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Situational Analysis of Antipersonnel Mine and Explosive Remnants of War Contamination in the Afar and Amhara Regions of Ethiopia: 2020-2022

September 2022



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Better Decisions
Better Outcomes**



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Acronyms

ACLED	Armed Conflict Location & Event Data
AOR	Area of Responsibility
APM	Anti-Personnel Mine
CP	Child Protection
DTM	Displacement Tracking Matrix
EO	Explosive Ordnance
EORE	Explosive Ordnance Risk Education
EPSS	Ethio Professional Security Solutions
ERW	Explosive Remnants of War
FMoH	Federal Ministry of Health
HLP	Housing, Land, and Property
HRDG	Humanitarian Resilience Donor Group
IDP	Internal Displaced Person
IED	Improvised Explosive Device
INGO	International Non-Government Organization
KDE	Kernel Density Estimation
KII	Key Informant Interview
LULC	Land Use/Land Cover
MA	Mine Action
NNGO	National Non-Government Organization
SDR	Secondary Data Review
UNMAS	UN Mine Action Service
UXO	Unexploded Ordnance
WASH	Water, Sanitation and Hygiene

Disclaimer

This report is the result of a secondary data review exercise that cross-analyses numerous cited information sources, including the media. Views and opinions expressed do not necessarily reflect those of iMMAP and UNMAS. The boundaries, names, and designations used on maps do not imply endorsement or acceptance by iMMAP and UNMAS. iMMAP and UNMAS cannot be held responsible for them.

Project Presentation

iMMAP is an international not-for-profit organization that provides information management services to humanitarian and development organizations, enabling partners to make informed decisions to support high-quality targeted assistance to the world's most vulnerable populations. iMMAP initiated a project aiming to improve the humanitarian community's understanding of a quickly evolving context and humanitarian needs in conflict-affected areas, through the provision of IM support and production of Humanitarian Situation Analysis reports.

This is the 6th iMMAP Ethiopia Situational Analysis report. It examines the contamination of APM/ERW in the Afar and Amhara regions. It is a joint product and prepared in collaboration with the Mine Action AOR, the United Nations Mine Action Service (UNMAS).

UNMAS has a long-standing presence in the region, with well-established programmes in Somalia, Sudan and South Sudan. In March 2020, upon request from the Interim President of the Somali region of Ethiopia, the

United Nations Resident and Humanitarian Coordinator (RC/HC) requested UNMAS to assess the level of explosive hazard contamination in the region and to provide technical assistance and safety advisory support to the national authority and the local population. The Federal Ministry of Peace of Ethiopia later requested to expand the UNMAS intervention to other regions. Due to the outbreak of conflict in northern Ethiopia, UNMAS was requested by the humanitarian team to provide mine action assistance to ensure safe delivery of humanitarian aid and address the threat of explosive ordnance is minimised for communities affected.

The MA AOR of the Protection Cluster was formally activated in August 2021 under UNMAS leadership. By the end of 2021, UNMAS had mobilized resources to establish a country programme in Ethiopia. UNMAS began operating in March 2022, and has since then been conducting initial explosive ordnance assessments in Afar, Amhara, and Tigray, as well as EORE - through national NGO partners - in Afar and Amhara region.

Definitions

Actor1:	A named actor involved in the event (ACLED Data Columns).	types and recorded as lowest joint number (ACLED Data Columns).
Actor2:	The named actor involved in the event. If a dyadic event, there will also be an "Actor 1" (ACLED Data Columns).	
Buffer Analysis:	Process involving the setting of a buffer around existing geographic feature and then identifying or selecting features based on whether they fall inside or outside the boundary of the buffer. Its purpose is to identify areas surrounding geographic features (Buffer Analysis).	
Geospatial analysis:	Gathering, displaying, and manipulating imagery, GPS, satellite photography and historical data, described explicitly in terms of geographic coordinates or implicitly, in terms of a street address, postal code, or forest stand identifier as they are applied to geographic models.	
Interaction:	Numeric code indicating the interaction between types of Actor1 and Actor2. Coded as an interaction between actor	
Remote sensing:		Process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (USGS).
Satellite image:		Digital images of the earth's surface compiled from spectral data, collected by sensors carried in special-purpose satellites, readily available for all parts of the world from various commercial and government sources.
Sentinel-2:		Earth observation mission from the Copernicus Programme that systematically acquires optical imagery at high spatial resolution (10m to 60m) over land and coastal waters.
Spatial resolution:		Number of pixels utilized in construction of the image, where those with higher spatial resolution are composed with a greater number of pixels than those of lower spatial resolution.

Methodology

The methodologies used to determine the scope of the contamination are:

Secondary Data Review and Key informant interviews

This report relied on secondary data review (SDR), complemented by key informant interviews (KII) and geospatial analysis. The SDR method helps to gather diverse sources of pre-existent knowledge. The SDR is used because of the following main reasons:

1. Difficulty (physical, security and bureaucratic constraints) to access some areas for primary data collection.
2. Availability of multiple secondary data sources.

During the SDR process, iMMAP cross-analyzed published and unpublished documents from a diverse sources, including NNGOs, INGOs, government institutions, media, and UN agencies.

GIS, Remote Sensing and ACLED data

- Technologies like GIS have been used to identify proximity indicators of anticipated existence of APM and ERW in the vicinity of battlefield and explosives ([ESRI](#), 03/04/2020, [GICHD](#), 10/2013).
- iMMAP used the ACLED data to identify location of battlefields and reported explosives from 2020 to 2022 to identify the geographic coverage of potential ERW contamination in the Afar and Amhara regions. Based on the location of the battlefield and explosive incidents, a 20 km radius from these locations was selected for this study. The recent study in the South Wollo suggests areas within 35km from Dessie town to be included in the EORE following the discovery of explosives incidents (KII, 07/20/2022)
- In addition, [sentinel-2 satellite image](#) with 10m spatial resolution to extract land use/land cover (LULC) information within the radius of reported battlefield and explosive incidents. Overlay and proximity analysis were used to understand spatial interaction of road network, schools, water points, IDP sites, IDP and returnee population and host community within the reported battlefield and explosive locations.

Datasets Used

- [ESRI global land cover data set](#), 2021
- [OCHA population estimate to woreda level](#), 2022
- [ICPALD/IGAD geoportal](#)
- [Ethiopia road network](#), January 2020
- [DTM VAS R12](#), August 2022
- [DTM ESA R29](#), August 2022
- [Health facility location](#), 11/2021
- UNMAS Field Reports (May – July 2022)

iMMAP disseminates a survey to humanitarian partners in Ethiopia, to assess their satisfaction with each published report, identify areas for improvement, and prioritize the topic of subsequent reports. [Please answer the two questions satisfaction survey linked to this report](#). Your participation helps ensure that our products are continuously relevant and responsive to your needs.

If you would like to be added to our mailing list, please contact rep-ethiopia@immap.org.

Information Gaps

Due to limitations in access to information, particularly key informants, this report focuses on the APM and ERW situation in the Afar and Amhara regions, while omitting the Tigray region.

Lack of clear mapping of APM/ERW infestation and absence of victim case records in the hospitals inhibit an assessment of the extent of contamination and types of these devices killing and injuring civilians. As a result, iMMAP analyzed data of the area within a 20 km

buffer from the battlefield, using geospatial and remote sensing methods. There is limited data available on the number of schools and students in the vicinity of the battlefield in both regions. Absence of geotagged population information makes it difficult to know the host community living in the battlefield, so this report relies on OCHA's projected population estimate. Medical records of victims are unavailable to identify the underlying cause of explosions. There is limited data on water point locations and types for the Afar region.

Executive Summary

The northern Ethiopia conflict has affected people living across the region, displacing millions, and leaving behind UXO and other ERW. Since November 2020, the ERW killed 185 people in the Afar and 267 in the Amhara region, mostly children. The purpose of this report is to determine the scope of contamination in the respective regions, and assess the implications of the contamination and risks to those living in the affected woredas.

Based on the geospatial and remote sensing analysis, 122 woredas, 33 in the Afar and 89 in Amhara region are within the 20km radius of the battlefield. 68% of these woredas are food insecure. An estimated of more than 8.3 million host community members (49% female and 51% male), 205 thousand IDPs, and 1.5 million returnees are living within the 20km buffer distance.

In addition to this, the ERW are threatening access to basic services, including education, agriculture, road, water, and health services. 37% of the water structures,

2.2 million hectares of crop land, and 19,000km of road are found within the buffer distance of the battlefield.

School representatives in the Amhara region have reported the presence UXO and explosion incidents that have resulted in the injury and death of students. This creates fear among students and affects the teaching learning process. Moreover, the UXO and other ERW are seen to be collected and sold to metal factory as a raw material and to individuals, for example to be used as a domestic coffee grinder.

As of July 2022, UNMAS Ethiopia has conducted 195 sessions of EORE TOTs in the Afar and Amhara regions, training 28,200 people, of whom 60% are women.

Background: APM/ERW contamination Before November 2020

- APM/ERW presence threatens the security and safety of communities and hampers the development of several regions ([Global Protection Cluster](#), 11/23/2021).
- The Tigray, Afar and Somali regions were reportedly the most heavily mine/ERW-affected regions. The ELIS survey recorded 16,616 mine/ERW casualties. More than half of these had resulted in the death of the victim, and 1,325 took place between 2002 and 2004. Two-thirds of the victims were engaged in herding and farming activities when the accident occurred ([GICHD](#), 06/03/2012).
- According to an assessment conducted in 2014, the Tigray, Afar and Somali regions, which border Eritrea and Somalia, are the most heavily affected in the country ([UNDP](#), 01/27/2014).
- Figure 1 shows key dates related to mine action activity in Ethiopia, from the Italian invasion in 1938 to the present.
- Subsequent conflict in both the Amhara and Afar regions devastated infrastructure while displacing thousands of civilians ([BBC Amharic](#), 11/25/2021), leaving behind significant EO contamination in areas of intense fighting ([Global Protection Cluster](#), 11/23/2021). While the full extent of the contamination has yet to be established, during the final months of 2021, explosive ordnance killed or injured 71 people, including several children ([Global Protection Cluster](#), 11/23/2021).
- A grave protection concern is the fear of EO, also hindering farming and access to livelihoods ([Global Protection Cluster](#), 11/23/2021).
- Figure 2 shows the locations of battle incidents and the number of explosive accidents recorded in the Afar and Amhara regions from November 2020 to Jun 2022. The most affected areas are those along the border between the Amhara and Afar regions, followed by the South Gondar zone in the Amhara region, and the areas along the borders between both regions and the Tigray region. However, there is some contamination throughout these regions that merits concern.

APM/ERW contamination in the northern Ethiopia conflict (Nov 2020 – Mar 2022)

- The conflict in the northern Ethiopia since November 2020 resulted in the highest levels of political violence since the end of the Ethiopian-Eritrean War in June 2000 ([ACLEDA](#), 01/6/2022).

