BRIEFING PAPER 2024

Explosive Weapons in Populated Areas (EWIPA), Contamination and Mine Action in Syria

Explosive weapons have been used indiscriminately in Syria. The ordnance from explosive weapons may detonate on impact or lay dormant until initiated. As a result, Syria is heavily contaminated by remnants of explosive weapons. Contamination by explosive ordnance represents not only an immediate physical threat to civilians but also prevents safe access to services or humanitarian aid, endangers civilian movements and their ability to return safely, and poses long-term dangers as explosive remnants of war.

Destruction of the city of Kobané and the presence of explosive remnants of war. April 2015. © Ph. Houliat / Humanity & Inclusion

Since the start of the war in Syria in 2011, it is estimated that more than **1 million explosive munitions have been used across the country**, primarily in populated areas. **In any given context, generally, 10-30% of used munitions fail to detonate**, **leaving** high levels of **contamination** with

landmines, explosive ordnance (EO), and improvised explosive devices (IEDs) that continue to pose a threat of injury and death. In Syria, an estimated 14.4[1] million civilians are at risk from explosive ordnance, with contamination heavily impeding access to basic services, humanitarian aid and livelihood opportunities. In Syria's cities, explosive hazard contamination impedes access to roads, critical infrastructure like schools, hospitals, bridges, and commercial properties, as well as large-scale contamination in residential areas. Recovery efforts in urban centres remain particularly challenging as explosive hazards can lie in wait, hidden under the rubble of damaged or destroyed buildings.

EO contamination impacts 146 sub-districts (54% of all sub-districts) across Syria[2], however, the full picture of EO contamination levels remains unknown, as no country-wide non-technical survey to identify and mark EO has ever been conducted. Based on the annual number of incidents compared with the pace of clearance, **it is estimated that the time for clearance would be measured in decades rather than years** to be able to remove enough explosive remnants of war (ERW)[3] to be able to declare Syria a "low impact" country.[4]

Impact on people's health and safety

Explosive Ordnance (EO) Contamination causes injury, death and psychological trauma throughout Syria every day. Based on open-source data (ACLED and other sources) between 1 January 2017 and 31 December 2023, a total of 71,289 EO incidents were recorded, making it an average of 31 EO incidents per day. During the most intense period of fighting in Syria, between November 2018 and February 2020, at least 12,000 people were victims of explosive ordnance - over a third of whom were killed[5]. While the major military operations have subsided, sporadic outbreaks of violence, especially since the war in Gaza began in October 2023, have added new layers of contamination or re-contaminated some of the already cleared areas, rendering the need for new surveying and new clearance operations, especially in areas around Idleb, Aleppo, Raqqa and Hassakeh. At the same time, the frequency of EO incidents is not significantly abating, as economic instability coupled with reductions in aid pushes people to adopt negative coping mechanisms and pursue livelihoods in areas known to be contaminated with EO.

[1] Syrian Arab Republic: 2024 Humanitarian Needs Overview

[2] Ibid.

[3] https://www.newsdeeply.com/syria/articles/2017/11/08/women-at-forefront-of-humanitarian-demining-efforts-in-syria.

[4] Mine action actors maintain that a country can never be declared "mine/UXO free", as the risk of residual ordnance always remains. "Low impact" means that that, while some ERW/UXOs might still be in situ, the major contamination has been removed, rendering civilian infrastructure safe and making it possible for people to lead a normal life, without ERW/UXO threat.

