

HSM: Distance from the frontline/border and impact on humanitarian needs

December 2024 | Ukraine



- **Settlements closest to the frontline/border were more likely to have more severe multi- and sectoral needs.** Additionally, **settlements located in frontline oblasts generally face more severe multi- and sectoral needs than settlements in border oblasts**, regardless of the distance from their frontline/border. However, this trend appears mostly limited to settlements within 0-50km as there are no discernible correlation between distance and multisectoral SVI scores for settlements within 51-100km¹.
- **Co-occurring sectoral needs were much more frequent, severe and complex in settlements within 0-50km than 51+km:** residents of only 8% of settlements within 0-50km had no co-occurring needs identified (compared to 27% of residents in settlements 51+km); and residents in 28% of settlements within 0-50km faced an extreme or total inability to meet their needs across two or more sectors (compared to 5% of residents in settlements 51+km).
- **Protection needs remained prevalent and severe across all settlements, regardless of the distance** from the frontline/border. This contrasts with other sectors, where unmet needs were significantly more frequent in settlements within 0-50km compared to those 51-100km away, and the most severe needs were exclusively located in settlements 0-50km of the frontline/border.

Context & Rationale

Given the dynamic nature of the humanitarian situation in Ukraine, ongoing monitoring is essential to enable a comprehensive assessment of the needs and their severity among the affected populations, and to ensure that humanitarian response plans remain aligned with the situation on the ground. In line with the primary objective of REACH's Humanitarian Situation Monitoring (HSM) of informing humanitarian response planning and prioritization, this brief provides **insights on how - and to what extent - the distance from the frontline and the border with Russia impacts humanitarian needs** in 392 assessed settlements 0-100km from the frontline and border with Russia in **December 2024 (Round 20)**.

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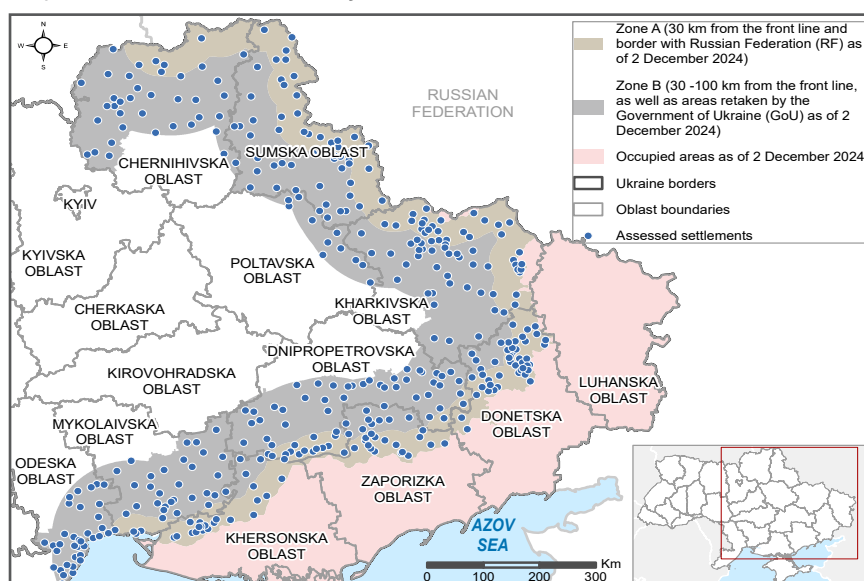
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Map 1: settlements assessed by HSM in December 2024



More comprehensive findings on humanitarian needs can be accessed in HSM's [Dashboard for Government-controlled areas](#).

Introduction

As has been consistently observed before ([HSM 2024](#), [HNRP 2025](#)), **over half of people in need in Ukraine are located in oblasts close to the frontline and border with Russia**. HSM previously identified that humanitarian needs are generally more prevalent and severe in these oblasts ([HSM 2024](#), [HSM 2024](#)) and therefore focuses data collection in settlements 0-100km from the frontline/border.

What has yet to be assessed thoroughly is **whether there are additional differences in humanitarian needs based on distance within this 0-100km zone**. This output will answer the following questions:

- Are humanitarian needs more prevalent and severe in settlements closest to the frontline/border, or are all settlements within 0-100km facing similar challenges?
- Is there a difference in humanitarian needs between settlements close to the frontline, compared to settlements close to the border with Russia?

1. What is the influence of distance from the frontline/border on humanitarian needs?

Is there a difference in the level of humanitarian needs between settlements close to the frontline, compared to settlements close to the border with Russia?

To answer this question, HSM looked at two indicators: multisectoral SVI score (numeric, 1-5) and the type of settlements (categorical: settlement in a frontline oblast and settlements in a border oblast²).

Similarly to distance from the frontline/border, there is a large overlap in the distribution of the multisectoral SVI scores between settlements in frontline oblasts and settlements in border oblasts, with both distributions having a right skew (see: figure a in Annex 1), indicating most scores clustered towards the lower end ("minimal" and "stress"). However, no settlements in border oblasts had scores greater than 3.5 ("severe"), indicating settlements with "extreme" and "extreme+" multisectoral SVI scores were exclusively located in frontline oblasts. Further statistical tests confirmed **very strong differences in multisectoral SVI scores between the two groups of settlements, with settlements in frontline oblasts having on average significantly higher multisectoral SVI scores compared to settlements in border oblasts**.

See Annex 1 for details on the statistical tests allowing for this conclusion

Are humanitarian needs more prevalent and severe in settlements closest to the frontline/border, or are settlements 0-100km generally facing a similar severity of sectoral needs?