Timeline of key events related to mine action in Ethiopia

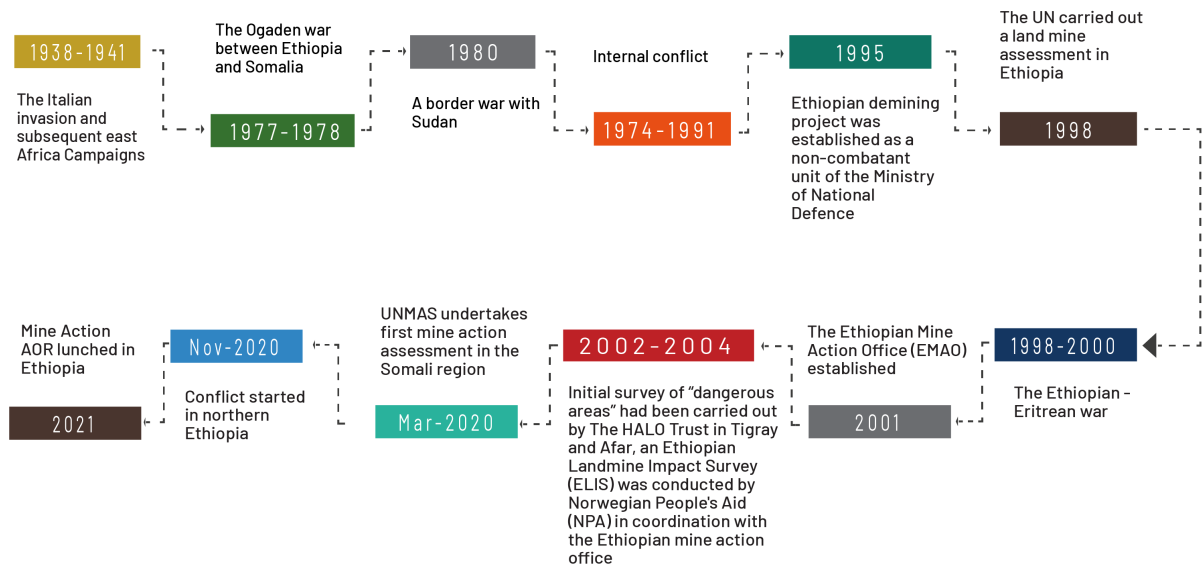


Figure 1: Timeline of key events related to mine action in Ethiopia (GICHD, 06/03/2012)

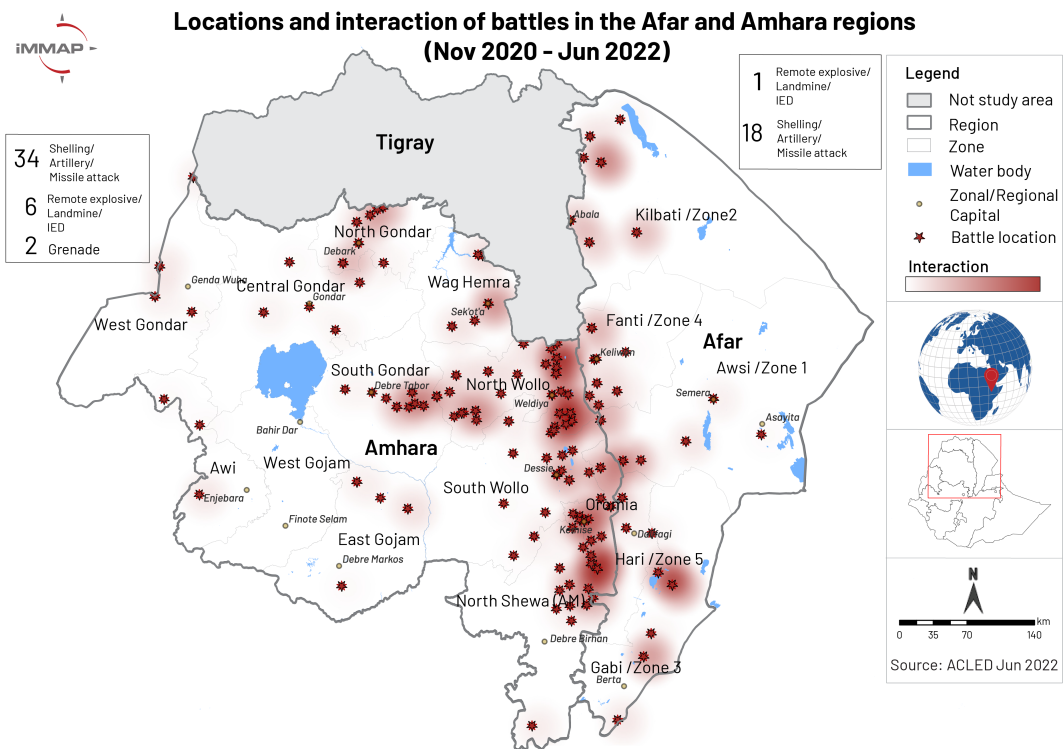


Figure 2: Location and interaction of battles in the Afar and Amhara regions Nov 2020-Jun 2022 (ACLED, 2022)

Findings

Geographic coverage of the potential landmine contamination

- 122 woredas, including 33 in the Afar and 89 in the Amhara region, are within the 20km radius from the battlefields, according to the geospatial analysis based on the ACLED data for 2022 (ACLED, 01/07/2022).
- In the Amhara region, the most impacted zones include North Shewa, Wag Hemra, and North and South Wollo (KII, 21/05/2022). While in the Afar region, the Dubti, Kassagita Chifra, and Adar woredas are the most affected (KII, 07/18/22).
- Since June 2021, 5,874 fighting interactions were recorded in the Amhara region, with high number of interactions in North Wollo (1,789). Meanwhile, 2,498 were recorded in the Afar region, especially in the Kilbati zone-2 (ACLED, 01/07/2022).
- Figure 3 shows the geographic scope of data analysis for this report, based on distances from the battlefield (5km, 10km, 15km and 20km) in the Amhara and Afar regions as of June 2021.

Host community members within 20km of battlefields by gender in the Afar and Amhara regions

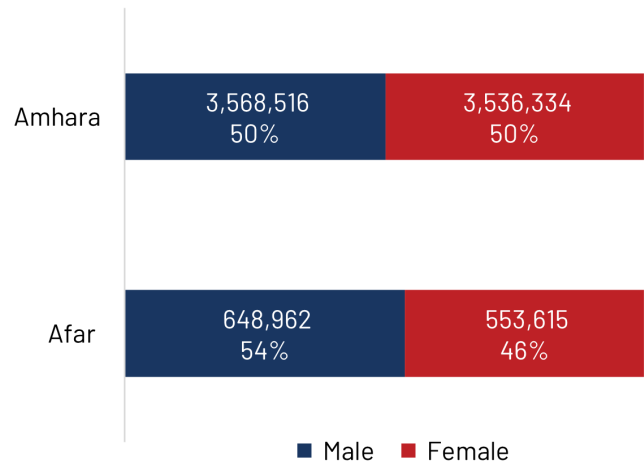


Figure 4: Host community members within 20km of battlefields by gender in the Afar and Amhara regions (OCHA, 2022)

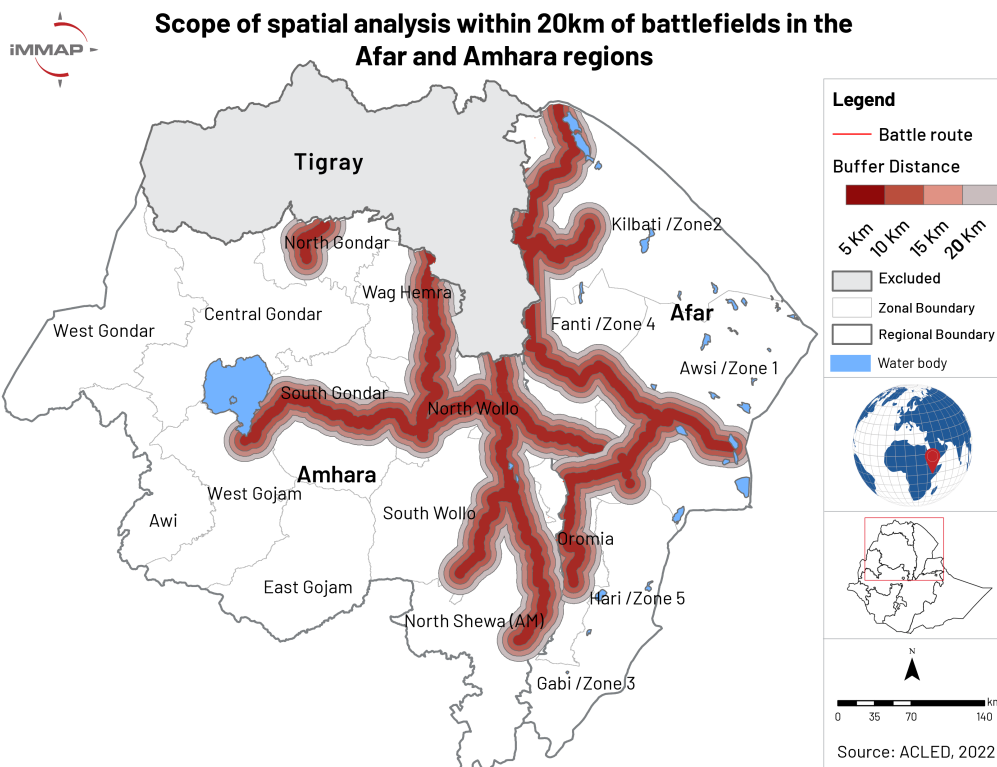


Figure 3: Scope of spatial analysis within 20km of battlefields in the Afar and Amhara regions (ACLED, 2022)

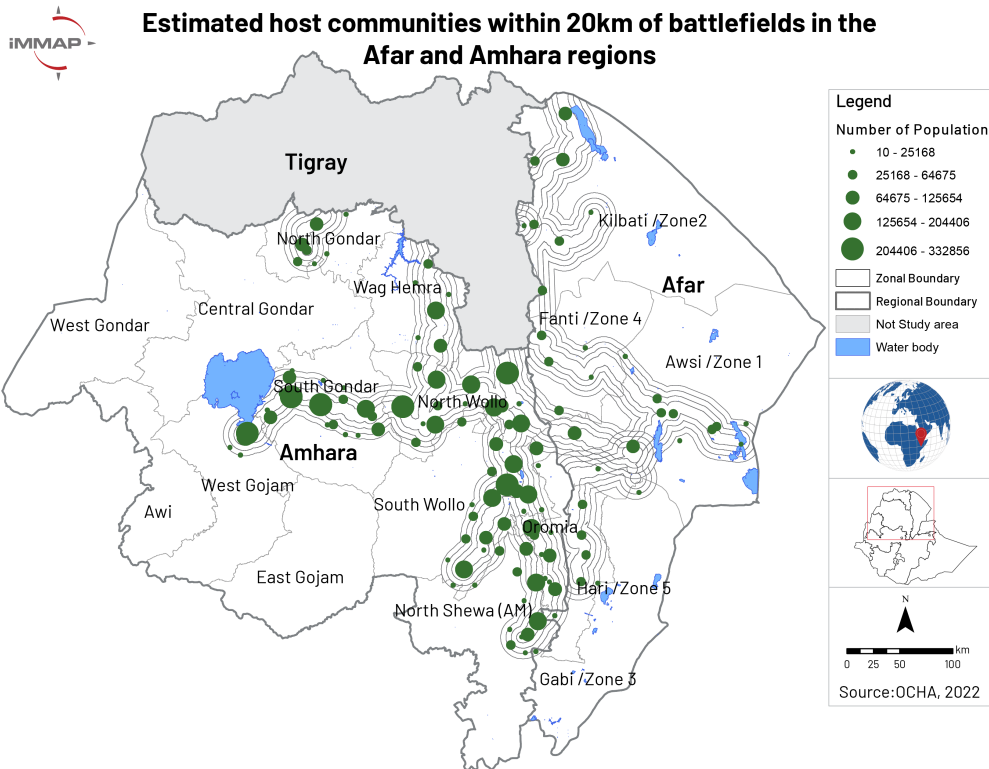


Figure 5: Estimated host communities within 20km of battlefields in the Afar and Amhara regions (OCHA, 2022)

Population affected by APM/ERW contamination

The 2022 projected population estimate showed that there are a total of 8,307,427 people living in the battlefield. 7,104,850 (86%) of these people are living in the Amhara region while 1,202,577 (14%) are living in the Afar region. In terms of gender, there are more males than females living in the vicinity of the battlefields in both the Afar and Amhara region.

