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Explosive Weapons Use in Syria, Report 3

Northwest Syria: Aleppo, Idleb, and Latakia Governorates

Syria Conflict Mapping

August 2020

Table of Contents

Executive Summary	2
Introduction	3
Main Study	5
Aleppo Governorate	7
Idleb Governorate	11
Latakia Governorate	14
Conclusions	18
Appendix - Terminology	23

Executive Summary

- This study aims to analyze and visualize The Carter Center Syria conflict mapping data to show the distribution and type of explosive weapons used in northwest Syria (Aleppo, Idleb, and Latakia governorates) between July 2013 and May 2019.
- This study recorded at least 113,107 uses of explosive munitions from 30,425 conflict events in Aleppo, Idleb, and Latakia governorates between July 2013 and May 2019. *Conflict continues at the time of publication and the numbers have increased.*
- Around 50% (56,823) of the total explosive munitions used in the northwest of Syria were ground-launched explosive munitions, and 47% (53,156) were air-dropped munitions.
- Explosive weapons impacted 1,414 communities, with 46% of activities concentrated in just 21 areas: Aleppo city, Fo'ah, Khan Sheikhun, Tamanaah, Kafraya, Jisr al Shughour, Hobit, Haritan, Maraat al Numaan, Saraqab, Idleb city, Akrad mountains, Kabani, Kafr Hamra, Handarat, Turkman mountains, Ain al Arab, Al Bab, Hayan, Badama, and Khan Touman.
- When the findings of this report were added to previous studies focused on southern Syria and areas around Damascus city, the total adds up to at least 244,103 uses of explosive munitions in 1,987 identifiable communities, with 50% of all explosive munitions use centered in just 26 communities.
- If a failure rate of between 10% and 30% is applied to these findings, that would mean that between 24,430 – 73,290 explosive munitions failed to detonate in northwest Syria, southern Syria, and the Damascus area (and the count is likely much higher).
- Four years were required to clear 11,540 explosives in Iraq and 23 years to clear 86,000 explosives in Mozambique, so the explosive munitions contamination in Syria is likely to require decades to clear.
- Clearance efforts should not be viewed only in monetary terms and timelines, but as a holistic effort that encompasses humanitarian action, development, conflict prevention and peacebuilding.

Introduction

Since 2011, there has been widespread use of explosive weapons by all sides in the Syrian conflict. Because of a variety of factors, a portion of these either fails to detonate, becoming unexploded ordnance (UXO), or is abandoned, becoming abandoned explosive ordnance (AXO). These explosive remnants of war (ERW), in addition to landmines and improvised explosive devices (IEDs),¹ pose a threat to a population long after the violence has stopped. Not only can these explosive munitions continue to kill and injure people for decades, the presence of these weapons can hold back a community's development for generations.

On-the-ground assessments, surveys, and clearance operations are some of the most effective ways to address the physical threat of explosive munitions contamination. In Syria, this can be challenging because of access and security constraints in parts of the country, as well as because of complex international funding pressures on humanitarian entities that respond to explosive munitions, known as humanitarian mine action (HMA) organizations.

Given these restraints, HMA organizations have turned to desk-based studies as a way to prepare for future activities while they wait for conditions on the ground to improve enough to start operations. One method for doing this is to map and analyze conflict data to try to infer the locations of potential explosive munitions contamination. This is conducted with the understanding that a variety of conditions influence whether a UXO will occur, including firing conditions, weather, ground type, and age of munitions. Combining this information with other data – such as casualty figures, population displacements caused by UXO, and humanitarian need assessments, among others – can help prioritize areas most in need of clearance. This also helps create a basic risk assessment tool for HMA organizations to reduce risk of death or injury to their own staff.

In 2019, the Carter Center's Syria project began working on this complex, multigenerational issue by conducting its own desk-based study. It used its unique data set on explosive weapons use in Syria between 2013 and 2019 and an innovative new method (Figure 1) to extrapolate, analyze, and visualize data.

¹ While IEDs are generally considered separate items in this study, the Center recognizes difficulty in their classification in the humanitarian mine action (HMA) world. IEDs can share much with AXO, ERW, and landmines. For example, a pressure-plate triggered IED can be considered a landmine. An IED that has been placed but fails to detonate can be considered an UXO. An IED that has not yet been placed could be considered AXO.

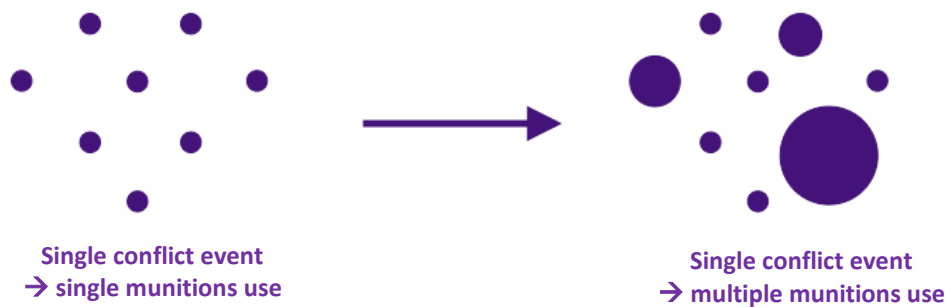


Figure 1. Traditionally, HMAs have used conflict events to count explosive munitions by assuming that a single conflict event is equivalent to a single munition use (left). The Center, however, counts the number of munitions used per conflict event to provide a more accurate depiction of potential contamination levels of explosive munitions (right). See our [previous report](#) for further details on the Carter Center’s methodology.