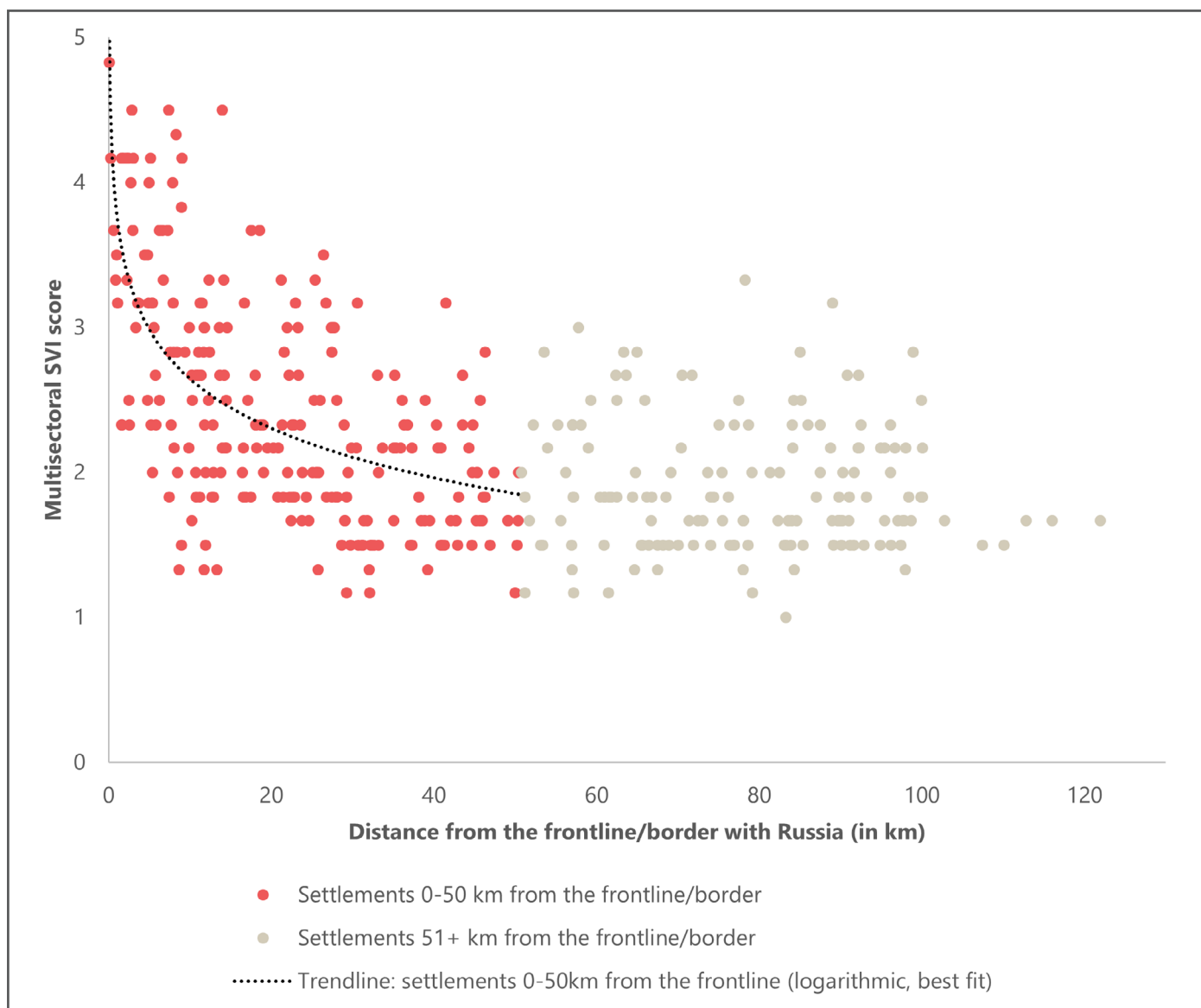
To answer this question, HSM looked at two indicators: multisectoral SVI score (numeric, 1-5) and the distance from the frontline/border (categorical: 0-50km and 51-100km).

There is a large overlap in the distribution of multisectoral SVI score between settlements 0-50km and 51-100km from the frontline/border, with most scores were clustered towards the lower end ("minimal" and "stress", see figure b in Annex 1). However, no settlements 51-100km from the frontline/border had scores greater than 3.5 ("severe"), indicating settlements with "extreme" and "extreme+" multisectoral SVI scores were exclusively located within 0-50km of the frontline/border. Further statistical tests confirmed **very strong differences in multisectoral SVI scores between the two groups of settlements, with settlements 0-50km from the frontline/border generally having significantly higher multisectoral SVI scores**.

See Annex 1 for details on the statistical tests allowing for this conclusion.

Graph 1 on the next page provides a visual representation of the relationship between distance from the frontline/border and multisectoral SVI score. It **supports the argument that while distance appears to have an influence on multisectoral SVI score (and by extension, humanitarian needs), the influence appears mostly limited to settlements 0-50km** (with a large increase of multisectoral SVI score above "severe" (3), "extreme" (4) and "extreme+" (5) within 0-50km). There is no discernible trend in the relationship between distance and multisectoral SVI scores for settlements within 51-100km.

Graph 1: multisectoral SVI score by distance from the frontline/border with Russia



Trendline equation and R squared value:

$$y = -0.492\ln(x) + 3.777$$

$$R^2 = 0.4038$$

Conclusion

These findings confirm that **humanitarian needs were indeed more prevalent and severe in settlements closest to the frontline/border, but further clarify that humanitarian needs were also more prevalent and severe in settlements in frontline oblasts** (regardless of the distance), compared to settlements in border oblasts. Additionally, as shown in Graph 1, the severity of needs sharply increased the closer they were to the frontline/border in the 0-50km zone (much higher proportion of settlements with very high needs on the frontline/border compared to settlements 50km from the frontline/border); while there were no discernible trends for the 51-100km zone (no higher proportion of settlements with high needs 51km from the frontline/border compared to 100km from the frontline/border).

There were however many outliers (settlements close to the frontline with low multisectoral SVI scores and settlements far away from the frontline with high multisectoral SVI scores), and **this conclusion is not an absolute rule.**

2. Influence of the distance from the frontline/border on humanitarian needs

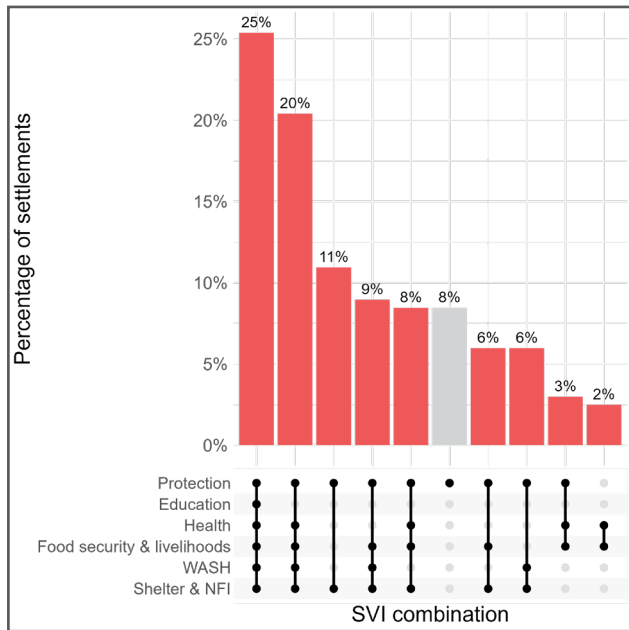
2.1. Co-occurring vulnerability to sectoral needs (Settlement Vulnerability Index)

