a specialised service provider, and varied secondary data sources, such as government reports/programs/plans, scientific studies, reports, and others. In terms of primary data collection, DSA will use soil and water testing to ascertain deviations in chemical composition from the pre-conflict norms (where available), key informant interviews with local stakeholders, and focus group discussions with residents. All research questions will be explored in primary data collection processes, tailored to the specific group of stakeholders being interviewed (e.g., community members in a FGD, local authorities, object representatives, etc). Secondary data review and remote sensing inform the aspects covered by research questions 2, 3, and 4. These focus on chemical, biological, and physical contamination, meaning that the analysis of imagery and other available research of soil and water conducted in the areas complement primary data collection for these questions and corresponding sub-questions.

The methodology has been developed in consultation with key stakeholders from the humanitarian, environmental, governmental, and private sectors. Furthermore, in alignment with other research and assessment streams of similar nature, DSA pursues a gender-responsive methodology, meaning that qualitative data collection is gender disaggregated and focuses on emphasising the different experiences of women in conflict-affected areas. Lastly, to determine the impact of hazardous events in the selected areas of study, DSA will use the Flash Environmental Assessment Tool (FEAT) methodology to estimate impacts of specific hazardous incidents when relevant.

Data for the three studies will be collected in stages, allowing each of the studies to build upon the lessons learned from the previous data collection cycle. Upon the completion of data collection and analysis for one study, the process will begin for the next. This means that data collection for the next study takes place while the products are being drafted for the preceding study.

* 1. Secondary data

DSA considers data produced from different secondary data sources, such as international and national actor reports and assessments in the last two years since the beginning of the full-scale invasion. The assessments will also consider the datasets produced and used in a previous research cycle, the Hazardous Events Monitoring Initiative (HEMI, UKR2302). Lastly, the methodology was designed using guides and research papers on gender-responsive and -sensitive methodology, refining primary data collection to focus on emphasising women’s experiences during the conflict.

|  |  |
| --- | --- |
| **Source** | **Purpose** |
| UNEP “The Environmental Impact of the Conflict in Ukraine: A Preliminary Review”[[8]](#footnote-9) | Contextual understanding, previous findings (for comparison) |
| UNEP “Rapid Environmental Assessment of Kakhovka Dam Breach”[[9]](#footnote-10) | Contextual understanding, previous findings (for comparison) |
| Conflict and Environment Observatory, Zoi Environment Network “Assessing Environmental Damage in Ukraine”[[10]](#footnote-11) | Contextual understanding |
| Conflict and Environment Observatory, Zoi Environment Network “The Environmental Consequences of the War Against Ukraine”[[11]](#footnote-12) | Contextual understanding, previous findings (for comparison), area identification |
| Handicap International “Out of Reach: The Impact of Explosive Weapons in Ukraine – Focus on hard-to-reach areas”[[12]](#footnote-13) | Contextual understanding |
| Brigitte Leduc “Guidelines for Gender Sensitive Research”[[13]](#footnote-14) | Informing the methodology |
| Kailing Xie, Chung Ah Baek, Gwendolene Cheve “Toolkit for integrating a gender-sensitive approach into research and checklist for preparing the gender equality statement for grand applications to UKRI GCRF and Newton fund calls”[[14]](#footnote-15) | Informing the methodology |
| UN-Women “Good Practices in Gender-Responsive Evaluations”[[15]](#footnote-16) | Informing the methodology |

The above table contains reports and guides identified as of 20/04/2024, indicating that the list is not exhaustive.

* 1. Data on war-induced contamination from local actors

In cooperation with local and regional actors, DSA will seek access to official reports, plans, and databases which contain information on war-induced contamination in the selected areas of study. This information will be used to identify gaps in the available information, shaping the direction of the area-based assessments within DSA. For government-related data, formal access will be sought in due time, while some publicly available databases and maps from local non-governmental organizations, such as that of SaveDnipro[[16]](#footnote-17), will be utilized from the inception of the assessments to inform area selection and clarify information on existing information gaps, as well as ascertain opportunities for data consolidation.