More specifically, the Ethiopian Landmine Impact Survey (ELIS) found over 1.9 million people living in a total of 1,492 mine-affected communities in Ethiopia (GIHCD, 02/2007).

In early March 2022, UNMAS conducted an assessment and received anecdotal reports of EO-related accidents and broad contamination in conflict-affected zones, but specifics about the incidents, victims, and the exact magnitude of the contamination areas were not known due to limited access and insecurity (KII, 07/20/2022).

A subsequent assessment by UNMAS on August 8-18 targeted areas across over ten woredas in zones 1, 2 and 4 of the Afar region. This assessment revealed that community members have identified and collected numerous stockpiles of ERW, often storing them in their homes in unsafe conditions, such as next to charcoal (UNMAS, 09/15/2022).

At Burka kebele in Ada'ar woreda, UNMAS met several survivors of EO explosions, including a child and an adolescent, who apart from their physical injuries, may face significant psychosocial impacts (UNMAS, 09/15/2022).

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Figure 4 shows the gender disaggregation of host community members in the vicinity of battlefields in the Afar and Amhara regions. Whereas in the Amhara region community members display a gender balance, most in the Afar region are male, although there is no further information to explain this. Figure 5 shows the number and distribution of the population in the vicinity of the battlefield.

Food security, Agriculture and Livelihood

- In post-conflict communities, landmines prevent access to arable land, social services, clean water, and roads, thereby restricting free movement and preventing local and regional trade (UNDP, 01/27/2014).
- Some community members in the Amhara and Afar regions, especially in North and South Wollo, Central Gondar and North Shewa, express fear of accessing the agricultural land affected by intense fighting and explosives (KII, 07/27/2022). In addition, community members in those areas fear possible landmine explosions on their way to collect food from the food distribution centers (KII, 07/27/2022).
- In the Afar region, APM were observed on the road to Chifra from Mile, which creates fear among the pastoral communities (KII, 07/18/2022). For example, a woman in Gedandoga kebele in Ada'ar woreda shared losing 4 camels and 5 goats due to an EO explosion (UNMAS, 09/15/2022).
- Only 40% of the planted crops in Meher season were harvested by late November 2021 in the Amhara region due to the conflict (FAO, 11/2021).

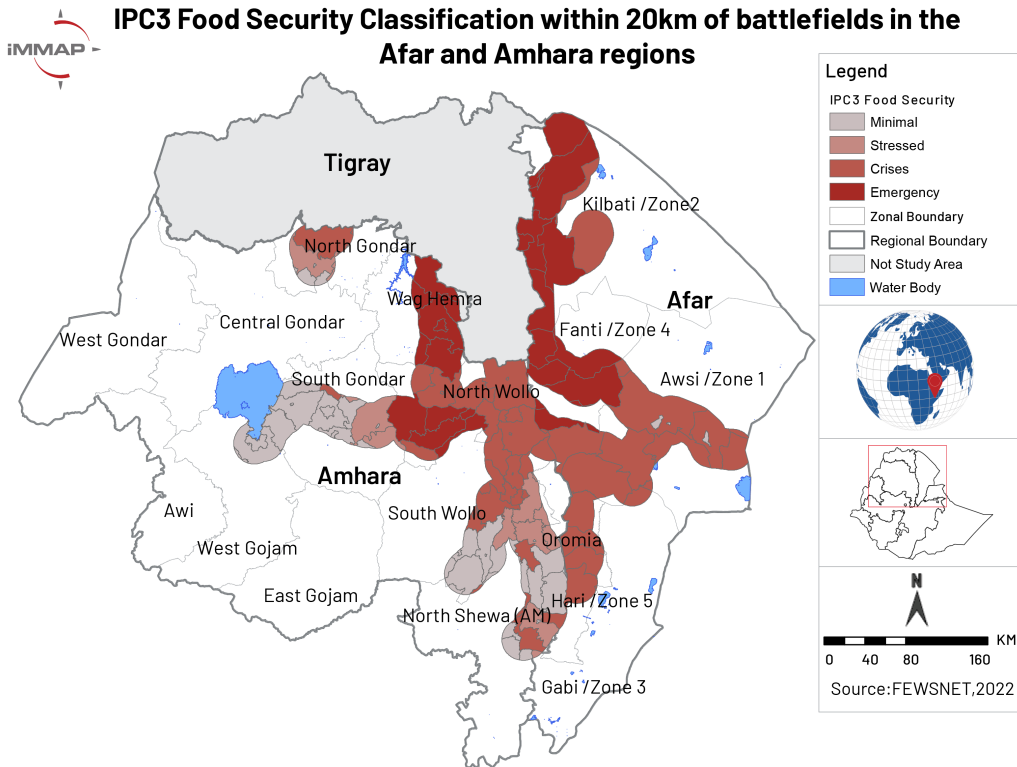


Figure 6: IPC3 Food Security Classification within 20km of battlefields in the Afar and Amhara regions (FEWSNET, 06/2022)

- Key informants claimed that there is an increase in market price of basic goods in the vicinity of the battlefield, landmine, and explosive areas, thus further affecting the food security and livelihoods of affected populations. However, the interaction between geopolitical, climate, conflict, or other causes of price increases is not examined (KII, 07/27/2022).
- There has been evidence that people living in the vicinity of the battlefields in Dessie and Bahir Dar are selling and buying ERW to generate alternative income, which puts them at high risk of explosions (KII, 07/20/2022).
- The woredas and zones in the battlefield are already classified as food insecure and are currently

receiving food assistance (KII, 07/21/2022).

Figure 6 shows the distribution of IPC3 food security classification of zones within 20 km of the battlefields in the Afar and Amhara regions, as of June 2022 (FEWSNET, 06/2022). Out of the 122 woredas found within the 20km of the battlefields, 12 in the Waghimera and North Wollo zones from the Amhara region, and 7 in the Kilbati/Zone 2 and 5 in Fanti/Zone 4 zones from the Afar region, were classified as being in a state of food emergency.

Figure 7 shows the number of woredas as per their IPC3 Food Security classification. A majority of analyzed woredas across both the Afar and Amhara regions are either in emergency or crisis classification, though a plurality of woredas in the Afar region have minimal food insecurity.

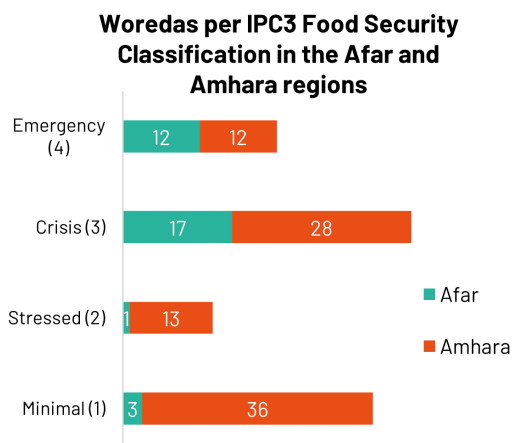


Figure 7: Woredas per IPC3 Food Security Classification in the Afar and Amhara regions (FEWSNET, 06/2022)

Figure 8 shows the size of different LULC in square kilometers within the 20 km radius of the battlefield and explosive incidents in the Afar and Amhara regions. While a plurality of affected land across both regions is scrub/shrub, nearly as much land in the Amhara region is cropland, whereas a much smaller proportion of affected land in the Afar region has agricultural uses (ESRI, 2021). This merits further examination on the impacts of APM/ ERW contamination on food production, especially in the Amhara region, and thus on the availability and prices of food.

Figure 9 shows the satellite imagery-based land cover classification as of March 2021 of the croplands, settlements, water bodies, scrub/shrub, and bare lands across these regions.

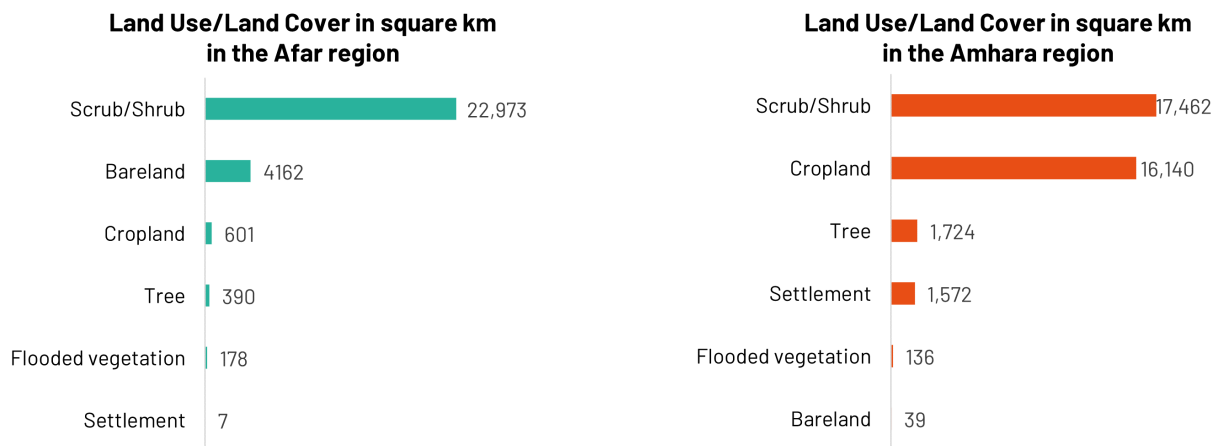


Figure 8: Land Use/Land cover in square km in the Afar and Amhara regions (ESRI, 2021)