Prevalence of co-occurring needs

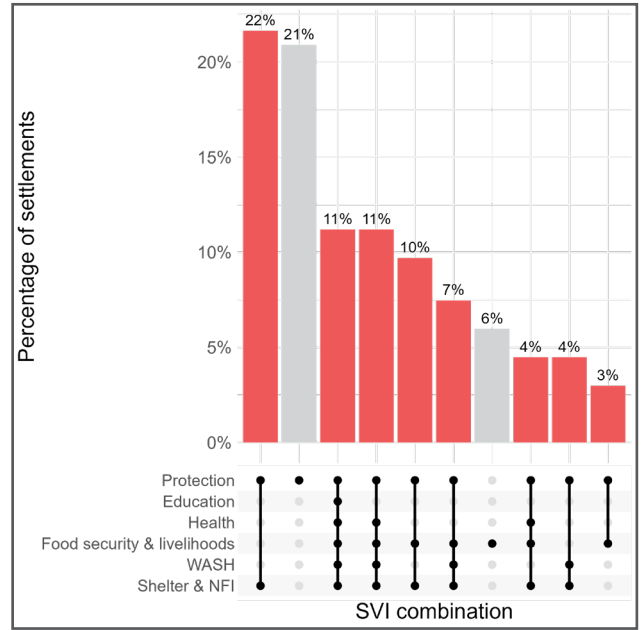
While **co-occurring multisectoral needs** (at least stress vulnerability score in two or more sectors) were identified in a large majority of settlements both 0-50km and 51-100km from the frontline/border, they were **more frequent and diverse (more than two sectors) in settlements 0-50km**.

Residents of settlements within 0-50km were more likely to have co-occurring needs in all sectors than any other co-occurring needs profile, followed by needs in all sectors but education. Less than 10% of settlements within 0-50km had needs in only one sector (vulnerability to only protection), and no settlement was identified to not have any vulnerability to sectoral needs. In contrast, over one in four settlement within 51-100km had no co-occurring needs (no sectoral needs or needs in only one sector), and 11% had co-occurring needs in all sectors.

Graph 2: prevalence of co-occurring sectoral needs in settlements 0-50km from the frontline/border



Graph 3: prevalence of co-occurring sectoral needs in settlements 51-100km from the frontline/border

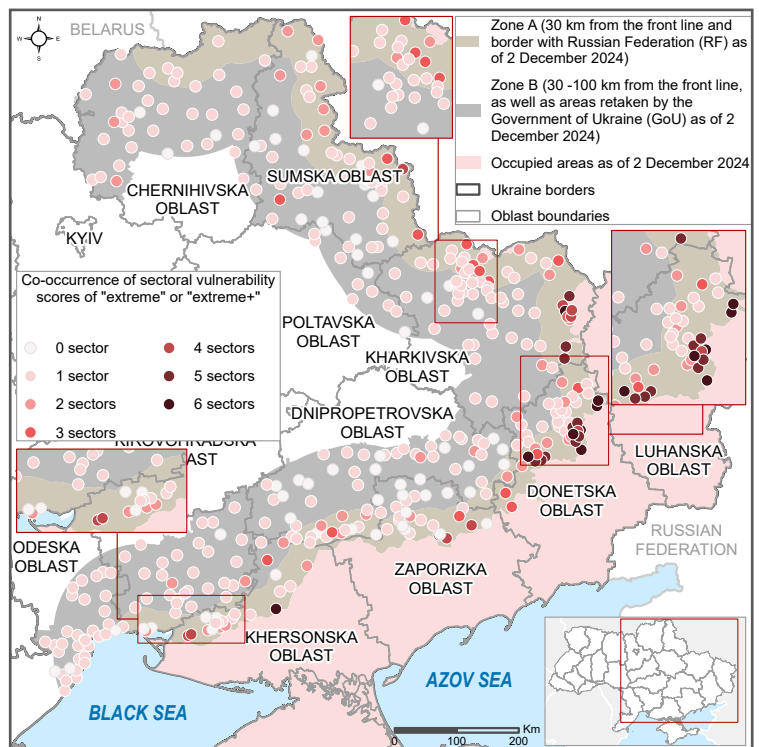


Severity of co-occurring needs

Looking at only the most severe vulnerability scores (extreme and extreme+), **protection emerges as the sector with the most widespread and severe vulnerability for residents of all settlements. Additionally, residents in settlements within 0-50 km of the frontline/border faced heightened vulnerability across multiple sectors compared to those in settlements within 51-100 km.**

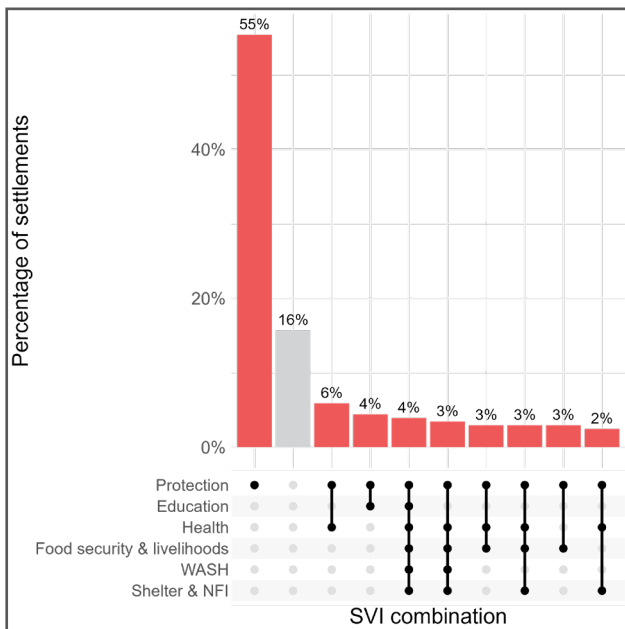
In both settlements within 0-50km and within 51-100km: a majority were identified to have extreme or extreme+ vulnerability to protection needs only. But for settlements within 0-50km, HSM also identified more frequent and diverse co-occurring extreme and extreme+ needs compared to settlements within 51-100km, where less than 10% of settlements had co-occurring extreme and extreme+ needs across two or more sectors.

Map 2: co-occurrence of "extreme" or "extreme+" sectoral needs

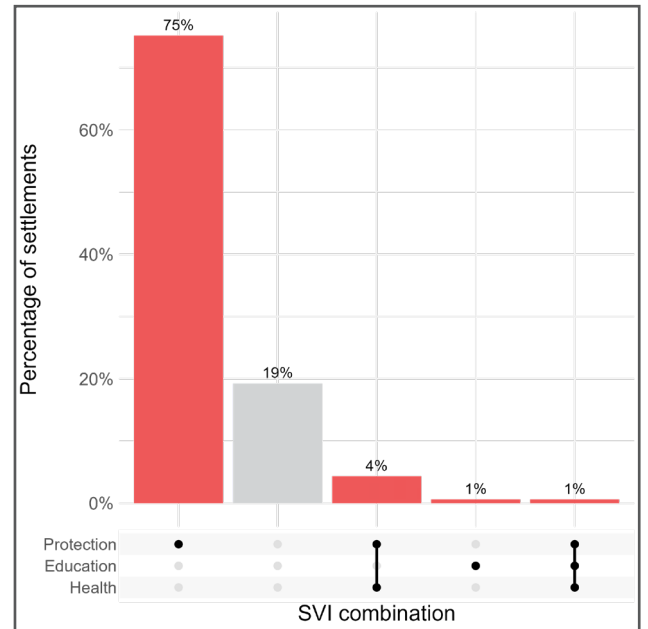


Residents of settlements 0-50km from the frontline/border therefore appeared to more frequently experience extreme or total inability to meet their needs across multiple sectors compared to settlements within 51-100km, where the severity of needs was mainly limited to protection. While there are differences in framework and calculation of needs, this finding is consistent with the 2024 MSNA, which identified much more frequent extreme or extreme+ co-occurring needs among households living 0-30km from the frontline/border compared to households living within 31-100km (32% of households versus 4% for household)³.