[5] UNMAS, 'Facts & Figures Victims of Explosive Ordnanace Accidents in Syria', May 2020,

Unaddressed contamination with ERW also leads to inadequate health and rehabilitation services and socio-economic deprivation that are prohibitive to return. The 'battle for Raqqa' in 2017, for instance, displaced 270,000 people[6], and despite intense efforts to remove EO from key infrastructure, Raqqa remains one of the most heavily contaminated places on earth[7]. Recurrence of violence across Syria and natural disasters have been the main culprits in both new contamination and recontamination of areas previously cleared by humanitarian mine action operators. As an example, natural disasters and shocks, such as the devastating earthquakes that struck mostly Northwest Syria in February 2023 and flash floods caused by the heavy rainfall during winter, have moved the existing EO, rendering large swaths of urban and rural areas unsafe and in need of urgent resurveying and clearance work. Renewed sequences in outbreaks of violence, especially in Idleb, Aleppo, Deir ez-Zor, rural Damascus, Sweida and Daraa - particularly attacks on Idleb and Aleppo since October 2023, as well as frequent attacks on Northeast Syria also since October 2023 – have added new layers of contamination in those areas and continue to put lives at risk. According to the annual Landmine Monitor report, Syria has been recording the largest number of EO casualties for three consecutive years and accounts for more than one-third of all casualties across the world.

Salam was injured by a remnant of a cluster munition in Syria in 2015. Booby traps, improvised landmines and explosive remnants of war heavily contaminate Syria. © S.Khlaifat / HI

[6] https://www.unhcr.org/news/briefing-notes/growing-concerns-syrian-civilians-amid-intense-fighting-al-raqqa-and-deir-ez

[7] https://www.voanews.com/extremism-watch/landmine-removal-crucial-post-syria.

Increased use of incendiary weapons

Since October 2023, Mine Action actors in Northwest Syria recorded an increased use of incendiary weapons in populated areas, most notably napalm and white phosphorus (WP). Both substances are highly inflammable, dangerous chemical compounds that cause life-threatening burns, asphyxiation and death. WP fires are particularly difficult to extinguish and manage, as the substance ignites and burns spontaneously when it comes in contact with oxygen, and objects need to be fully submerged in water or sand in order to suffocate the flames. The last use of incendiary weapons in Syria was recorded in 2020, however since October 2023 Open source data recorded 11 incidents involving incendiary weapons, most of which were documented to have been used in populated areas.[8]

Killer (suicide) drones as a new warfare

Since October 2023, the use of killer (suicide) drones emerged as a type of warfare in Syria, with Syrian Civil Defence (The White Helmets) documenting 41 killer drone attacks between January to May 2024 alone[9] . About half of those attacks are reported to target civilian vehicles (mostly cars and motorcycles), posing a serious threat to the safety of civilians moving in the vicinity of targeted objects. Furthermore, the documented attacks have also had a resounding impact on people's livelihoods, especially when missing their intended "targets", inherently affecting agriculture and overall food security in Northwest Syria. Beyond injury and death, killer drones cause psychological distress to the population as targets are often unpredictable. Although intended to target specific objects, primitively constructed killer drones can fail the intended aim and indiscriminately detonate in civilian areas. Related to this, an additional concern is the fact that materials for killer drones can be relatively easily acquired and assembled, all at a minimal cost.

Cost of inaction

Contamination, injury, and death can only be prevented through a long-lasting cessation of hostilities across Syria and the deployment of **comprehensive humanitarian mine action (HMA) activities**. HMA incorporates land release activities (survey and clearance to find and remove ERW/EO), risk education, victim assistance and advocacy. Furthermore, HMA, especially its land release pillar, is a prerequisite and a key enabler for medium to long-term humanitarian interventions, most notably food security and livelihoods, early recovery, water and sanitation, health, education, etc. Consequently, and given the catastrophic state of the Syrian economy that purports urgent upscale in livelihood support, there is an immediate need to **scale up all pillars of humanitarian mine action, particularly clearance** and risk education activities. All these require **funding** at a time when the funding fatigue for Syria and the needs in the country are both on the rise. The Mine Action appeal in the 2024 Humanitarian Response Plan (HRP) indicates that **USD 51 million**[10] is needed for mine action interventions. As high as 46 million are required to

[8] Open source data on incidents.