* 1. **Data from REACH’s Hazardous Event Monitoring Initiative (HEMI)**

With this research cycle including an aspect of assessing chemical contamination, DSA utilizes both the methodology and datasets created as part of HEMI. For area-based assessments and frontline overviews, the research cycle will contain media monitoring to identify damage incidence at hazardous facilities (section 3.1.1 of HEMI Terms of Reference), remote sensing to determine the extent of damage (section 3.1.2 of HEMI Terms of Reference), and secondary data review to identify the most common hazardous substance housed in the facility (section 3.1.3 of HEMI Terms of Reference)[[17]](#footnote-18). However, in addition to following the HEMI methodology on remote sensing for damage estimation, a third-party provider will introduce machine learning to detect craters, indicating the prevalence of physical contamination from UXOs and ERW.

For area-based assessments, the impact of hazardous events will be estimated with the Flash Environmental Assessment Tool (FEAT) methodology. As HEMI, DSA will follow the first step of FEAT[[18]](#footnote-19), which has the following stages:

Using this methodology, DSA will use FEAT, in combination with KIIs, FGDs, and remote sensing for crater detection to estimate the impact of chemical and physical contamination of areas on the livelihood of populations, as well as the access to safe water sources.

* 1. Qualitative Primary Data

Three different types of primary data collection are used: (1) key informant interviews (KIIs), (2) focus group discussions (FGD), and (3) soil and water testing. The combination of these three elements will allow an understanding of the experiences, perceptions, and challenges felt by the populations, communities, and actors affected by physical and chemical contamination. Furthermore, the outcomes of this data collection also give an insight into the broader implications for the livelihoods of affected communities and early recovery efforts, especially in accessing safe water sources and ensuring land decontamination.

* + 1. **Key informant interviews**

Key informant interviews will be conducted following a review of secondary data. KIIs are used to supplement the available data with insights on the experience of communities and the impact of chemical and physical contamination on the environment and livelihood of affected populations. A purposive, snowball sampling will be used, targeting local government officials, representatives of local civil society, non-governmental organisations, and businesses, environmental experts, and relevant sectoral actors (WASH, Livelihoods) which match the criteria outlined below:

* Organizational relevance (to the research cycle);
* Positional relevance (including seniority);
* Knowledge of and/or relationships with the affected population;
* Sectoral expertise.

Key informant interviews will be conducted using a semi-structured questionnaire (see DAP for the selected questions) Approximately 8 to 12 KII will be conducted in each selected area until data saturation is attained. Gender will be sought among selected key informants as part of a gender-responsive approach to qualitative data collection.

* + 1. **Focus group discussions**

Focus group discussions (FGDs) with the affected populations will collect insights into the impact of the identified contamination in the area on livelihoods, such as smallholder farmers. Two different FGD activities will be conducted. Through participatory mapping FGDs, the community will be used as part of an inductive community approach to select locations for water and soil testing (activity described below) while also engaging in a mapping exercise to understand the extent and area of contamination, as well as the contaminants present. A second set of FGDs will focus on understanding the impact of the mapped contamination on the environment, human health, and livelihoods in the area. FGDs will be formed using snowball sampling, a purposive, non-probability sampling technique where community key informants provide interviewers with information on potential participants. Furthermore, the participants will be selected based on the composition of the local community, with the groups being disaggregated by gender to create a gender-sensitive environment and capture differences in experiences based on gender. Focus groups will include between 6 and 8 participants and the sessions will be recorded, with verbatim transcriptions to obtain quotes for the output products.

Debriefing process: For primary data collection methods which involve semi-structured questionnaires, the discussions will be recorded, and notes will be taken by enumerators, trained by the DSA team prior to data collection, during the process. After each KII and FGD, enumerators will take part in a one-on-one debriefing session where enumerators will share their thoughts, opinions, and experiences on the data collection process. The debriefing sessions will be recorded and shared with HQ using the IMPACT debriefing template.

Data Processing & Analysis: Accuracy, consistency, and reliability of the collected qualitative data will be ensured through the usage of the data saturation grid. Collected data will be organised, coded, and grouped together based on similar themes and concepts. Any irrelevant or duplicate data will be removed, and any missing or incomplete information will be collected by reaching out to interviewees for clarification. Furthermore, the team will carefully examine the data to ensure that the risk of potential biases, inconsistencies, or errors is mitigated to the best extent possible. The final, clean dataset will be stored securely and analysed to supplement secondary data analysis and create a gender-responsive experience narrative.