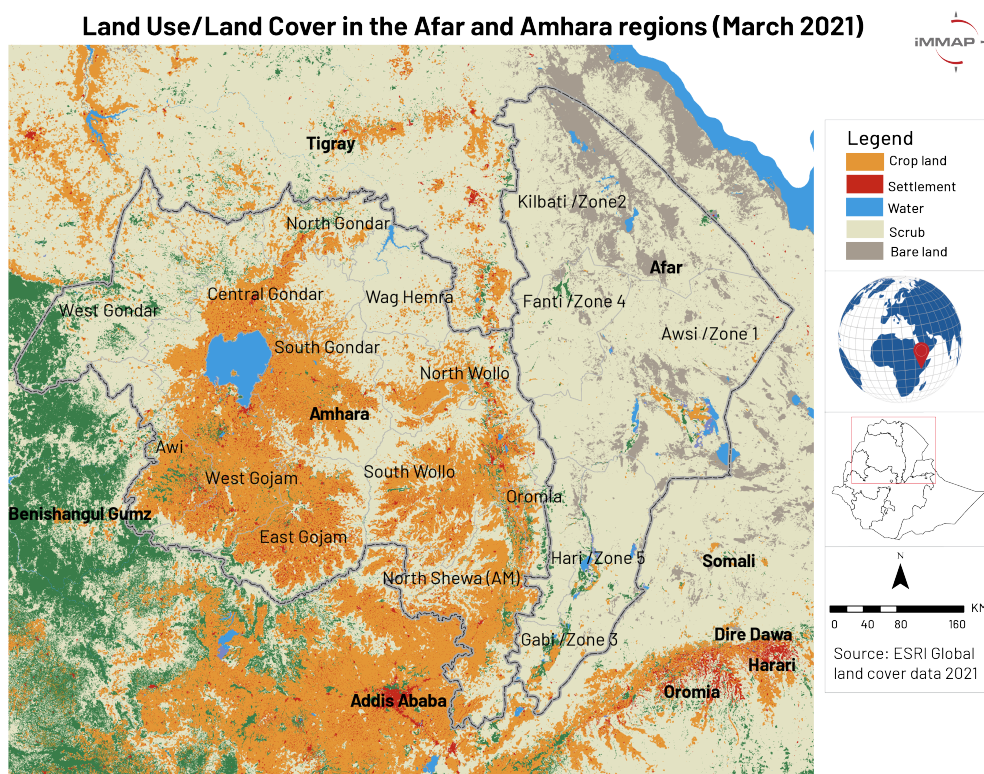


Figure 9: Land Use/Land Cover in the Afar and Amhara regions March 2021 (ESRI, 2021)

Impact on Water structures in the battlefield

- Studies reveal that landmines could disrupt the water cycle and release explosive residue that are toxic into water structures (ICRC, 12/16/2021).
- Residents in the Afar region said the explosive danger makes them fearful of fetching water and resuming farming activities (Reuters, 04/27/2022).
- There are 9,420 hand and 11 electric pump water wells in the 20km distances from battlefields in the Amhara region, while in the Afar region there are 9 water points, though the type of the water point is not defined (HDX, 2015).
- As shown in figure 10, in the Amhara region 37% (3,496) of the hand pump water well are located within 5 km of the battlefield. Within the 20km distance from the battlefields 96% of the hand pump

Hand pump well within 20km of battlefields in the Amhara region

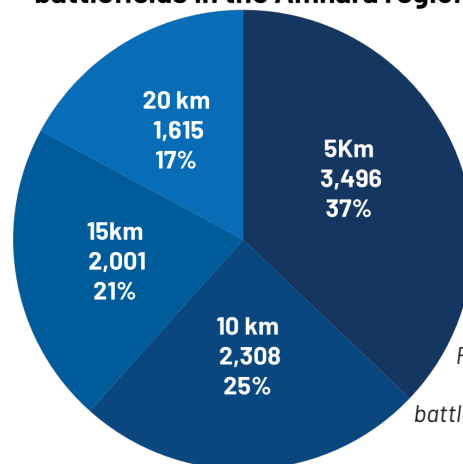


Figure 10: Hand pump well within 20km of battlefields in the Amhara region (HDX, 2015)

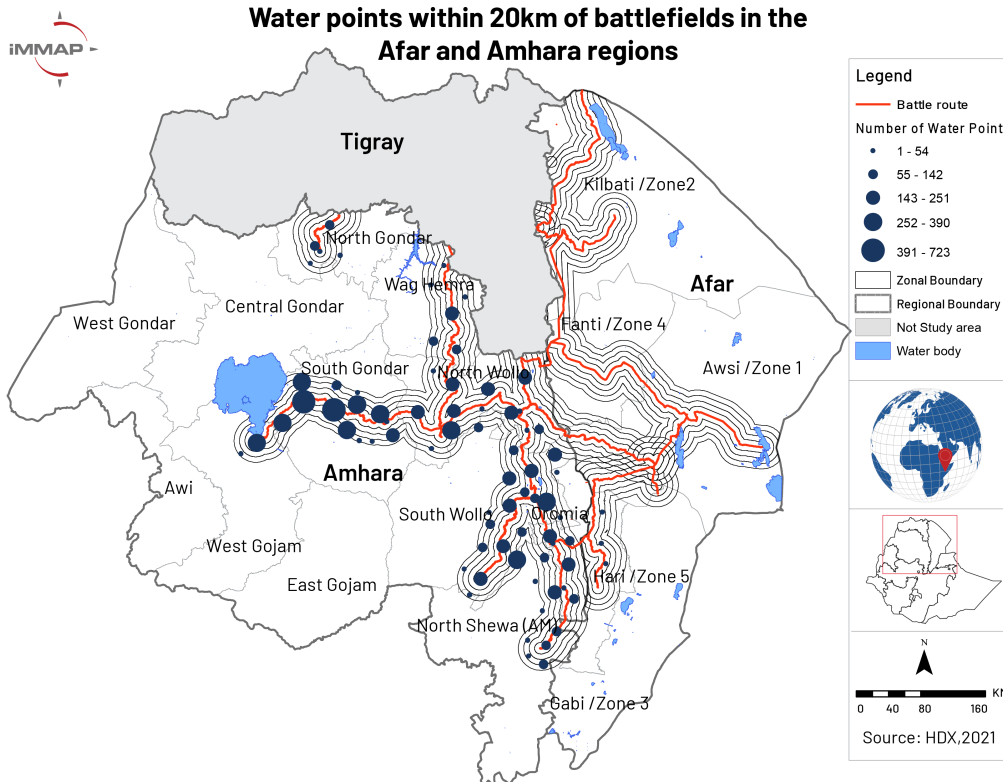


Figure 12: Water points within 20km of battlefields in the Afar and Amhara regions (HDX, 2021)

wells are located in rural areas, while the remaining 4% are located in the urban areas (HDX, 2015).

Distribution of water points per source type

As shown in figure 11, in the Amhara region there are 4,560 hand dug well normal pump water source within the 20km radius of the battlefield and 39% of this type of water source found within 5km radius.

Figure 12 shows the geographical location of the water points within 20km radius of the battlefield in the Amhara region. Most of the water points in this radius are concentrated within 5km of the battlefields.

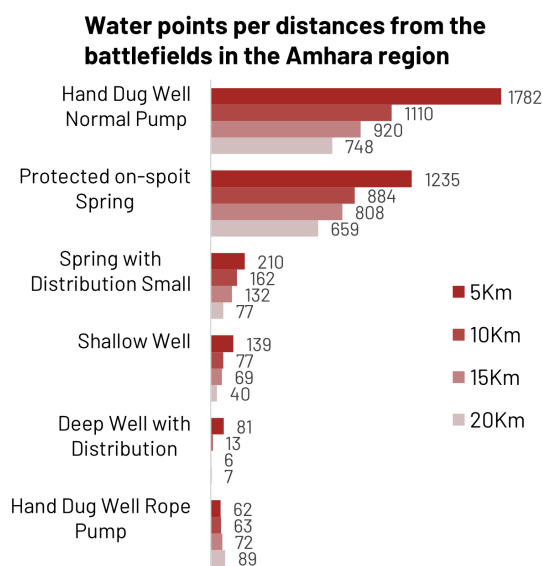


Figure 11: Water points per distances from the battlefields in the Amhara region (HDX, 2015)

Impact on Schools in the battlefield

- The conflict has disrupted education of millions of people, as around 5,800 schools across Northern Ethiopia are either fully or partially damaged and require rehabilitation, and some are suspected to be contaminated by EO (UNOCHA, 08/05/2022).
- According to a key informant, many schools are damaged because of the northern Ethiopia conflict. Moreover, presence of EO in schools in the Amhara region is causing accidents and creates fear among students. In the Amhara region, there is a reported presence of UXO (82mm HE mortar bomb) in North Wollo zone according to HRDG delegations who visited the school (KII, 07/20/2022).
- Moreover, one school administrator in the Amhara region said that explosive devices were left behind or mistakenly dropped on school ground.
- Figure 13 shows the distribution of schools within the 20km radius of the battlefield and reported explosives. More than 50 schools are located within 5km from the battlefields in the Afar and Amhara regions. However, the number of affected schools is likely much higher than displayed here.

Impact on Health Facilities in the battlefield

- Health workers in the crisis affected areas are mainly volunteers and the public health system collapsed during the northern Ethiopia conflict due to the inability to provide basic medical services. As a result, victims are referred to more equipped hospitals in nearby towns (KII, 07/21/2022).

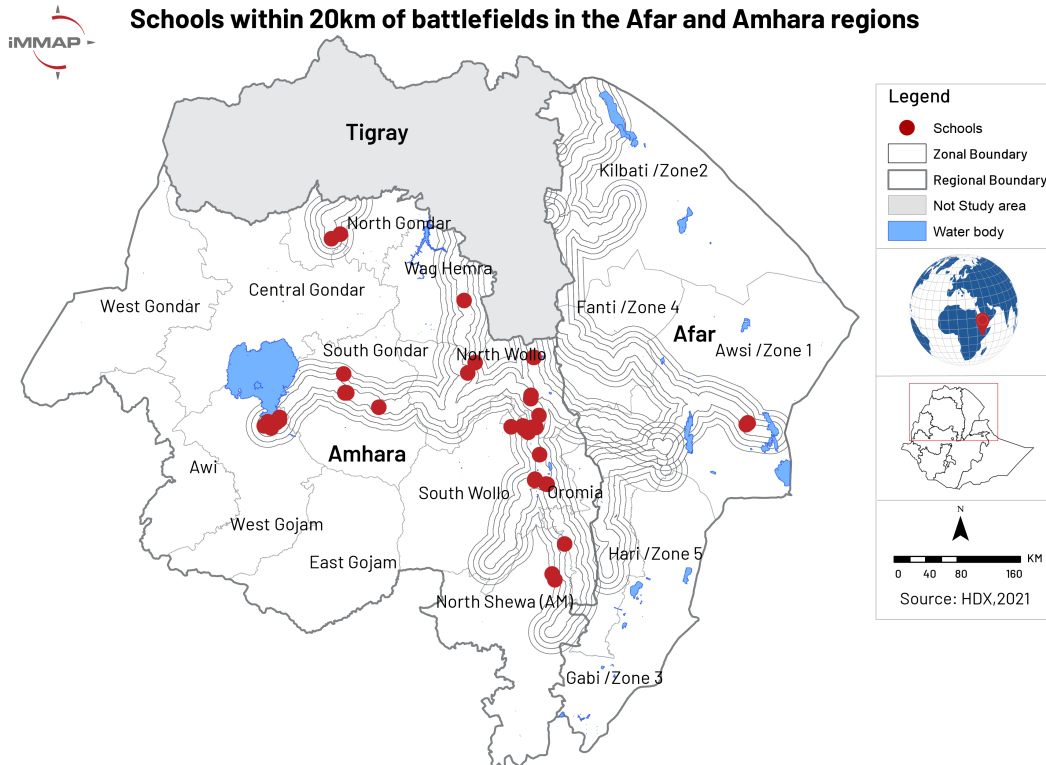


Figure 13: Schools within 20km of battlefields in the Afar and Amhara regions (HDX, 2022)