[9] Suicide Drone Attacks in Northwest Syria: A new Threat to Civilians

[10] https://reliefweb.int/report/syrian-arab-republic/2024-syria-humanitarian-response-plan-funding-overview-25-july-2024

cover critical HMA needs in areas with high severity levels. At the close of 2023 HRP, the Humanitarian Mine Action sector reported to only have secured 20% of funding.[11] As of October 2024, ten months into the response, Whole of Syria (WoS) HMA Area of Responsibility reports that only 13% of its HRP ask had been funded. Without a complete turnaround on funding for HMA, communities in Syria will continue to suffer from injury and death while trying to take care of their families or go about their daily business.

Urgent Concerns

Explosive Weapons Contamination

- Widespread **contamination** with explosive remnants of war (ERW) is the result of **intense use of explosive weapons in populated areas** in Syria, **including repeated use of landmines, cluster munitions, improvised explosive devices (IEDs) and other banned weapons**.[12]
- Improvised Explosive Devices **(IEDs), including booby traps and improvised landmines are particularly unpredictable** and difficult to detect and clear, consequently increasing the threat they pose to civilians.
- While large-scale violence in Syria has generally receded, the country recorded the highest number of annual casualties (834) globally for the third consecutive year.[13] 2023 witnessed the continuation of ground clashes, aerial bombardment, destruction of critical civilian infrastructure by Government of Syria forces, civilian unrest, IED attacks, detonation of mines and UXOs, spontaneous attacks carried out by ISIL, and tribal and community disputes, all of which have noticeably reduced civilians' standard of living and will likely continue throughout 2024 and beyond.[14]While all population groups are at risk**,** most affected population groups include children, who may pick up unknown items, IDPs, who may not know the localized threats, and agricultural and re-construction workers, who may come across EO whilst working.[15] The use of EWIPA also has a devastating effect on people's living environment, and their access to services.
- **Aleppo** has the highest number of damaged or destroyed structures, followed by **Eastern Ghouta**, **Homs** and **Raqqa, while Hama** has both the highest number and density of

[11] UNMAS, 'Syria', https://www.unmas.org/en/programmes/syria.

[12] Mine Action Review, 'Clearing Cluster Munition Remnants', 2019, available online at: http://www.mineactionreview.org/assets/downloads/Syria_Clearing_Cluster_Munition_Remnants_2019.pdf

[13] Landmine Monitor 2023

[14] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

[15] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

destroyed structures.[16] All locations saw heavy aerial bombardment, leaving **roads, housing, schools, health centres, and water and sanitation systems** either destroyed or rendered non-functional.

- Before the February 2023 earthquakes, the war made an estimated 328,000 dwellings uninhabitable; a further 600,000 to one million dwellings were moderately or lightly damaged, according to the United Nations Human Settlement Programme (UNHABITAT).[17]Presence of UXOs is most frequently reported on agricultural land, roads, private property, schools, other public infrastructure and hospitals; they constitute one of the top impediments to the safe delivery of humanitarian aid and assistance to people in need.[18]
- At least **50% of Syria's sewage systems were rendered non-functional.**[19] Furthermore, left uncleared, EO contaminates waterways and irrigation systems, arable land and emits hazardous substances that threaten to leave long-term environmental consequences. An estimated **one third of schools and houses** have been **damaged or destroyed** and nearly half of health facilities are not fully functional due to hostilities; From January to December 2023, 25 attacks on health facilities were recorded. In addition, 27 schools and 20 water systems were impacted by shelling during the same period, affecting their functionality. 2023 earthquakes have further aggravated the situation, especially in the four worst affected governorates (Lattakia, Aleppo, Idleb, and Hama).[20]
- The use of drone-delivered explosives with an impact on health care also increased since October 2023. In Kobani in Northeast Syria, drone-delivered explosives destroyed a hospital serving 110.000 people in the city.[21]
- The use of explosive weapons in urban areas has devastating consequences for civilians and their communities, including the health care system. Without enhanced efforts to find and remove EO from critical infrastructure, the threat will continue to persist for decades to come.
- 8 in 10 agricultural fields in Syria are contaminated with EO. Given the catastrophic economic situation, lost access to productive land for livelihoods and settlement **reinforces poverty, further destabilises communities and undermines opportunities for recovery.**

[16] REACH, Syrian Cities Damage Atlas, 2019, available online at: https://reliefweb.int/sites/reliefweb.int/files/resources/reach_thematic_assessment_syrian_cities_damage_atlas_march_2019_reduced_file_size_1.pdf

[17] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

[18] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

[19] Annual Humanitarian Needs Overview Syrian Arab Republic [HNO] publications.