* 1. **Soil and water testing**

Primary data collection activities will be supplemented by performing water and soil testing. REACH will contract a third-party service provider to perform the sampling and provide water and soil testing reports for areas of interest. The contractor is expected to provide water and soil quality sampling and testing in compliance with relevant ISO standards and will both collect and analyse a total of 120 samples (2/3 water, 1/3 soil). Exact areas of sampling will be determined upon all previous stages of data collection and analysis are completed, synthesising the information obtained from KIIs, FGDs (specifically the participatory mapping of contaminated areas), remote sensing, and AI-assisted crater detection. Samples will be distributed equally between the three study streams (40 samples per study stream). The samples under each study stream will then be distributed along the areas of study based on the information obtained from the community during the participatory mapping exercise, as well as by assessing identified craters using AI-assisted remote sensing performed by a third-party provider. A separate ToR to contract a provider to perform water and soil testing is currently being developed.

* 1. **AI-Assisted Crater Detection**

Under its partnership with the Ukrainian organization UADamage, REACH will use AI-assisted detection to identify craters in agricultural lands caused by various weapons and munitions. High-resolution satellite imagery, captured after intense military activities, will be processed by UADamage's crater detection neural network. Detected crater sizes will help determine the types of weapons used and the associated soil contamination risks. This pilot initiative explores the potential for AI applications in humanitarian contexts.

* 1. **Remote-Sensing-Based Land Use Change Analysis**

REACH will contract an external partner to perform a remote-sensing-based analysis of land use changes in areas of interest. The focus of land use change analysis is to detect changes to the proportion of land under cultivation in areas where there is estimated to be a high risk of contamination, both from explosive ordnance and hazardous events, using Sentinel-2 or higher spatial resolution imagery of assessment areas taken in Spring 2021 and the same month in 2024. The service contractor will be asked to provide the following deliverables: high-resolution satellite images, corrected and enhanced images, land use/land cover classifications, land use/cover dataset (excel and .shp/.geojson files), and change detection maps. Change detection maps will be used to identify tracts of land that have undergone a change of use since the outbreak of war. Results from AI-assisted crater detection and water and soil testing in the same areas will be used to interpret the results of land use change analysis, supporting an understanding of why land may have undergone a change of use.

* 1. **Limitations**

Using Geographic Information Systems (GIS) presents its own unique set of limitations. The accuracy of GIS analysis depends on the quality of satellite imagery, with artillery fire and shelling that occurred after the procurement of imagery, clouds, and low-resolution imagery increasing the difficulty in spatial analysis and interpretation. Furthermore, in the case of the second study stream, while major damage to industrial facilities may be detected with lower accuracy imagery, minor damage may not be detected, especially if any of the limitations described above further compound with the low-resolution imagery.

Qualitative data collection processes provide important insights into human behaviour, motivation, and decision-making processes. However, as qualitative data collection and analysis is subjective, it can introduce bias which affects the objectivity and reproducibility of the research process. Furthermore, the data collected through KIIs and FGDs is not statistically representative, meaning that it cannot be generalised to the entire population and will only be indicative of the experiences in the area.

Performing primary data collection for the third study stream involves considerations of context sensitivity and access. With locations being close to the frontline, the data collection team is exposed to greater security risks. Furthermore, precarious security situations carry increased access restrictions, limiting the areas which can be selected for data collection. The sensitivity of the context increases with the proximity to the frontline, exposing the data collection team to potential physical and psychological risks, such as traumatic stress, re-traumatisation, and more.