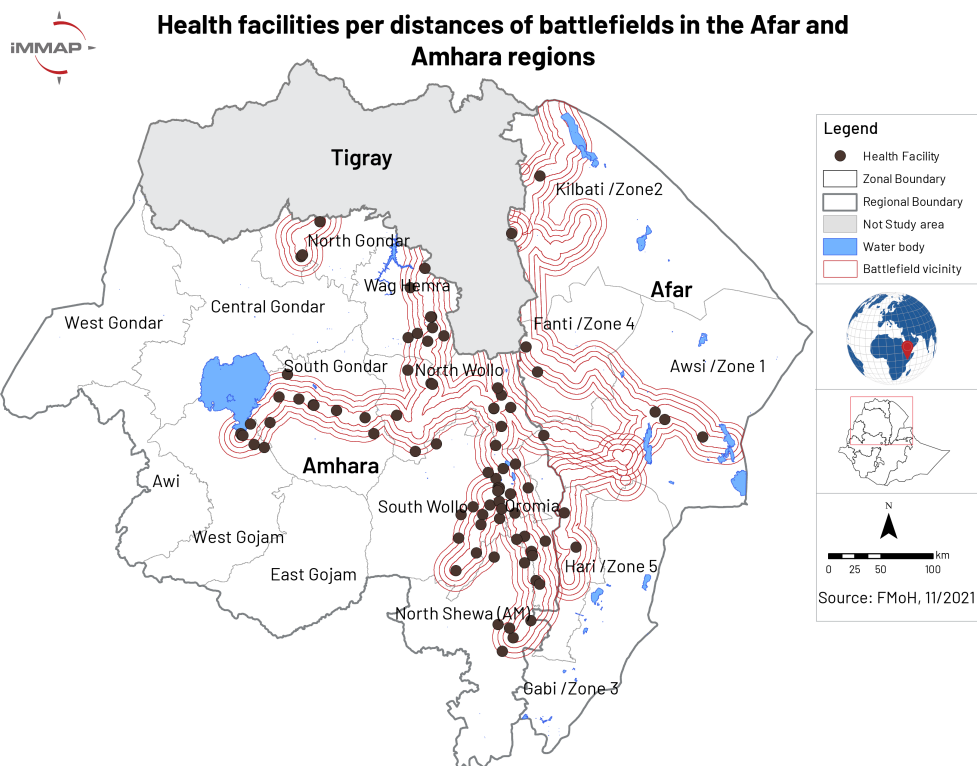


Figure 14: Health facilities per distances of battlefields in the Afar and Amhara regions (HDX, 2022)

- According to FMOH 2012 (EFY) data, the Amhara region has 4,508 health facilities (FMOH, 2020). As shown on figure 14, seventy-seven of the health facilities are located within the 20km distance from the battle or explosives fields, though the actual number is likely much higher.

Figure 15 shows, in the Afar and Amhara region 58 (66%) health facilities found within 5km distance from the battlefield out of the 88 health facilities that are found within the distance 20km from the battlefield. In the Amhara region only 1 health facilities found in the 15km distance from the battlefield while the rest (10) of the health facilities are located within the 5km of the battlefields.

Impact on Residential areas in the battlefield

As shown in figure 16, the total number of settlements or building structures in the 20km radius from the battlefield is 29,665 in the Amhara region while it is 581 in the Afar region. Most settlements are within the 5km

Health facilities within distances from battlefields in the Afar and Amhara regions

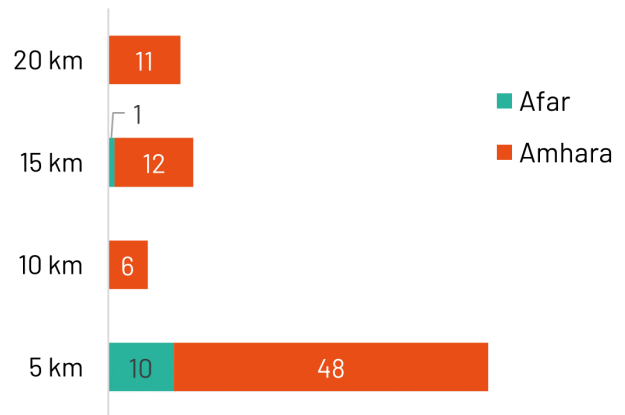


Figure 15: Health facilities within distances from battlefields in the Afar and Amhara regions ((HDX, 2022)

Building structures per distances of battlefields in the Afar and Amhara regions

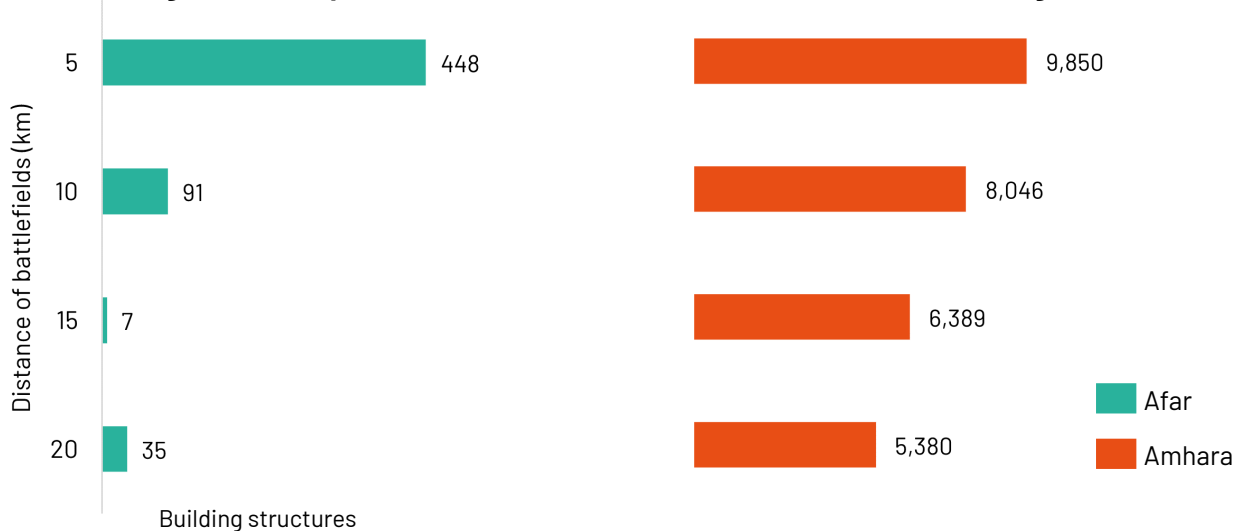


Figure 16: Building structures per distances of battlefields in the Afar and Amhara regions (ESRI, 2021)

radius from the battlefields both in the Afar and Amhara region with 77% (448) and 33% (9,850), respectively. In the Amhara region, there is a steadily declining inverse relationship between the number of building structures and distance from the battlefield. In contrast, the vast majority of building structures in the studied areas of the Afar region are in the immediate surroundings of the battlefield, with far fewer beyond 5km.

Impact on Road infrastructure in the battlefield

As shown in figure 17, in the Afar and Amhara region 23,015km length of roads are affected in the vicinity of 20km from the battlefield. In the Amhara region, a total of 17,822km length of road are within 20km of the battlefield of the northern Ethiopia conflict. Out of this, 38% (6,859km) length of road are within the 5km radius from the battlefield. Likewise, in the Afar region a total of 5,193km length of roads are within the 20km radius of

the battlefield. Out of this 46% (2,396km) length of road are within 5km of the battlefield (HDX Ethiopia, 2020).

Figure 18 shows the main roads that are within 20km of the battlefields in the Afar and Amhara region, specifying those within 5km, 10km and 15km, as illustrated with fading shade colors to indicate potential risk levels.

Affected IDP sites and IDP population in the battlefield

- Several UXO/ERW incidents affected civilians in the North Shewa zone of the Amhara region, increasing awareness for the need of comprehensive programs to ensure civilian/IDP safety in conflict-affected areas (UNOCHA, 04/18/2022).
- The Jara IDP site in the Amhara region received a report of an accident involving four students from a school in the vicinity. The age, gender, and nature of

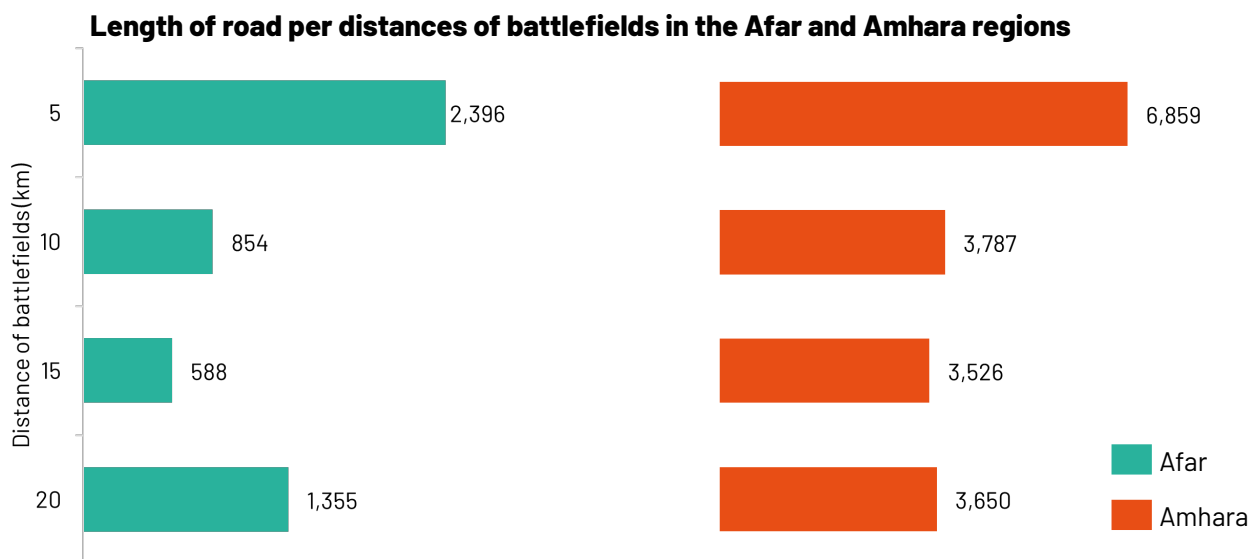


Figure 17: Length of road per distances of battlefields in the Afar and Amhara regions (HDX Ethiopia, 2020)