[20] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

[21] https://www.doctorsoftheworld.org.uk/news/new-attack-on-healthcare-facilities-in-syria/

Minimum Prerequisites for Safe and Dignified Return

- **Humanitarian actors cannot ensure that the conditions for safe and dignified return for IDPs and refugees are met** unless they have full and unfettered access to contaminated localities.
- A technical **explosive hazards survey** is required **to further assess and understand the threats**, determine clearance priorities and inform the population and humanitarian actors in affected areas. **Marking and removal** of explosive hazards is required on the roads and in areas of potential return and humanitarian intervention. This work requires time due to the **improvised, diverse and widespread** nature of the contamination. To the date, no Syria-wide explosive hazards survey has been conducted, mainly due to access constraints. Progress has been made to identify contaminated areas in Northeast Syria, however funding for clearance remains unsecured.

The Impact of Blast Injuries

There are four basic mechanisms through which an explosive weapon can cause harm to the human body:

- **Primary Blast Injury**: the result of a **shock wave** that leads to **fragmenting and shearing of tissue in air-filled organs**, such as ears, lungs, stomach and intestines, **and organs that are surrounded by fluid**, like the brain;
- **Secondary Blast Injury**: caused by **flying fragments or debris;**
- **Tertiary Blast Injury**: caused by the **supersonic wind** which can pick up and throw anyone close enough to the explosion to feel its effects.
- **Quaternary Blast injury**: injuries indirectly caused by the explosion, such as **burns, crush injuries and choking** caused by asphyxiating dust.[22]

Not captured in this classification, however, is the **psychological impact for survivors**, families of those killed or injured, and affected communities:

- According to the 2024 Humanitarian Needs Overview, psychological distress among both men and women in Syria was already at alarming rates in prior years, with 60 per cent of households interviewed reporting signs of distress among male adult household members and 58 per cent among female adult members. **Three-quarters** of people with mental health conditions receive no treatment at all, and the 2023 earthquakes have further aggravated the situation.

[22] Centers for Disease Control and Prevention, 'Explosions and Blast Injuries: A primer for clinicians', 2019.

- 34% of girls and 31% of boys reported psychosocial distress according to the household survey conducted in northern Syria. The rapid assessments conducted in earthquake-affected areas (GoS-controlled areas and Northwest Syria) showed a high number of children exhibited severe behavioural psychological distress (83% of respondents).[23]

A large survey of 25,000 Syrians treated by a health NGO in Syria showed that just **over half** of those treated had been injured by explosive weapons, and **four out of five** of these survivors expressed high signs of **psychological distress.**[24] A new, updated survey has yet to be conducted, however given the uptick in hostilities in 2023, combined with the alarming economic situation and sluggish post-earthquake response, it is anticipated that the situation has deteriorated.

Recommendations

To parties to the conflict:

- **Immediately stop all use of explosive weapons** with wide area effects in populated areas.
- Immediately abide by international humanitarian law and UN Security Council Resolution 2286 (2016), which specifically refers **to the bombing of hospitals and health facilities**;
- Support **full and unfettered humanitarian access** for all international and national NGOs, regardless of the communities they serve and current modalities and areas of operation. Further, the protection of humanitarian actors, as reaffirmed in UNSC resolution 2730, in particular local staff, should be prioritised and reaffirmed as an essential component of humanitarian access, to ensure the continuity of the service delivery.
- Create an **enabling environment** for organisations that **conduct mine clearance activities, risk education sessions and victim assistance programs**, including by **speeding up accreditation processes for organisations seeking to implement MA activities;**
- Build **sustainable community knowledge** through awareness and education about the risks posed by the use of conventional weapons, including unexploded ordnance.