# Key ethical considerations and related risks

The proposed research design meets / does not meet the following criteria:

|  |  |  |
| --- | --- | --- |
| ***The proposed research design…*** | ***Yes/ No*** | ***Details if no (including mitigation)*** |
| … Has been coordinated with relevant stakeholders to **avoid unnecessary duplication** of data collection efforts? | Yes |  |
| … **Respects respondents, their rights and dignity** (*specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants’ time, ensuring accurate reporting of information provided*)? | Yes |  |
| … Does not **expose data collectors to any risks as a direct result** of participation in data collection? | Yes |  |
| … Does not **expose respondents / their communities to any risks as a direct result** of participation in data collection? | Yes |  |
| … Does not involve **collecting information on specific topics which may be stressful and/ or re-traumatising** for research participants (both respondents and data collectors)? | Yes |  |
| … Does not involve **data collection with minors** i.e. anyone less than 18 years old? | Yes |  |
| … Does not involve **data collection with other vulnerable groups** e.g. persons with disabilities, victims/ survivors of protection incidents, etc.? | Yes |  |
| … Follows IMPACT SOPs for management of **personally identifiable information**? | Yes |  |

# Roles and responsibilities

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Description** | **Responsible** | **Accountable** | **Consulted** | **Informed** |
| Research design | Assessment Officer | Research Manager | IMPACT HQ Research Design and Data Unit (RDDU) | Livelihoods and WASH Cluster Coordinators, their implementing partners |
| Supervising data collection | Assessment Officer  Field Officer | Field Coordinator | Country Coordinator | Operational partners (e.g., ACTED) |
| Data processing (checking, cleaning) | Assessment Officer  Data Officer  GIS Officer | Research Manager | HQ RDDU | Research Manager |
| Data analysis | Assessment Officer  GIS Officer | Research Manager | HQ RDDU | Research Manager |
| Output production | Assessment Officer  GIS Officer | Research Manager | Research Manager | Research Manager |
| Dissemination | Assessment Officer  Research Manager | Research Manager | Research Manager |  |
| Monitoring & Evaluation | Assessment Officer | Research Manager | Research Manager | HQ RDDU, Country Coordinator |
| Lessons learned | Assessment Officer | Research Manager | Research Manager | Country Coordinator |

***Responsible:*** *the person(s) who executes the task*

***Accountable:*** *the person who validates the completion of the task and is accountable of the final output or milestone*

***Consulted:*** *the person(s) who must be consulted when the task is implemented*

***Informed:*** *the person(s) who need to be informed when the task is completed*

# Data Analysis Plan

The DAP can be found here: [https://repository.impact-initiatives.org/resources/view-resource/?**Id**=64467](https://repository.impact-initiatives.org/resources/view-resource/?id=64467).

# Data Management Plan

|  |  |
| --- | --- |
| **Administrative Data** | |
| Research Cycle name | *Decontamination Support Assessments (UKRXXXX)* |
| Project Code | *64BAO* |
| Donor | *BHA* |
| Project partners | *Zoi Environmental Network, UADamage* |