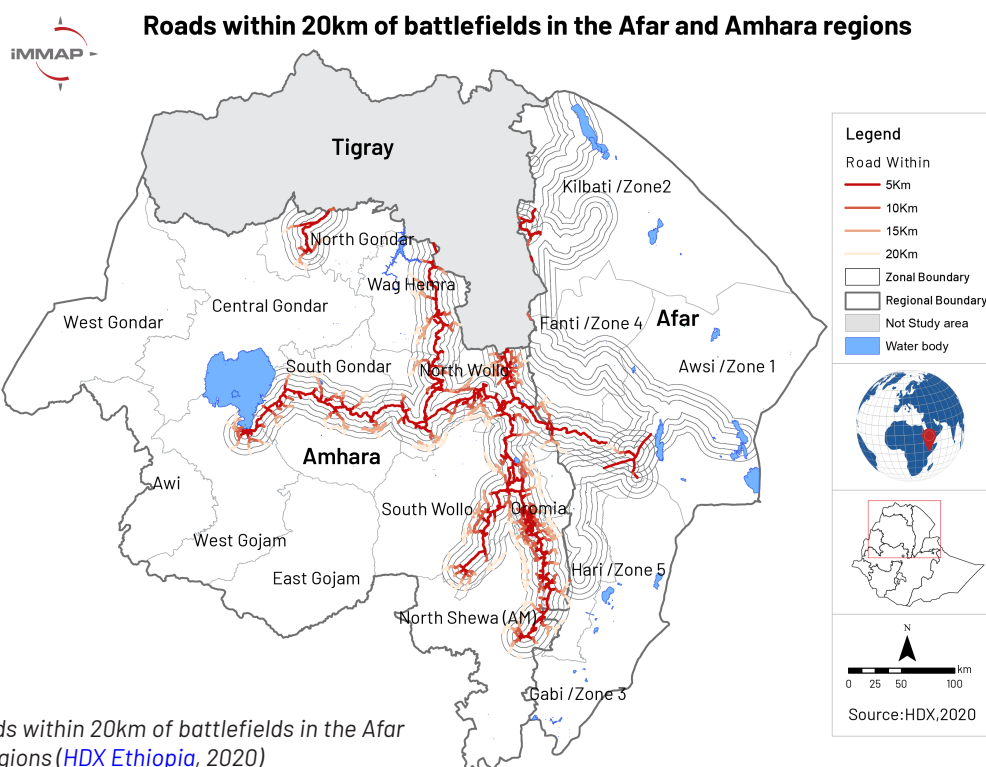


Figure 18: Roads within 20km of battlefields in the Afar and Amhara regions (HDX Ethiopia, 2020)

the injuries are unknown (UNMAS, 05/21/2022).

- Through coordinated and supported assessments, UNMAS confirmed that an area equating to 500sq km across both regions has been released from battle, which has enabled the Shelter Cluster to resume construction of shelter for around 18,500 IDPs (UNMAS, 05/21/2022).
- Figure 19 shows that 85% of the IDP populations within the 20km radius of the battlefields in the Amhara region, and 52% in the Afar region, are concentrated within just 5km of the battlefield. Given that the IDP population is much greater in the Amhara region, its relative proximity to battlefields

and explosives means that protection of IDPs from APM/ERW is a special concern.

- Figure 20 shows the location of IDP sites, the number of IDPs, and the types of explosives present within 20km of the battlefields in the Afar and Amhara regions. The North Gondar, South Gondar, North Wollo, South Wollo, and Oromia Special District zones in the Amhara region concentrate large IDP sites with the presence of explosives, especially ERW left as a result of shelling, artillery, and missile attacks. For example, the largest IDP camp in the Amhara region, the Jara camp hosting 20,100 IDPs in North Wollo, experienced a grenade explosion that killed three IDPs.

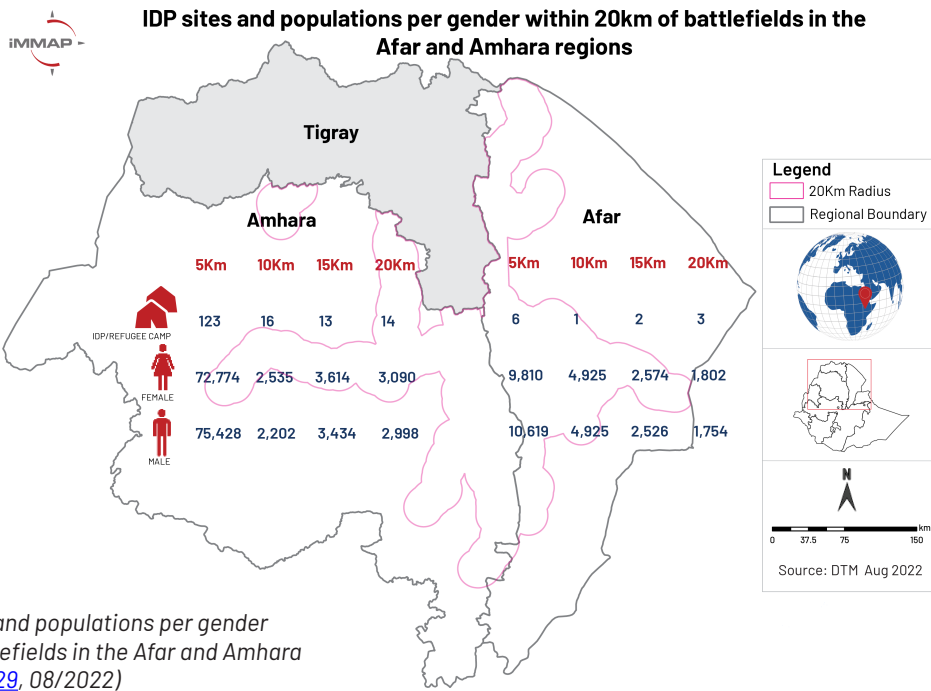


Figure 19: IDP sites and populations per gender within 20km of battlefields in the Afar and Amhara regions (DTM ESA R29, 08/2022)

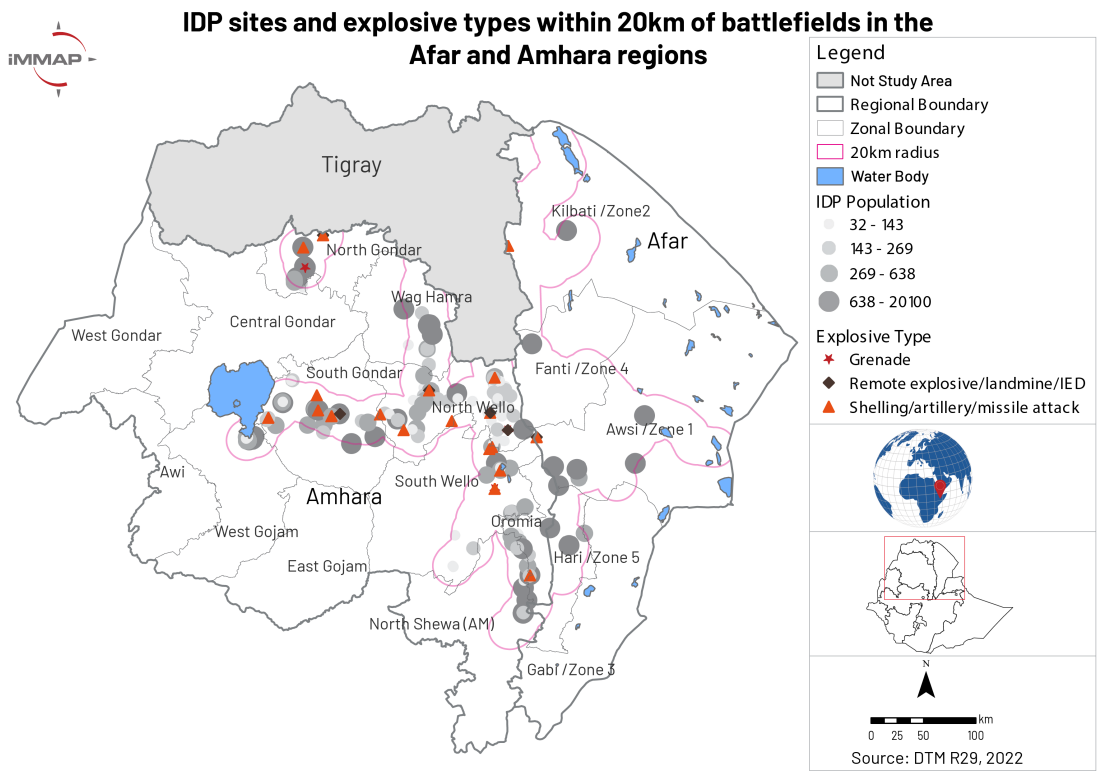


Figure 20: IDP sites and explosive types within 20km of battlefields in the Afar and Amhara regions (DTM ESA R29, 08/2022)

Returnees per zones in the Afar and Amhara regions (Mar-Apr 2022)

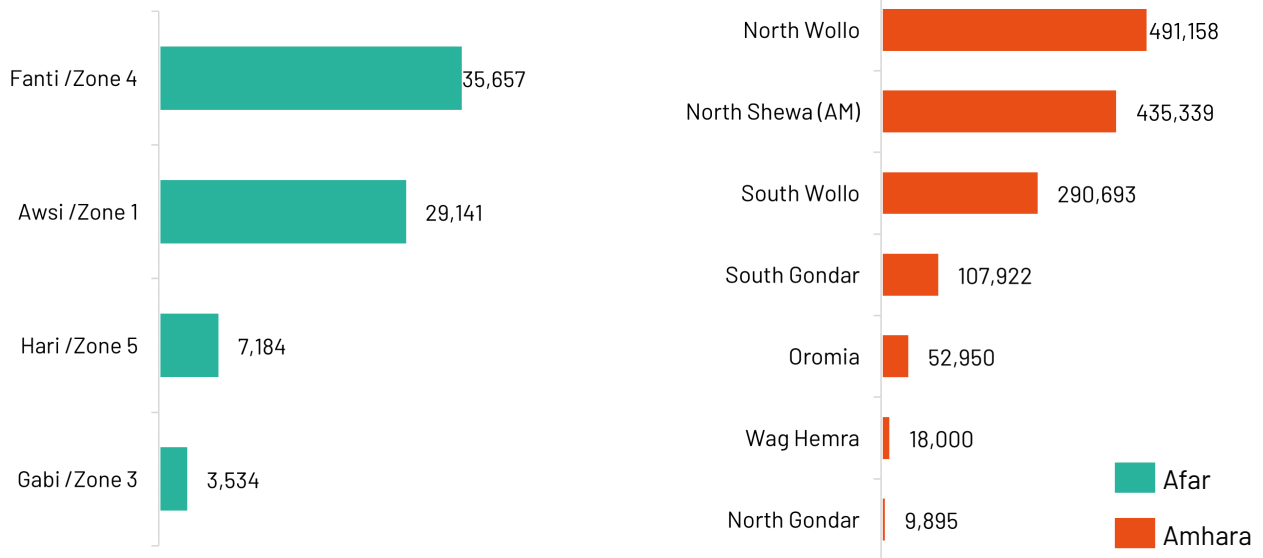


Figure 21: Returnees per zones in the Afar and Amhara regions Mar-Apr 2022 (DTM VAS 12, 08/2022)

Impact on IDP returnees in the Amhara and Afar regions

As of April 2022, the Afar region registered over 75 thousand returnees, while the Amhara region had over 1.4 (DTM VAS 12, 04/2022). Figure 21 shows proportion of returnees by zone in the two regions. The highest number of returnees is in North Wollo zone for the Amhara region and in Fanti/zone 4 for the Afar region.