Graph 4: co-occurring extreme and extreme+ sectoral needs in settlements 0-50km from the frontline/border



Graph 5: co-occurring extreme and extreme+ sectoral needs in settlements 51-100km from the frontline/border



Disagreement between KIs and reliability of aggregated data based on distance from the frontline/border

To understand the reliability of HSM data and how it may be impacted by distance from the frontline/border we need to ask the question: how frequently did all KIs report the same level of needs in settlements within 0-50km compared to settlements within 51-100km?

In each settlement, HSM relies on three to seven key informants, depending on the settlement size. This data is then aggregated following aggregation rules detailed in Annex 2. Generally, when all KIs report the same response options, we can have more confidence in the data. The table on the right provides an overview of the percentage of settlements in which all KIs reported the same level of needs for nine sectoral needs.

In a majority of settlements (regardless of the distance from the frontline) and for all nine sectoral needs, all KIs reported the same response option, meaning that **while indicative, HSM data (and KIs) appear to be reliable**. KIs in settlements within 51-100km more often all reported the same response options (around three in four assessed settlements), suggesting the data is even more reliable in these settlements.

Table 1: %age of settlements where all KIs reported the same level of needs, by distance from the frontline/border

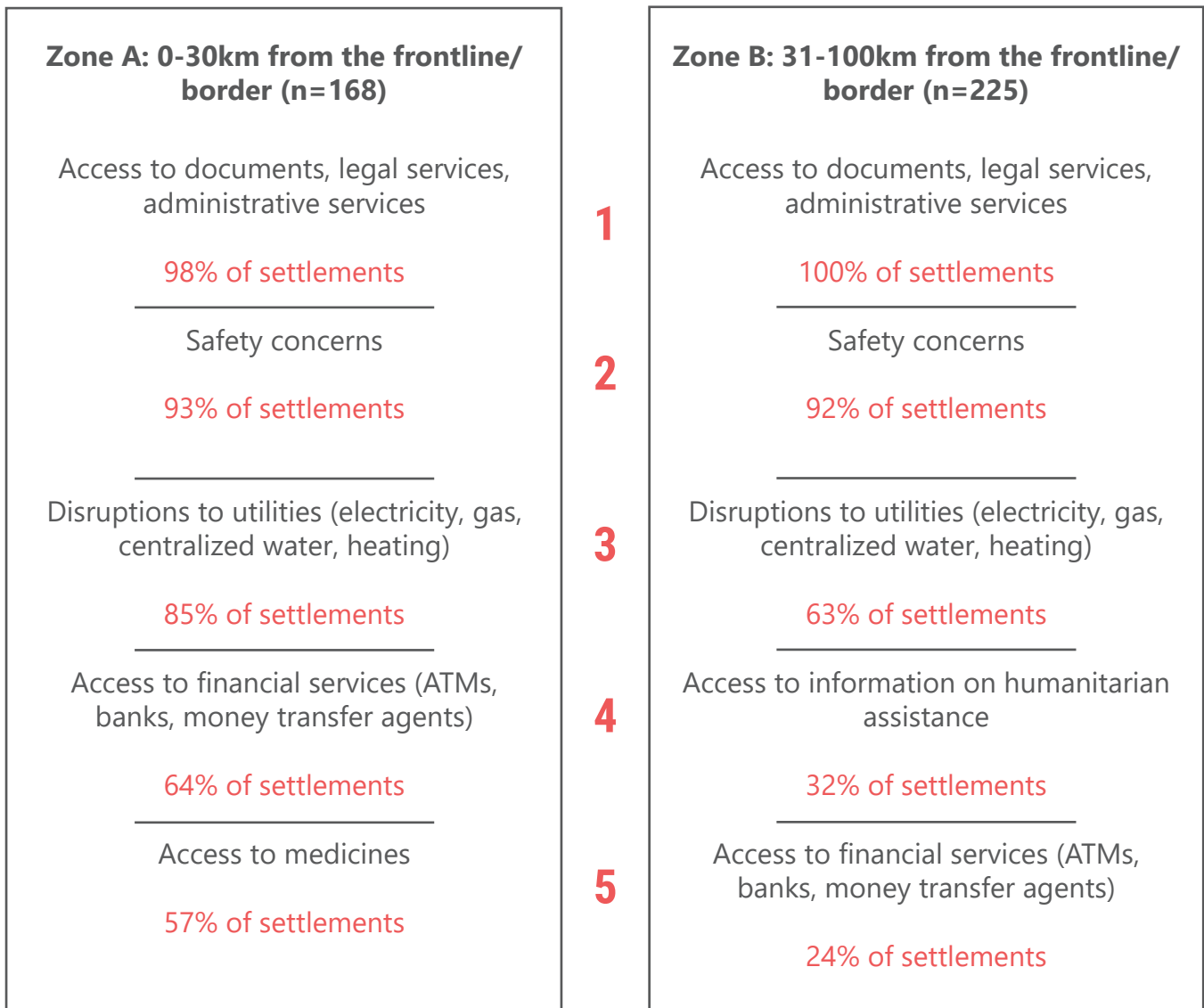
Sectoral needs	%age of settlements where all KIs reported the same level of needs		
	0-50km (n=234)	51km+ (n=158)	Difference (in %age points)
Shelter	49%	75%	26
Food	62%	68%	6
NFI	61%	74%	13
Financial services	61%	65%	4
Markets	59%	70%	11
Healthcare	53%	70%	17
Medicine	56%	61%	5
Drinking water	61%	78%	17
Technical water	61%	77%	16

Generally, in the majority of settlements for all sectors and in both zones, all KIs reported the same level of needs, indicating strong data. However, agreement among KIs was notably higher in settlements within 31-100km (roughly 3/4 settlements) than in settlements 0-30km (closer to 1/2 settlements), indicating data is likely more reliable in the former.

2.2. Differences in multisectoral needs

This section focuses on two zones (0-30km from the frontline/border and 31-100km away), per HSM’s usual disaggregation.

Graph 6: most commonly reported concerns at settlement-level (%age of settlements)



The most commonly reported concerns were similar between settlements 0-30km from the frontline/border and settlements within 31-100km, but the prevalence of settlements reporting these concerns was generally much higher in the former.