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| --- | --- | --- |
| Research Contacts | *Krista Tingbrand –* [*krista.tingbrand@impact-initiatives.org*](mailto:krista.tingbrand@impact-initiatives.org)  *William Kilner –* [*william.kilner@impact-initiatives.org*](mailto:william.kilner@impact-initiatives.org)  *Antoine Chandonnet – [antoine.chandonnet@impact-initiatives.org](mailto:antoine.chandonnet@impact-initiatives.org)* | |
| Data Management Plan Version | *Date: 13/05/2024* | *Version: 1* |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Related Policies | IMPACT Research Cycle Data Management: [Guidelines\_7\_PII Data Management SOPs.pdf](https://acted.sharepoint.com/:b:/r/sites/IMPACT-Research/Shared%20Documents/1-1.1_RDD/2%20-%20Data/Guidelines%20%26%20Templates/3_Data%20management%20%26%20sharing/Guidelines_7_PII%20Data%20Management%20SOPs.pdf?csf=1&web=1&e=S7tBrT) | | | | | |
| **Documentation and Metadata** | | | | | | |
| What documentation and metadata will accompany the data?  *Select all that apply* | **x** | Data analysis plan | | □ | | Data Cleaning Log, including:  □ Deletion Log  □ Value Change Log | |
| □ | Code book | | □ | | Data Dictionary | |
| □ | Metadata based on HDX Standards | | □ | | [Other, Specify] | |
| **Ethics and Legal Compliance** | | | | | | |
| Which ethical and legal measures will be taken? | **x** | Consent of participants to participate | | **x** | | Consent of participants to share personal information with other agencies | |
| **x** | No collection of personally identifiable data will take place | | **x** | | Gender, child protection and other protection issues are taken into account | |
| **x** | All participants reached age of majority | |  | | [Other, Specify] | |
| Who will own the copyright and Intellectual Property Rights for the data that is collected? | Copyright of data used in this project remains with the original data source providers. IMPACT Initiatives holds the copyright of any analysis conducted by IMPACT Initiatives / REACH within the scope of this research cycle. | | | | | |
| **Storage and Backup** | | | | | | |
| Where will data be stored and backed up during the research? | □ | IMPACT/REACH Kobo Server | | □ | | Other Kobo Server: *[specify]* | |
| **x** | IMPACT Global Physical / Cloud Server | | □ | | Country/Internal Server | |
| □ | On devices held by REACH staff | | □ | | Physical location *[specify]* | |
| **x** | Recording and transcription using Excel and Word | | | | | |
| Which data access and security measures have been taken? | **x** | Password protection on devices/servers | | **x** | | Data access is limited to IMPACT staff | |
| □ | Form and data encryption on data collection server | | □ | | Partners signed an MoU if accessing raw data | |
| **Raw Data Access Rights** | | | | | | |
| Raw Data Access | Reason | | Person | | | |
| Accountable | Accountable | | Krista Tingbrand | | | |
| Access | GIS officer needs access to develop maps and conduct analysis | | Kostiantyn Klymenko | | | |
| Data Officer | Maintain an accurate and clean database throughout the collection and analysis process | | TBD | | | |
| Assessment Officer (AO) | AO will need access in order to process the qualitative data collected in the database | | TBD | | | |
| Research Manager (ARM / RM) | RM will need access to the raw dataset to provide advice and support throughout the analysis process | | William Kilner  Antoine Chandonnet | | | |
| **Preservation** | | | | | | |
| Where will data be stored for long-term preservation? | **x** | IMPACT / REACH Global Cloud / Physical Server | | □ | | OCHA HDX | |
| **x** | REACH Country Server | | □ | | [Other, Specify] | |
| **Data Sharing** | | | | | | |
| Will the data be shared publically? | □ | Yes | | **x** | | No, only with mandating agency / body | |
| Will all data be shared? | □ | Yes | | **x** | | No, only anonymized and consolidated data will be shared | |
| Where will you share the data? | **x** | REACH Resource Centre | | □ | | OCHA HDX | |
| **x** | Humanitarian Response | | □ | | [Other, Specify] | |
| **Data protection risk assessment** | | | | | | |
| Have you completed the Indicators Risk Assessment table below? | □ | Yes | | | **x** | No, no information that potentially allows identification of individuals is to be collected. | |
| [Please complete the first 4 columns in the Indicators Risk Assessment table below] | | | | | |
| **Responsibilities** | | | | | | |
| Data collection | *Krista Tingbrand, AO,* [*krista.tingbrand@impact-initiatives.org*](mailto:krista.tingbrand@impact-initiatives.org) | | | | | |
| Data cleaning | *Krista Tingbrand, AO,* [*krista.tingbrand@impact-initiatives.org*](mailto:krista.tingbrand@impact-initiatives.org) | | | | | |
| Data analysis | *Krista Tingbrand, AO,* [*krista.tingbrand@impact-initiatives.org*](mailto:krista.tingbrand@impact-initiatives.org)  *Kostiantyn Klymenko, GIS Officer,* [*kostiantyn.klymenko@reach-initiative.org*](mailto:kostiantyn.klymenko@reach-initiative.org) | | | | | |
| Data sharing/uploading | *Krista Tingbrand, AO,* [*krista.tingbrand@impact-initiatives.org*](mailto:krista.tingbrand@impact-initiatives.org) | | | | | |