To donors and UN agencies:

- Recognise that **humanitarian mine action is a prerequisite to any immediate, medium or long-term recovery, and ensure that** humanitarian mine action activities are more strongly integrated into other sectors in Syria.

[23] Syrian Arab Republic: 2024 Humanitarian Needs Overview (February 2024)

[24] Humanity & Inclusion, 'The Waiting List', 2019, https://humanity-inclusion.org.uk/sn_uploads/document/the-waiting-list-report-Humanity-Inclusion-2019.pdf.

- Commit humanitarian funding to **fully meet existing funding needs** and **significantly scale up mine action activities**, i.e. risk education, victim assistance, technical and non-technical surveys, clearance of mines and explosive remnants of war and advocacy.
- **Include resources in calls for proposals** that focus on the **effects of the use of explosive weapons** and better **data collection, monitoring and reporting** measures on affected populations, in a gender, age and disability inclusive manner.
- Encourage the use of a **comprehensive mine action approach** that includes:
    - **Risk education** about the dangers of explosive weapons and risk mitigation measures.
    - **Victim assistance that offers** multi-disciplinary health services, i.e. **physical & functional rehabilitation**, prosthesis and orthotics (P&O) services, provision of assistive devices, **psychosocial support** (PSS), and **socio-economic support** through emergency distributions and livelihood activities.
    - **Survey and clearance of contaminated land and disposal of UXOs** as a prerequisite to humanitarian and early recovery interventions to enhance safety of Syrians in need of services and of humanitarian actors implementing activities.
    - **Advocacy** to encourage a change in mindset and policies about inclusion of mine action in planning and implementation of humanitarian and early recovery response.
- Require that recipients of mine action funding (including any sub-grantees/sub-contractors) conduct their activities in line with the **International Mine Action Standards and humanitarian principles**, and mainstream **a gender, age and disability perspective.**

To the UN Security Council:

- Ensure that **paragraph 11 of United Security Council Resolution 2401** (2018) which 'calls for humanitarian mine action to be accelerated as a matter of urgency throughout Syria', reiterated in paragraph 25 of S/RES/2449 (2018), is **implemented immediately**.

To UN member states:

- Enhance efforts to ensure compliance with the international humanitarian law, and actively work to prohibit **the use of explosive weapons with wide-area effects in populated areas**, with particular focus on prohibition of use of explosive weapons with wide-area effects to target critical civilian infrastructure (e.g. schools and hospitals) where civilians are especially likely to be injured and killed.
- Require **immediate compliance of all states to Protocol III of the Fourth Geneva Convention** to stop the use of incendiary weapons, and request from normative bodies a better guidance on mitigating risks for civilian populations.

- Immediately initiate serious dialogue among all states to **regulate the use of artificial intelligence and unmanned aerial vehicles/remotely piloted vehicles in warfare**, and request from normative bodies a **better guidance on mitigating risks for civilian populations**.
- States that have endorsed the **2022 Political Declaration on Explosive Weapons** should urgently **implement its commitments**, such as reviewing and revising their military policies and practices to further **strengthen the protection of civilians during conflict**, **allowing humanitarian access and ensuring assistance to affected population**, among others.
- All States that have not done so, should **endorse the 2022 Political Declaration on Explosive Weapons** and embed in their national policies and practices the recommendations of the UN Secretary-General and ICRC that parties to a conflict should **avoid the use of explosive weapons** with wide-area effects in populated areas.
- States should **comply with the requirements of the Arms Trade Treaty** and avoid supplying or enabling users of explosives weapons who do not comply with IHL.
- Concerned countries should continue to **publicly call for action to address the severe harm to individuals and communities** caused by both the direct and indirect use of explosive weapons in populated areas.

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