Concerns over accessing documents and/or legal and administrative services, as well as safety concerns, were widespread across all assessed settlements regardless of their distance from the frontline. This is consistent with previous analyses indicating that protection needs were the main driver of unmet needs (HSM 2024, [Trends analysis](#)). Disruption to utilities were also frequently reported, though much more frequently in settlements within 0-30km than settlements within 31-100km (22 percentage point difference). The main difference in prevalence lies in the other top five concerns, which were reported in only a minority of settlements within 31-100km, compared to a majority of settlements within 0-30km. For example, while access to financial services was reported among the top five in all assessed settlements, there is a 41 percentage point difference in the prevalence of this concern between settlements within 0-30km and settlements within 31-100km.

The higher prevalence of concerns in settlements within 0-30km is not limited to the top five concerns: concerns with the greatest difference in prevalence were access to housing (49% in settlements within 0-30km vs 12% in settlements within 31-100km), access to medicines (57% vs 21%)⁴, access to NFIs (45% vs 12%) and access to food (42% vs 13%).

This demonstrates that **residents of settlements within 0-30km faced more frequent and multi-faceted concerns**, while concerns reported in settlements within 31-100km were mainly limited to protection, administrative services and disruption of utilities.

2.3. Differences in sectoral needs

The tables below provide an overview of the prevalence (vulnerability score above stress) and severity (vulnerability score above extreme) of sectoral vulnerability in assessed settlements 0-50km from the frontline, and settlements within 51-100km. They allow understanding of which sectors had the highest prevalence of vulnerability, which sectors had the most severe level of vulnerability, and a comparison of prevalence and severity of sectoral vulnerability between settlements within 0-50km and settlements within 51-100km.

Table 2: prevalence and severity of sectoral vulnerability, by distance from the frontline/border

Sector	Prevalence (sectoral score above "minimal")			Severity (sectoral score of "extreme" or "extreme+")		
	0-50km (n=234)	51km+ (n=158)	Difference (percentage points)	0-50km (n=234)	51km+ (n=158)	Difference (percentage points)
Food security & livelihoods	88%	75%	-13	30%	0%	-30
Shelter & NFI	82%	68%	-14	18%	0%	-18
WASH	57%	38%	-19	11%	0%	-11
Health	56%	33%	-23	24%	5%	-19
Protection	92%	87%	-5	82%	80%	-2
Education	25%	11%	-14	10%	1%	-9
Multisectoral SVI score	96%	93%	-3	12%	0%	-12

Prevalence of vulnerability to sectoral needs (SVI)

While **multisectoral and sectoral vulnerabilities** were widespread across all settlements assessed by HSM, they were **especially high in - and severity was almost exclusively limited to - settlements 0-50km from the frontline/border**. Vulnerability to protection was an exception, with the prevalence and severity being equally high in settlements within 0-50km and settlements within 51-100km.

Among settlements within 0-50km, vulnerabilities were identified in the majority of settlements (with the exception of education), whereas in settlements within 51-100km, this was only the case for protection, FSL and SNFI sectors. Protection remained the sector with the most prevalent vulnerability (almost nine in ten settlements), with no significant difference based on distance from the frontline. This suggests residents in most settlements 0-100km from the frontline/border face some protection challenges, although the challenges faced were different (see below). Vulnerability to SNFI and FSL needs was also frequently identified, although it was much more prevalent among settlements within 0-50km than settlements within 51-100km.

This indicates that while vulnerability across multiple sectors was frequent in most assessed settlements regardless of distance from the frontline, in settlements within 51-100km it was mainly driven by protection, SNFI and FSL needs while in settlements within 0-50km it was driven by all sectors except education; suggesting the need for a comprehensive humanitarian response encompassing all sectors in this zone. Similarly, a response that focuses primarily on protection, SNFI and FSL also appears relevant.

Prevalence and severity of unmet needs accessing certain services

Table 3 provides an overview of the prevalence (at least 1-9% of residents cannot access the service) and severity (at least 25% of residents cannot access the service) of access issues for ten assessed services in settlements 0-50km and 51-100km from the frontline. They allow for a deeper dive into which service was the most difficult for residents to access and a comparison of prevalence and severity of inaccessible services between settlements within 0-50 and settlements within 51-100km.

Table 3: prevalence and severity of services being inaccessible, by distance from the frontline/border

Sectoral needs	Prevalence (at least 1-9% of residents cannot meet this sectoral need)			Severity (at least 25% of residents cannot meet this sectoral need)		
	0-50km (n=234)	51km+ (n=158)	Difference (percentage points)	0-50km (n=234)	51km+ (n=158)	Difference (percentage points)
Housing	41%	14%	-27	12%	0%	-12
Food	37%	21%	-16	10%	0%	-10
NFI	39%	15%	-24	13%	1%	-12
Markets	52%	23%	-29	23%	3%	-20
Financial services	55%	35%	-20	30%	9%	-21
Healthcare services	46%	23%	-23	15%	1%	-14
Medicines	49%	28%	-21	20%	2%	-18
Drinking water	39%	13%	-26	10%	1%	-9
Technical water	32%	13%	-19	8%	0%	-8

Similar to sectoral vulnerability scores, **inaccessibility of services was consistently reported to be more prevalent in settlements within 0-50km than settlements within 51-100km**. The frequency of services being inaccessible of all ten assessed services was typically double or more in the former. In addition, one in two settlements within 0-50km was identified to have some level of unmet needs accessing markets, financial services and medicines, which is consistent with reported concerns (see above).

The most severe levels of inaccessibility were almost exclusively limited to settlements within 0-50km, with the exception of financial services (one in ten settlement 51-100km from the frontline/border was reported to have at least 25% of residents unable to access financial services). The services identified to be the most inaccessible in settlements within 0-50km were related to financial services, medicines and markets; and to some extent housing, drinking water and food in about one in ten settlements.

This once again suggests settlements closest to the frontline/border experience a higher frequency and severity of co-occurring unmet needs accessing services.

Barriers to accessing services, broken by distance from the frontline, oblast, raion, round of data collection and severity of sectoral scores are available on [HSM Governmental Controlled Area dashboard](#).