# Monitoring & Evaluation Plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IMPACT Objective** | **External M&E Indicator** | **Internal M&E Indicator** | **Focal point** | **Tool** | **Will indicator be tracked?** |
| **Humanitarian stakeholders are accessing IMPACT products** | Number of humanitarian organisations accessing IMPACT services/products  Number of individuals accessing IMPACT services/products | # of downloads of x product from Resource Center | Country request to HQ | User\_log | x Yes |
| # of downloads of x product from Relief Web | Country request to HQ | x Yes |
| # of downloads of x product from Country level platforms | Country team | x Yes |
| # of page clicks on x product from REACH global newsletter | Country request to HQ | x Yes (when applicable) |
| # of page clicks on x product from country newsletter, sendingBlue, bit.ly | Country team | x Yes |
| # of visits to x webmap/x dashboard | Country request to HQ | x Yes (when applicable) |
| **IMPACT activities contribute to better program implementation and coordination of the humanitarian response** | Number of humanitarian organisations utilizing IMPACT services/products | # references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies) | Country team | Reference\_log | *Cluster strategies: WASH. Livelihoods and Food Security*  *Assessment and Analysis Working Group* |
| # references in single agency documents | *TBD* |
| **Humanitarian stakeholders are using IMPACT products** | Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and delivery  Number of humanitarian documents (HNO, HRP, cluster/agency strategic plans, etc.) directly informed by IMPACT products | Perceived relevance of IMPACT country-programs | Country team | Usage\_Feedback *and* Usage\_Survey template | *Usage survey to be distributed to local authorities, local actors, international actors about 6 months after publication* |
| Perceived usefulness and influence of IMPACT outputs |  |
| Recommendations to strengthen IMPACT programs |
| Perceived capacity of IMPACT staff |  |
| Perceived quality of outputs/programs |
| Recommendations to strengthen IMPACT programs |
| **Humanitarian stakeholders are engaged in IMPACT programs throughout the research cycle** | Number and/or percentage of humanitarian organizations directly contributing to IMPACT programs *(providing resources, participating to presentations, etc.)* | # of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation | Country team | Engagement\_log | □ Yes |
| # of organisations/clusters inputting in research design and joint analysis | x Yes |
| # of organisations/clusters attending briefings on findings; | x Yes |