Figure 22 shows IDP returnees in the Afar and Amhara regions as per their respective distance from the battlefield. A much larger number and proportion of returnees (870,583 in total) are located within the 5km distance in the Amhara region. For the Afar region, the second largest number of returnees (17,488 individuals) are located within 15km distance from the Battlefield (DTM VAS 12, 08/2022).

Impact on protection of civilians

- Landmines are inexpensive and simple to use, but their effects on civilians, and in many cases humanitarian workers, are devastating (UNHCR, 01/21/2008).
- Over 300 casualties of APM/ERW have been reported in northern Ethiopia since the beginning of the conflict in November 2020, of which 57% are children (KII, 07/20/2022)
- The locations with the highest reported numbers of explosives are the Boru Meda area, Dessie town, Woldiya town, Habru (Dire Roka) and Mersa town in the Amhara region (KII, 07/20/2022), and Chifra, Kasagita and Adar woredas in the Afar region (KII, 07/18/2022).

Returnees per distances of battlefields in the Afar and Amhara regions (Mar-Apr 2022)

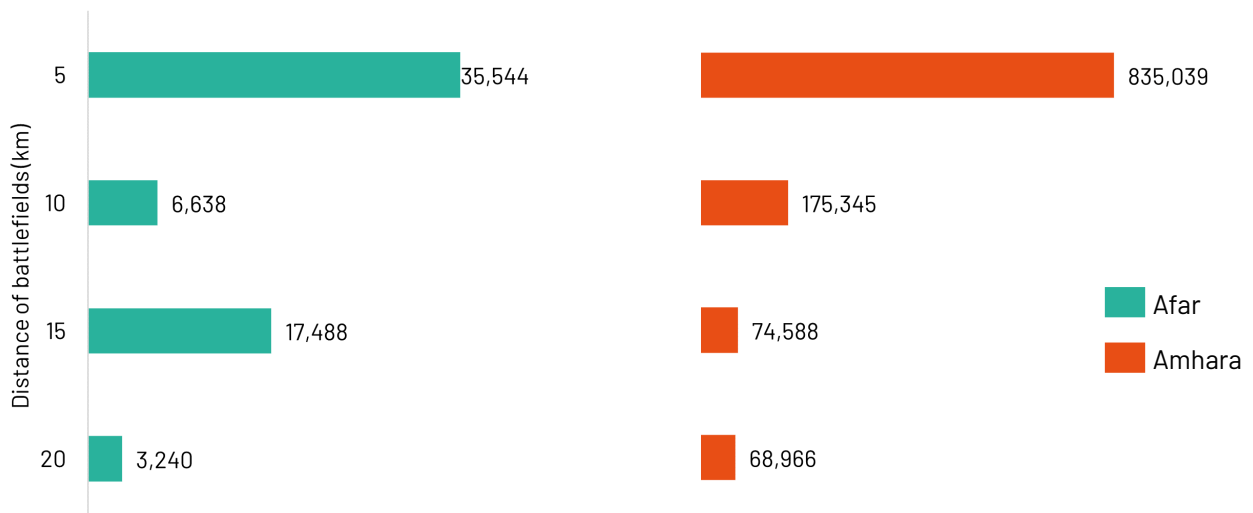


Figure 22: Returnees per distances of battlefields in the Afar and Amhara regions (DTM VAS 12, 08/2022)

- Leftover munitions are causing death and injury in Zone 2 in the Afar region. The most vulnerable and affected are children and adolescents (KII, 07/18/2022).
- Three regional health officials told Reuters that discarded explosives have maimed or killed scores of children in the Afar region, after open combat near Kasagita in December 2021. Between December 2021 and late February 2022, the Dubti Referral Hospital, in the Afar region, received about 25 cases per week of injured children from APM/ERW (Reuters, 04/27/2022).
- Communities in the Amhara region continue to be at risk of falling victims of UXO and other ERW (OCHA, 04/18/2022).
- On 17 May, a father and his three children were reportedly killed, and at least two women and three children also sustained serious injuries, due to an explosion in Bati town, Oromo Special Zone, Amhara region. Reports indicate the blast occurred when an abandoned UXO exploded. On 18 May, presence of a UXO was reported near Gashena town in North Wollo, Amhara region. UNMAS teams are currently conducting explosive ordnance risk education in the region (KII, 07/13/2022).
- According to the hospital administration and emergency ward practitioners, they have treated over 40 persons injured by explosives in Kobo town and its surrounding areas. Despite the difficulty in retrieving segregated data, they noted that the bulk of the injured are minors, and the fatality rate is roughly 25% (KII, 05/21/2022).
- In March 2022, four deaths and 18 injuries (the majority of which were children) were reported in Awsi/Zone 1 and Euwa woreda, Fanti/Zone 4 of the Afar region (OCHA, 04/18/2022).
- Prior to a field assessment in March 2022, UNMAS reviewed reports of over 90 EO casualties in the Amhara region, though reports from ACLED as of June 2022 refer to a much greater count of 262 casualties.
- Figure 23 shows the historical trend and overall proportion of fatalities by explosion in the Afar and Amhara regions from July 2021 to June 2022. While just 41% of these casualties were in the Afar region, the impact of EO per person is greater given that the region has much lower population density than the Amhara region. The Afar region suffered a spike of 130 casualties in August 2021, while the Amhara region saw between 23 and 77 monthly EO casualties between August and December 2021. The ceasefire between March and August and resumption of Explosive Ordnance Risk Education may have contributed to the lower number of casualties in both regions in 2022 compared to the previous year. However, this does not obviate the enduring threat posed by APM/ERW to civilians, long after fighting subsides. Moreover, the subsequent renewal of hostilities may result in greater APM/ERW contamination and other spill over effects on civilians across northern Ethiopia.

Fatalities from explosions in the Afar and Amhara regions (Jul 2021-Jun 2022)

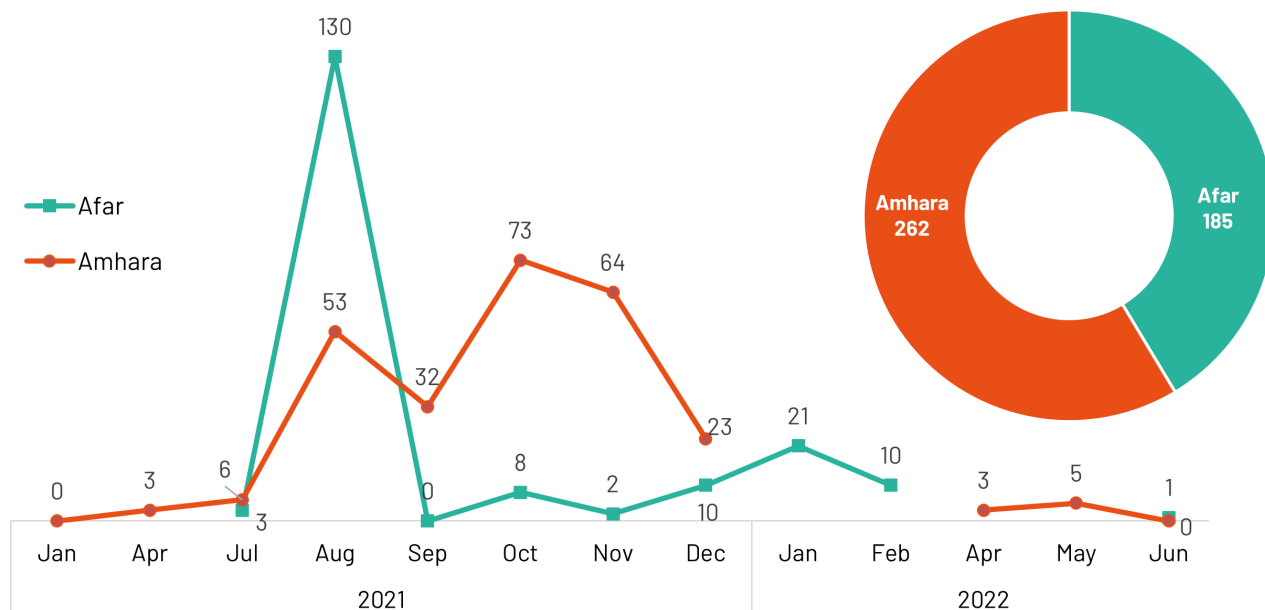


Figure 23: Timeline and proportion of fatalities from APM/ERW in the Afar and Amhara regions Jul 2021-Jun 2022 (UNMAS, 2022)

UXO and ERW Market Supply chain in the Amhara Region

- The market supply chain of UXO that caused the accident in Dessie and Bahir Dar towns was reportedly from Bistima in South Wollo, extended to Dessie town and from Dessie to Bahir Dar towns, crossing hundreds of kilometers (KII, 07/20/2022).
- Some of the iron melting factories in northern Ethiopia have been mixing ERW with other metals. Earlier this year, an explosion damaged part of the furnace of those factories and is a concern to the people working for them (KII, 07/20/2022).
- On 12 July 2022, an explosion occurred in Salayish Kebele, Dessie city, in a place named 'Segno Gebeya', injuring 11 individuals, as well as killing and injuring livestock. The cause of explosion was unloading and weighing scrap-metal materials brought from Were Babo woreda for sale ([Addis Standard](#), 07/12/2022).
- On the same day of 12 July, UNMAS implementing partners reported that an unidentified explosive device injured 42 civilians, 17 of whom sustained major injuries, though further details are unavailable (KII, 07/20/2022).

Overview of Mine Action AOR activities in the regions

Operational Presence of the MA AOR

- The MA AOR is actively working with CP and HLP AORs. It has collaborated with IOM DTM to incorporate MA related questions into data collection templates used on assessments (KII, 07/20/2022).
- The operational presence, figure 24, shows the MA AOR partners and their dedicated regions of engagement and activities that they are implementing. UNMAS is implementing all activities in Amhara and Afar regions, while RaDO and UNICEF are focused on the Afar region, and EPSS works on both regions with two activities. The activities being implemented are assessment, EORE, advocacy and coordination (KII, 07/20/2022).
- Figure 25 shows the locations/woredas that are reportedly assessed by at least one MA AOR partner related to implementation of activity or exitance of potential threat.
- The Government of Japan has renewed its commitment to promote peace and stability in Ethiopia by contributing two hundred thousand USD (approximately 10 million ETB) to the United Nations Voluntary Trust Fund for Assistance in Mine Action ([Embassy of Japan to Ethiopia, Addis Ababa](#), 02/11/2022).
- In the Amhara region, UNMAS delivered training of trainers on accidents and potential threats of EO to selected community representatives and law enforcements members, who reported high interest in the material (KII, 07/20/2022).
- Moreover, UNMAS established its first group of only female trainers to deliver EORE training to women in the Amhara region. Based on this pilot, UNMAS and MA AOR implementing partners are collaborating with the government and advancing efforts to reach a gender balance in trainings and generate broader awareness (KII, 07/20/2022).
- Different community organizations are included in the MA AOR activities, such as capacity-building, specially returnee or relocated IDPs (KII, 07/18/2022). The AOR is in discussion with service providers to share information via radio program (KII, 07/18/2022). UNMAS and the Ministry of Defense provided training for implementing organization's teams (KII, 07/18/2022).