Safety and security concerns

Table 4: most commonly reported safety and security concerns, %age of settlements

	Threat of missile attack	Exposure to armed violence/shelling	Lack of/inadequate bomb shelters	Damaged or destroyed property	Social tension in the community	None	Trauma or psychosocial distress	Housing and/or land is used for military purposes	Presence of landmines/UXO	Looting of private property	Attacks on Civilian Facilities schools hospitals
Settlements 0-30km from the frontline/border (n=168)	71%	58%	18%	23%	17%	8%	13%	20%	16%	13%	13%
Settlements 31-100km from the frontline/border (n=224)	76%	40%	37%	10%	8%	12%	8%	0%	1%	2%	1%
Difference (in percentage points)	5	-18	19	-13	-9	4	-6	-20	-15	-11	-12

While protection challenges appeared more diverse and complex in settlements within 0-30km than settlements within 31-100km, the prevalence and type of the most common safety and security issues remained similar in both category of settlements. The two most frequently reported safety and security concerns were mostly aligned across all settlements, although the prevalence of some concerns was higher in settlements within 0-30km compared to settlements within 31-100km. The five most commonly reported safety and security concerns by order of overall prevalence were:

- Threat of missile attacks, which was reported in almost all settlements.
- Armed violence/shelling, which was widely reported in many settlements, but more frequently in settlements within 0-30km (18 percentage point difference).
- Lack of/inadequate shelters, which was much more prevalent in settlements within 31-100km (29 percentage point difference).
- Damage or destroyed property, which was more prevalent in settlements within 0-30km (13 percentage point difference).
- Housing/land used for military purposes, which was reported exclusively in settlements within 0-30km.

Hence, while some protection challenges were reportedly shared by settlements regardless of the distance from the frontline/border (missile attacks, shelling), some appeared almost unique to settlements closest to the frontline/border; requiring a geographically tailored approach to address these specific protection challenges. For example, protection challenges especially prevalent in settlements within 0-30km were related to international humanitarian law (housing/land used for military purposes) and addressing the consequences of damaged/destroyed properties, while protection challenges more prevalent in settlements within 31-100km were related to the absence or inadequate state of bomb shelters.

2.4. Accountability to Affected Populations

Population groups less able to meet their needs:

Table 5: most commonly reported groups less able to meet their needs, %age of settlements

	Single parent families	People with mental health conditions	Men of conscription age	Female headed households	People who have been directly harmed by the current violence	Persons with a diverse sexual orientation or gender identity	Pregnant and lactating women	IDPs	No consensus	Don't know	Unaccompanied and separated children	Children with physical and/or mental disabilities	People with chronic illnesses	People with physical disabilities	None
Settlements 0-30km from the frontline/border (n=168)	64%	53%	13%	21%	16%	8%	11%	5%	10%	8%	9%	1%	4%	1%	1%
Settlements 31-100km from the frontline/border (n=224)	75%	70%	45%	22%	20%	21%	9%	12%	5%	5%	4%	9%	3%	2%	0%
Difference (percentage points)	11	17	32	1	4	13	-2	6	-5	-3	-5	8	-1	1	-1

In settlements within 31-100km, more diverse groups were reportedly less able to meet their needs. This could entail one or a mix of the following things:

- Most population groups in settlements within 0-30km face the same heightened challenges, resulting in fewer specific groups experiencing a distinct inability to meet their needs.
- Residents in settlements within 31-100km may generally face less challenges, but population groups had differing levels of access to services/assistance and therefore some among them faced more challenges meeting their needs.

However, **some population groups were consistently flagged in both zones as less able to meet their needs: single parents family, people with mental health issues, and female-headed households.** In settlements 31-100km from the frontline, key informants also frequently reported men of conscription age and people with a diverse sexual orientation or gender identity as people less able to meet their needs.

This suggests a need for further research on the three population groups frequently reported as being less able to meet their needs in all settlements regardless of the distance from the frontline/border, as well as population groups reportedly less able to meet their needs in settlements within 31-100km to understand their specific needs and why they were identified as less able to meet them⁵.

Type of assistance received

Table 6: %age of settlements by reported type of assistance received

	Food items/kits	Hygiene items/kits	Nutrition	Prefer not to answer	Multipurpose cash assistance	Solid fuel for heating	Personal winter items (clothing, blankets, etc.)	Water for drinking	Sanitation services	None	Don't know the type
Settlements 0-30km from the frontline/border (n=168)	63%	26%	11%	15%	14%	10%	5%	11%	5%	2%	2%
Settlements 31-100km from the frontline/border (n=224)	70%	42%	24%	13%	5%	6%	7%	0%	3%	4%	4%
Difference (percentage point)	7	17	14	-2	-9	-4	2	-11	-3	2	2

The percentage of settlements in which KIs reported that residents received a certain type of assistance was generally similar between settlements within 0-30km and settlements within 31-100km, with a few exceptions:

- In settlements within 0-30km, KIs more frequently reported that residents of their settlement received drinking water (which is consistent with unmet drinking water needs being more severe in these settlements).
- In settlements within 31-100km, KIs more frequently reported residents of their settlement receiving hygiene and nutrition items.

Endnotes

1 The Settlement Vulnerability Index (SVI) is a framework based on HSM indicators to determine the severity of vulnerability at the settlement level. The SVI framework requires the calculation for each settlement of six sectoral vulnerability scores, followed by the calculation of the multisectoral Settlement Vulnerability Index score (average of sectoral score). Sectoral vulnerability scores were calculated using the "maximum" rule, i.e. the final sectoral vulnerability score will be determined by the highest score of any composite indicator included in the sector score calculation. Individual composite indicators were assigned a score from 1 (minimal) to 5 (extreme+), based on aggregated key informants responses in the settlement for each indicators. For the multisectoral SVI score, the mean (average) of sectoral scores was calculated and rounded up if the score has a decimal of 0.5 or higher to assign it to a value (1-4+, Minimal to Extreme+).

2 For the purpose of this study, frontline oblasts were identified as Dnipropetrovska, Donetsk, Kharkivska, Khersonska, Mykolaivska, Odeska and Zaporizka. Border oblast were identified as Chernihivska, Poltavska and Sumska.

3 See: [Multi-Sector Needs Assessment \(MSNA\): dashboard](#).

4 This finding is strongly supported by HSM data: in December 2024, 61% of settlements within 0-30km were identified to have some level of unmet needs related to medicines; compared to 26% of settlements within 31-100km.

5 The lack of data on the specific needs of LGBTQI+ people have been previously been identified as a key issue addressing these challenges by representatives of expert organizations (Outright international, Alliance Global).

Contact us:

For additional requests related to HSM, such as additional information on other HSM indicators and settlement-level analysis, please send an email to: maxence.martin@impact-initiatives.org.