1. Decontamination is understood as the efforts of removing the presence of contaminants (see definition of contamination) which adversely affect human health, livelihoods, and environment. [↑](#footnote-ref-2)
2. Contamination is understood as the presence of a physical item and/or chemical or biological substance in water sources (including irrigation) and soil which renders them unsuitable, unfit, or harmful to human health and/or environment. [↑](#footnote-ref-3)
3. According to the Displacement Tracking Matrix by IOM ([Ukraine | Displacement Tracking Matrix (iom.int)](https://dtm.iom.int/ukraine)), the total IDP population amounts to 3,413,472 Ukrainians. [↑](#footnote-ref-4)
4. The World Bank estimates that, as of 31 December 2023, the total cost of reconstruction and recovery in Ukraine is $486 billion, up from $411 billion estimated end of 2022 (see the [Third Rapid Damage and Needs Assessment (RDNA3) by the World Bank (2023)](https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099021324115085807/p1801741bea12c012189ca16d95d8c2556a)) [↑](#footnote-ref-5)
5. Conflict and Environment Observatory, Zoi Environment Network (2024) “Assessing Environmental Damage in Ukraine”, available at: [Assessing-Environmental-Damage-in-Ukraine.pdf (ceobs.org)](https://ceobs.org/wp-content/uploads/2024/02/Assessing-Environmental-Damage-in-Ukraine.pdf) [↑](#footnote-ref-6)
6. Conflict and Environment Observatory, Zoi Environment Network (2024) “The Environmental Consequences of the war against Ukraine: Preliminary twelve-month assessment”, accessed at: [The Environmental Consequences of the War against Ukraine. Preliminary Twelve-Month Assessment (February 2022 – February 2023). Summary and Recommendations - Ukraine | ReliefWeb](https://reliefweb.int/report/ukraine/environmental-consequences-war-against-ukraine-preliminary-twelve-month-assessment-february-2022-february-2023-summary-and-recommendations). Also see [Ecodozor](https://ecodozor.org/index.php?lang=en) for more precise information of all impacted facilities. [↑](#footnote-ref-7)
7. As of 09/05/2024, the research team has consulted the following stakeholders: Zoi Environment Network, Arnika/Center for Citizens Support, Clean Air for Ukraine, SaveDnipro, and EcoAction (EcoDiia). [↑](#footnote-ref-8)
8. Available at: [The Environmental Impact of the Conflict in Ukraine: A Preliminary Review | UNEP - UN Environment Programme](https://www.unep.org/resources/report/environmental-impact-conflict-ukraine-preliminary-review) [↑](#footnote-ref-9)
9. Available at: [Rapid Environmental Assessment of Kakhovka Dam Breach Ukraine, 2023 | UNEP - UN Environment Programme](https://www.unep.org/resources/report/rapid-environmental-assessment-kakhovka-dam-breach-ukraine-2023) [↑](#footnote-ref-10)
10. Available at: [Assessing-Environmental-Damage-in-Ukraine.pdf (ceobs.org)](https://ceobs.org/wp-content/uploads/2024/02/Assessing-Environmental-Damage-in-Ukraine.pdf) [↑](#footnote-ref-11)
11. Available at: [The Environmental Consequences of the War against Ukraine. Preliminary Twelve-Month Assessment (February 2022 – February 2023). Summary and Recommendations - Ukraine | ReliefWeb](https://reliefweb.int/report/ukraine/environmental-consequences-war-against-ukraine-preliminary-twelve-month-assessment-february-2022-february-2023-summary-and-recommendations) [↑](#footnote-ref-12)
12. Available at: [The Impact of Explosive Weapons in Ukraine – Focus on hard-to-reach areas - Ukraine | ReliefWeb](https://reliefweb.int/report/ukraine/impact-explosive-weapons-ukraine-focus-hard-reach-areas#:~:text=When%20explosive%20weapons%20are%20used,other%20social%20and%20economic%20impacts.) [↑](#footnote-ref-13)
13. Available at: [Microsoft Word - Guidelines for Gender Sensitive Research (icimod.org)](https://www.icimod.org/wp-content/uploads/2019/12/Guidelines-for-Gender-Sensitive-Research.pdf) [↑](#footnote-ref-14)
14. Available at: [warwick.ac.uk/fac/soc/pais/research/wicid/cpml/wicid\_gender\_toolkit.pdf](https://warwick.ac.uk/fac/soc/pais/research/wicid/cpml/wicid_gender_toolkit.pdf) [↑](#footnote-ref-15)
15. Available at: [Good practices in gender-responsive evaluations | Digital library: Publications | UN Women – Headquarters](https://www.unwomen.org/en/digital-library/publications/2020/06/good-practices-in-gender-responsive-evaluations) [↑](#footnote-ref-16)
16. See the environmental crimes map and dataset here: [Воєнні злочини проти довкілля - SaveEcoBot](https://www.saveecobot.com/features/environmental-crimes) [↑](#footnote-ref-17)
17. [IMPACT UKR - REACH\_UKR2302\_ToR\_HEMI\_15Feb2023.pdf - All Documents (sharepoint.com)](https://acted.sharepoint.com/sites/IMPACTUKR/Documents%20partages/Forms/AllItems.aspx?id=%2Fsites%2FIMPACTUKR%2FDocuments%20partages%2FHumanitarian%20Damage%20Analysis%20Unit%2FUKR2302%5FHEMI%2F01%5FResearch%20design%2F01%5FToR%2F01%5FFinal%2FREACH%5FUKR2302%5FToR%5FHEMI%5F15Feb2023%2Epdf&viewid=0d044b86%2Dc958%2D40f6%2D953e%2D30f1d935c274&parent=%2Fsites%2FIMPACTUKR%2FDocuments%20partages%2FHumanitarian%20Damage%20Analysis%20Unit%2FUKR2302%5FHEMI%2F01%5FResearch%20design%2F01%5FToR%2F01%5FFinal) [↑](#footnote-ref-18)
18. Step 1: Collect Information on Priority Hazards, Quantity, and Exposures. FEAT substance table refers to identified most common types of hazardous substances contained in industrial facilities, based on the type of operations. FEAT pictogram table lists symbols widely used internationally to indicate the properties (hazard) of a substance during transportation and storage. [↑](#footnote-ref-19)