Awareness creation

- Since 2021, the MA AOR garnered more visibility on the Humanitarian Need Overview (HNO) and the Humanitarian Response Plan (HRP), and is a member of the Humanitarian Country Team (HCT)(KII, 07/19/2022).



Explosive Ordnance Risk Education for Children at Kelwan, Afar region. Source: UNMAS.

Mine action AoR operational presence in the Afar and Amhara regions

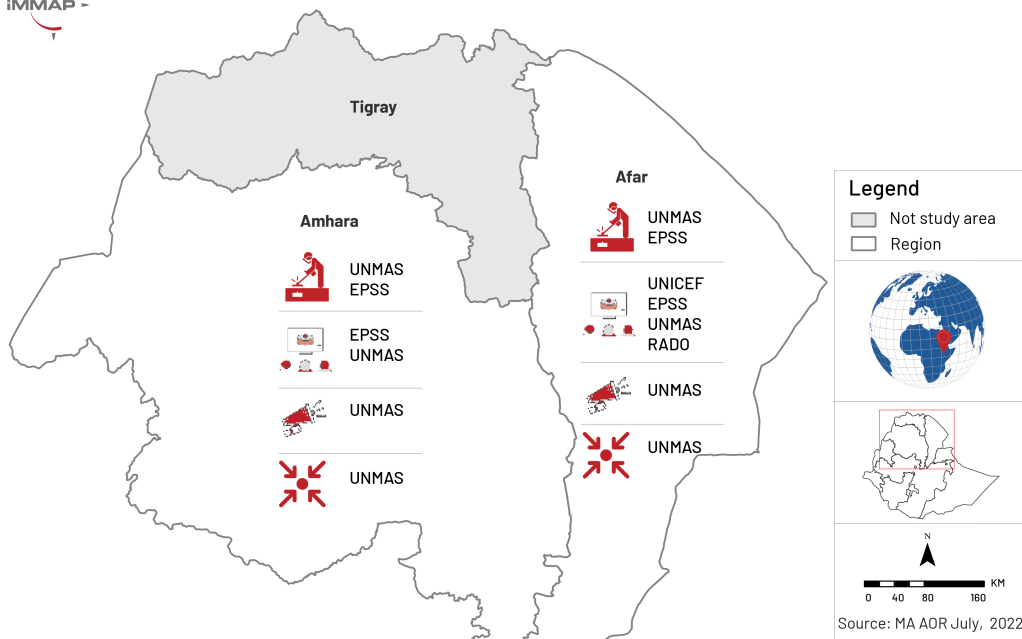


Figure 24: Mine Action AOR operational presence in the Afar and Amhara regions (MA AOR, 2022)

Locations assessed by Mine Action AoR partners in the Afar and Amhara regions

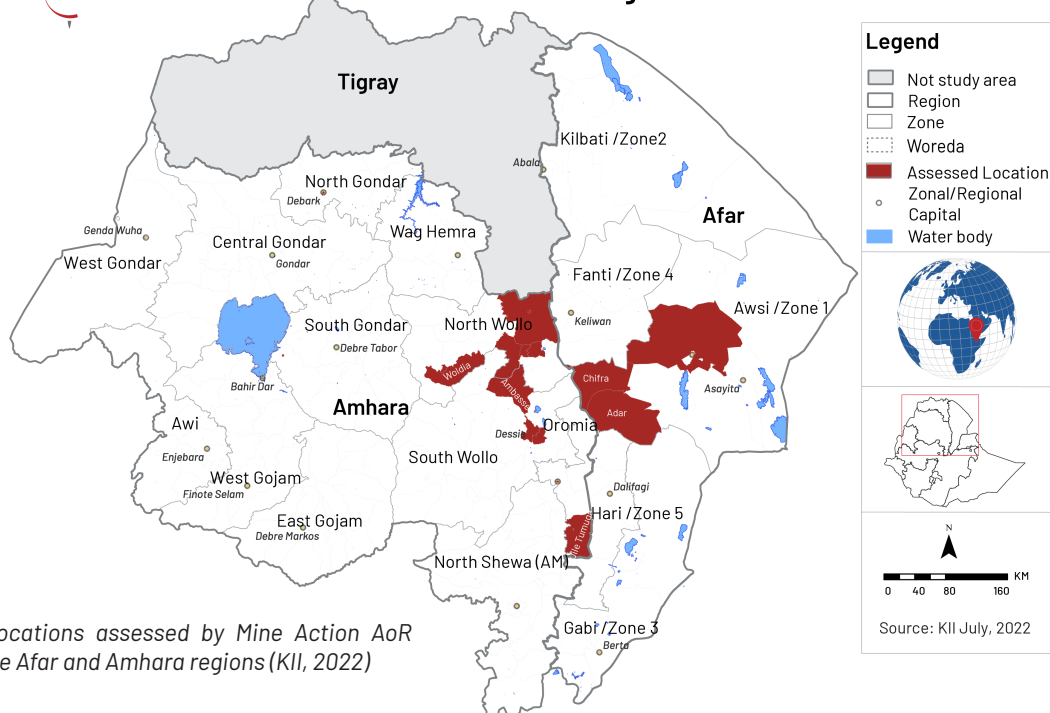


Figure 25: Locations assessed by Mine Action AoR partners in the Afar and Amhara regions (KII, 2022)

- The MA AOR is implementing broad measures to keep up with the demand and scale of the need, but it does not have enough implementing partners on the ground (KII, 07/19/2022). The number of teams and capacity of teams are at minimal level, because of the vast amount of location that the war covered in the Afar and Amhara regions (KII, 07/20/2022). Despite the above mentioned efforts, informants

report that awareness creation activities are still low, especially considering the large areas to cover (KII, 07/18/2022, 07/20/2022).

- Figure 26 shows the summary of EORE, and assessment activities conducted by UNMAS as of July 2022. The figure also justifies the result of EORE activity with a greater number of women than men reached.

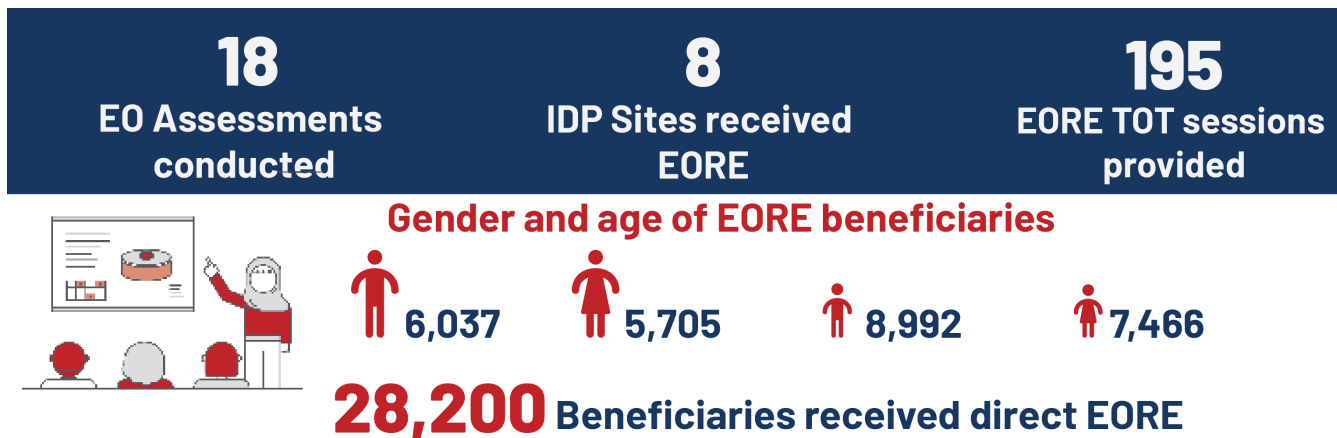


Figure 26: EO Assessments conducted/ IDP sites received EORE/ EORE TOT sessions provided (UNMAS, 2022)

Mainstreaming of Mine Action AOR

- Most mine action actors are not yet gathering and reporting sufficient data on the environmental impact of their work. The sector would benefit from increasing the evidence base of what works and what doesn't in terms of environmental mitigation interventions ([Mine Action Review](#), 10/15/2021). However, since 2021 the MA AOR got more funding and visibility on HNO HRP, which enables the AoR to be in the HCT Protection Strategy. This opened doors for more awareness creation and other activities that might increase the AOR's ability to respond to the increasing need among different potential partners on the ground (KII, 07/19/2022).
- Following the activation of the MA AOR since 2021, there is high expectation on awareness creation of APM/ERW. As such, the MA AOR should strengthen its capacity to coordinate activities among partners and beyond (KII, 07/21/2022).

Data and Information Management challenges

- Access is the main challenge that restricts data collection (KII, 07/19/2022). To resolve this, the DTM questionnaires were amended to incorporate MA AOR related questions on the survey tool (KII, 07/19/2022).
- There are challenges to identify where the explosives are scattered across the Afar and Amhara regions. In these regions, some ad-hoc missions are underway to better assess APM/ERW contamination (KII, 07/20/2022). Moreover, the regional and sub regional officials are reportedly highly cooperative in terms of mobilizing the community for EORE (KII, 07/18/2022).
- The MA AOR is new, and thus faces challenges on cluster coordination personnel, Information Management and limited number of implementing partners, though it is making progress on coordination (KII, 07/19/2022).

Conclusions

The report reveals the presence of significant explosive ordnance contamination in areas of northern Ethiopia where there has been intense fighting since November 2020.

This significantly affects the protection of local communities, IDPs, and returnees. Explosive ordnance is hindering access to basic services such as health, food, livelihood, WASH, agriculture education, etc. For example, community members report being fearful of accessing food aid, reaching arable lands to plant crops, conducting pastoral activities, fetching water, or going to schools. EO is also contaminating some water sources with explosive residue. Thus, mine action is related to, and should be coordinated with other humanitarian sectors.

The lack of clear mapping of ERW infestation and absence of victim case records in the hospitals inhibits an assessment of the extent of contamination and types of ERW killing and injuring civilians. Based on secondary data review, key informant interviews, and remote sensing and satellite imagery, this report can be used as a baseline information for further analysis of the extent of the land mine contamination in the affected regions. However, primary data collection and subsequent assessments are required to better determine the scope and impact of mine contamination across northern Ethiopia.



Better Data
Better Decisions
Better Outcomes



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