ABOUT REACH

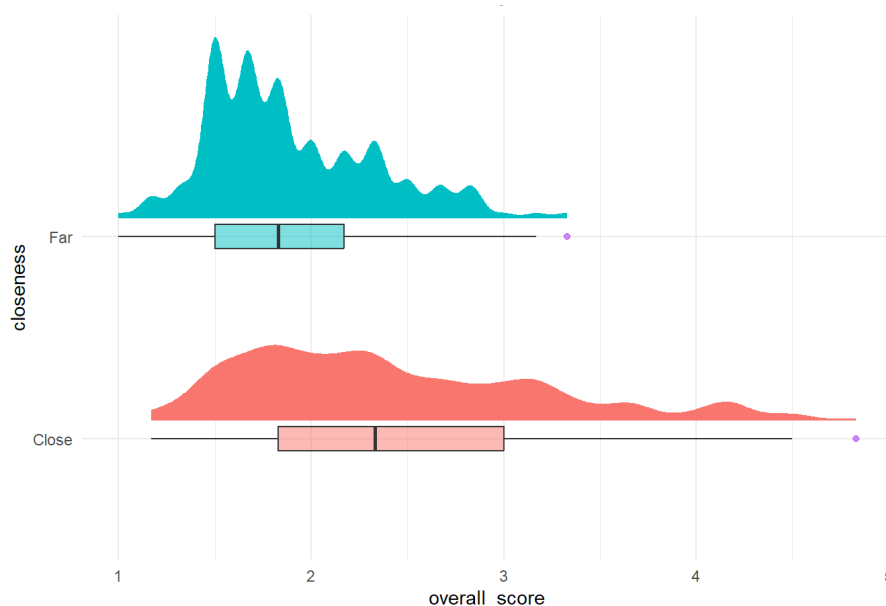
REACH Initiative facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The methodologies used by REACH include primary data collection and in-depth analysis, and all activities are conducted through inter-agency aid coordination mechanisms. REACH is a joint initiative of IMPACT Initiatives, ACTED and the United Nations Institute for Training and Research - Operational Satellite Applications Programme (UNITAR-UNOSAT).

Annex 1: statistical tests

Q1: Are humanitarian needs more prevalent and severe in settlements closest to the frontline/border, or are all settlements 0-100km facing similar challenges?

Figure a: distribution of multisectoral SVI score by proximity to the frontline/border

- Data: Multisectoral SVI score (numeric (1-5); distance to the frontline/border (categorical: close(0-50km), far (51+km))
- Chart: Raioncloud plot
- Method: Shapiro-Wilk test; Wilcoxon rank sum test.



As the distributions seem skewed, before running a t-test (which can only be done for normally distributed data), we have to check the normality of the distribution using Shapiro-Wilk test:

```
##
## Shapiro-Wilk normality test
##
## data:  dataset$overall_score
## W = 0.9078, p-value = 1.045e-14
```

The p-value is much smaller than the typical threshold (0.05), meaning the null hypothesis of normality is strongly rejected. We can therefore use Wilcoxon rank sum test to determine if two numeric samples are from the same distribution when their populations are not normally distributed or have unequal variance:

```
## # A tibble: 1 × 7
##   .y.      group1 group2   n1   n2 statistic      p
## * <chr>    <chr> <chr> <int> <int> <dbl> <dbl>
## 1 overall_score Close Far      231  161  26346. 1.75e-12
```

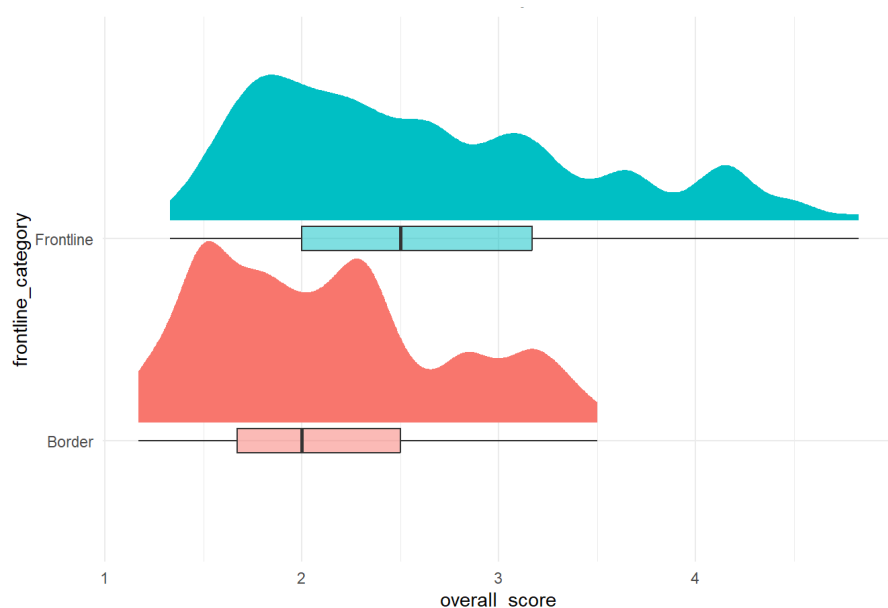
With a p-value much smaller than the typical threshold (0.05), the null hypothesis of normality is strongly rejected.

Scripts used for these statistical tests can be accessed [here](#).

Q2: Is there a difference in humanitarian needs between settlements close to the frontline, compared to settlements close to the border with Russia?

Figure b: distribution of multisectoral SVI score by frontline/border oblast

- Data: Multisectoral SVI score (numeric (1-5)); frontline/border (categorical); distance (numeric, used for filtering out settlements 51+km)
- Chart: Raioncloud plot
- Method: Shapiro-Wilk test; Wilcoxon rank sum test.



We have already established that multisectoral SVI scores are not normally distributed, therefore we have to use a non-parametric statistical test to check for significance of differences.

```
## # A tibble: 1 × 7
##   .y.      group1 group2      n1   n2 statistic      p
## * <chr>    <chr> <chr>   <int> <int> <dbl> <dbl>
## 1 overall_score Border Frontline  230  162  10838 1.4e-12
```

With a p-value much smaller than the typical threshold (0.05), the null hypothesis of normality is strongly rejected.

Scripts used for these statistical tests can be accessed [here](#).

ANNEX 2: HSM AND SVI METHODOLOGIES

Sector	Indicator
Food Security & Livelihoods	% of settlements by the level of need in relation to accessing sufficient food in the 30 days prior to data collection
	% of settlements by the level of need in relation to accessing markets to purchase goods in the 30 days prior to data collection
	% of settlements by main barriers for people to access markets in the 30 days prior to data collection
	% of settlements by main barriers to accessing food items in the 30 days prior to data collection
	% settlements by level of needs in relation to accessing cash, ATMs and banking services in the 30 days prior to data collection
	% of settlements by coping strategies used to cover basic needs in the 30 days prior to data collection
Shelter & Non-Food items	% of settlements by the level of need in relation to accessing safe and adequate housing in the 30 days prior to data collection
	% of settlements by main barriers for people to access safe and adequate housing in the 30 days prior to data collection
	% of settlements by main barriers for displaced persons to access safe and adequate housing in the 30 days prior to data collection
	% of settlements by main sources of energy most people used for heating during winter
	% of settlements by main barriers people faced in accessing heating during winter
	% of settlements by the proportion of civilian housing damaged in the 30 days prior to data collection
	% settlements by MOST people having access to non-food items (NFIs) in the 30 days prior to data collection

Sector	Indicator
Health	% of settlements by the level of need in relation to healthcare services in the 30 days prior to data collection
	% of settlements by main barriers people faced to access healthcare services in the 30 days prior to data collection
	% of settlements by types of healthcare/facilities people were unable to access in the 30 days prior to data collection
	% of settlements by the level of need in relation to medicine in the 30 days prior to data collection
Protection	% of settlements by main safety and security concerns faced by people in the 30 days prior to data collection
	% of settlements by the degree of restrictions on movement into or out of the settlement
Education	% of settlement by number of children not being able to attend
	% of settlements by modality of learning
	% of settlement by types of critical infrastructure damaged in the 30 days prior to data collection
WASH	% settlements by frequency of disruptions to water supply in the 30 days prior to data collection
	% of settlements by the level of need in relation to accessing drinking water in the 30 days prior to data collection
	% of settlements by the level of need in relation to accessing technical water in the 30 days prior to data collection
	% of settlements by the level of need in relation to accessing improved sanitation facilities in the 30 days prior to data collection

HSM Methodology Overview

Data collection in Government-controlled areas was conducted in December 2024 (Round 20), through phone interviews with community key informants (CKIs): representatives from local government, local non-governmental organisations (NGOs), and specific population groups (older persons, people with disabilities, children, women, internally displaced people (IDPs), returnees, and others). The number of assessed settlements was 395, divided into two geographic zones:

- **Zone A:** Areas within 30 km range from the front line at the time of sampling, as monitored by LiveUA, and the state border with the Russian Federation.
- **Zone B:** Areas within 30-100km range from the frontline at the time of sampling, as monitored by LiveUA, Areas retaken by the GoU, and raions intersecting with these areas by 50% of the raion territory.

To ensure an extensive coverage of settlements close to the frontline, and where needs are concentrated, REACH applied the following sampling algorithm:

Zone A:

- All administrative centres (including hromada, raion, and oblast centres)
- All settlements with a population over 1000 residents, as of May 2024 (IOM Frontline Flow Monitoring, May 2024)
- If updated population figures are not available: all settlements with a population over 2500 residents before February 2022

Zone B:

- All administrative centres (including hromada, raion, and oblast centres) over 1000 residents before February 2022

To account for a possible higher variation in needs in units with a larger population, the number of KIs per settlement differed for the following **3 categories**:

- **3 KIs** in every assessed settlement with a population size of 1,000-9,999*
- **5 KIs** in every assessed settlement with a population size of 10,000 – 99,999*
- **7 KIs** in every assessed settlement with a population size of over 100,000*.

* Population size prior to the start of the war in February 2022.

All KI responses from the same settlement were aggregated to have one data point for each variable per settlement. The **Data Aggregation Plan** used the **average approach** to aggregate the settlement responses by using a severity scale in cases of **single-choice** questions. In case of **multiple-choice** questions, the rule was to select all responses that have been reported by at least 1 out of 3 respondents, 2 out of 5 respondents, and 3 out of 7 respondents in the settlements per the relevant categories, as presented above.

The statistics presented in this brief **cannot be extrapolated to represent a proportion (%) of the population, and thus should be interpreted as indicative** rather than representative. Given the small and unrepresentative sample, these results only provide an indicative understanding of the situation in the assessed areas.

Settlement Vulnerability Index (SVI) Framework

REACH Ukraine developed this framework based on HSM indicators to determine the severity of vulnerability at the settlement level. The data utilised in the SVI's score calculation is reported by KIs referring to the situation in the whole settlement, thus does not capture specific household inputs and potential nuances within individual household situations. Within individual household situations. Accounting for the different approaches, indicators used, and objectives, the current framework should not be understood as comparable with other similar frameworks, including by REACH.

The SVI framework requires the calculation of individual composite scores for each sector, followed by a calculation of an inter-sectoral composite score as the final Settlement Vulnerability Index. **The framework was updated for Round 17, based on past SVI analyses and following consultations with humanitarian partners, and therefore SVI scores before Round 17 cannot be compared with SVI scores from Round 17 onwards.**

The framework is composed of HSM indicators across six sectors: Food Security and Livelihoods, Shelter and Non-food items (NFIs), Water, Sanitation, and Hygiene (WASH), Healthcare, Protection, and Education. The indicators incorporated in the calculation of sectoral scores were selected based on the information they capture regarding people's access to basic services and essential items. The indicators not incorporated in the score will still be used as part of the analysis and reporting as a way to present a comprehensive overview of the situation in the assessed settlements.

'Severity' signifies the intensity of vulnerabilities in the settlement, using a scale that ranges from 1 (minimal/none) to 4+ (Extreme and Risk of Catastrophic/Sectoral Collapse). The levels of sectoral vulnerability imply:

- **None/minimal:** Essential basic sectoral needs are met in the settlement,
- **Stress:** Borderline inability to meet basic sectoral needs in the settlement,
- **Severe:** Moderate inability to meet basic sectoral needs in the settlement,
- **Extreme:** Extreme inability to meet basic sectoral needs in the settlement,
- **Extreme+:** Collapse of basic services and/or total inability to meet basic sectoral needs in the settlement,

Sectoral vulnerability scores were calculated using the "maximum" rule, i.e. the final sectoral vulnerability score will be determined by the highest score of any composite indicator included in the sector score calculation. Individual composite indicators were assigned a score from 1 (minimal) to 4+ (extreme+), based on aggregated key informants responses in the settlement for each indicator. Sectoral vulnerability scores are calculated based on the sectoral indicators incorporated in the framework included in Annex. If an indicator cannot be recoded to 1-4+ values, it is by default given a value of 1 (Minimal).

For the multisectoral SVI score, the mean (average) of sectoral scores was calculated and rounded up if the score has a decimal of 0.5 or higher to assign it to a value (1-4+, Minimal to Extreme+).

Please refer to the Framework in Annex for more details.

Due to the included data being indicative in the scoring process, the resulting scores cannot be considered representative of the conditions within settlements and offer an approximate understanding of the humanitarian situation.

Disclaimer: Given that the SVI framework has been updated for Round 17 (July 2024) to ensure accuracy of findings, REACH advises caution against comparing sectoral vulnerability scores and multisectoral SVI scores between Rounds 8-16 and Round 17 onwards.

Key changes between the previous SVI framework (Rounds 8-16) and the current SVI framework relate to:

- **Sectoral vulnerability scores:** following an update to the HSM questionnaire in Round 17, composite indicators of every sector were reviewed. HSM team also reviewed the severity score (1-5) of response options for each indicators. Notably, all sectors now include only one indicator with "extreme+" scoring, corresponding to the worst possible sectoral outcome.

- **Aggregation rule:** sectoral vulnerability score are now calculated with the "maximum" aggregation rule, instead of the "average" (aligning with REACH MSNI approach). Indeed, HSM observed that with the previous framework, for sectors with more than two composite indicators, the "average" aggregation rule underestimated the level of sectoral needs as non-critical indicators dragged down the sectoral vulnerability score. Therefore, the current sectoral vulnerability scores gives a more accurate picture of sectoral needs for the majority of residents in the settlement.