Using open-source data, typically not used by HMA organizations,² the findings provide a window into the scale and complexity of explosive munitions use (and therefore potential contamination) in Syria. Through four reports focused on different areas of Syria – Southern Syria, Damascus and Rural Damascus, Northwest Syria, Northeast Syria -- the first two of which have already been published [here](#) and [here](#), the studies provide information about four broad categories of explosive weapons used in Syria in the conflict: 1) *air-launched explosive weapons*, 2) *ground-launched explosive weapons*, 3) *cluster munitions*,³ and 4) *landmines, IEDs, or UXO*. Within each category is at least one munitions type, which provides further detail on explosive munitions use (see Figure 2).

For ease of use by humanitarian partners, the data uses United Nations Office for the Coordination of Humanitarian Affairs (UNCOHA) mapping standards, which detail locations to the neighborhood level.

This study may be helpful for entities at the working level, as it will add detail and guidance when planning and prioritizing their work. At the higher level, the study will raise awareness of the complexity and scale of explosive weapons contamination in Syria to operational planners and policy-makers.

² It is important to note that while The Carter Center strives to record as many conflict events as possible, given the restrictive reporting environment in Syria and the high volume of violence, it is likely that some incidents have not been recorded. This is the reason why the figures presented in this report are viewed as a minimum representation of explosive munitions use in Syria rather than an exact depiction of the situation.

³ This is counting the number of cluster munition carriers (i.e. containers that contain multiple bomblets) rather than individual bomblets themselves.

Main Study

Using primarily open-source data collected by the Carter Center’s Syria conflict mapping project and the [Armed Conflict Location & Event Data Project](#) (ACLED), the report examines 30,425 conflict events from the northwestern governorates of Aleppo, Idleb, and Latakia. These events produced a minimum_count of 113,107 individual uses of explosive munitions in these areas from July 2013 to May 2019.⁴

Munitions Category	Munitions Type	No. of Munitions Used	% of Total
Air-launched	Helicopter-dropped	12242	10.82%
	Airplane-launched	40914	36.17%
Cluster	Air/ground cluster munitions	883	0.78%
Ground-launched	Artillery shells	6750	5.97%
	Anti-Tank Guided Missile (ATGM)	145	0.13%
	Cruise missile	2	0.00%
	Grenades	51	0.05%
	Mortar shells	5249	4.64%
	Rockets	8016	7.09%
	Rocket-Propelled Grenade (RPG)	1	0.00%
	Shells unknown type	36384	32.17%
Landmine, IED, UXO	Tank shells	225	0.20%
	IED/unknown explosive	1438	1.27%
	Landmine	216	0.19%
	Person-Borne IED (PBIED)	99	0.09%
	Suicide Vehicle-Borne IED (SVBIED)	95	0.08%
	Unexploded Ordnance (UXO)	38	0.03%
Vehicle-Borne IED (VBIED)	359	0.32%	

Figure 2. Breakdown of explosive weapons types used in Aleppo, Idleb, and Latakia governorates. The “munitions types” describes the type of munition used in the conflict event. Please see Appendix A for definitions.

The majority of explosive munitions used in the northwest were from ground-launched weapons of various types (50%), and air-dropped explosive munitions from airplanes and helicopters (47%). Exploring these figures further, airplane-launched munitions and shelling of unknown types made up 68% of all documented activity. Helicopter-dropped barrel bombs (12,242), rockets (8,016), artillery (6,750), and mortars (5,249) of various types made up 29% of the total number of munitions use in the northwest. The remaining

⁴ As violent conflict continues at the time of writing, the total is likely higher.

3% of activity was split between various types of ground-launched weapons, cluster munitions, landmines, and IEDs (Figure 2).

Explosive weapons impacted 1,414 identifiable communities⁵ throughout northwest Syria. Notably, a quarter of all explosive munitions use in northwest Syria were recorded in just three locations:⁶ Aleppo city, the formerly government of Syria (GoS) controlled enclave of Fo’ah (an area just 4 km by 4 km), and the former opposition-held town of Khan Sheikhoun (similar in size at 3.5 km by 3.5 km.) Another 18 communities in northwest Syria were impacted by 21% of munitions use in the northwest.⁷ The remaining 54% of activity was split between 1,301 communities or neighborhoods throughout Aleppo, Idleb, and Latakia governorates. Of note, though Aleppo Governorate as a whole recorded the majority of explosive munitions uses in northwest Syria, four of the top five communities with the highest munitions use in the northwest are in Idleb Governorate (Figure 3 and 4).

The following sections review each governorate in detail.

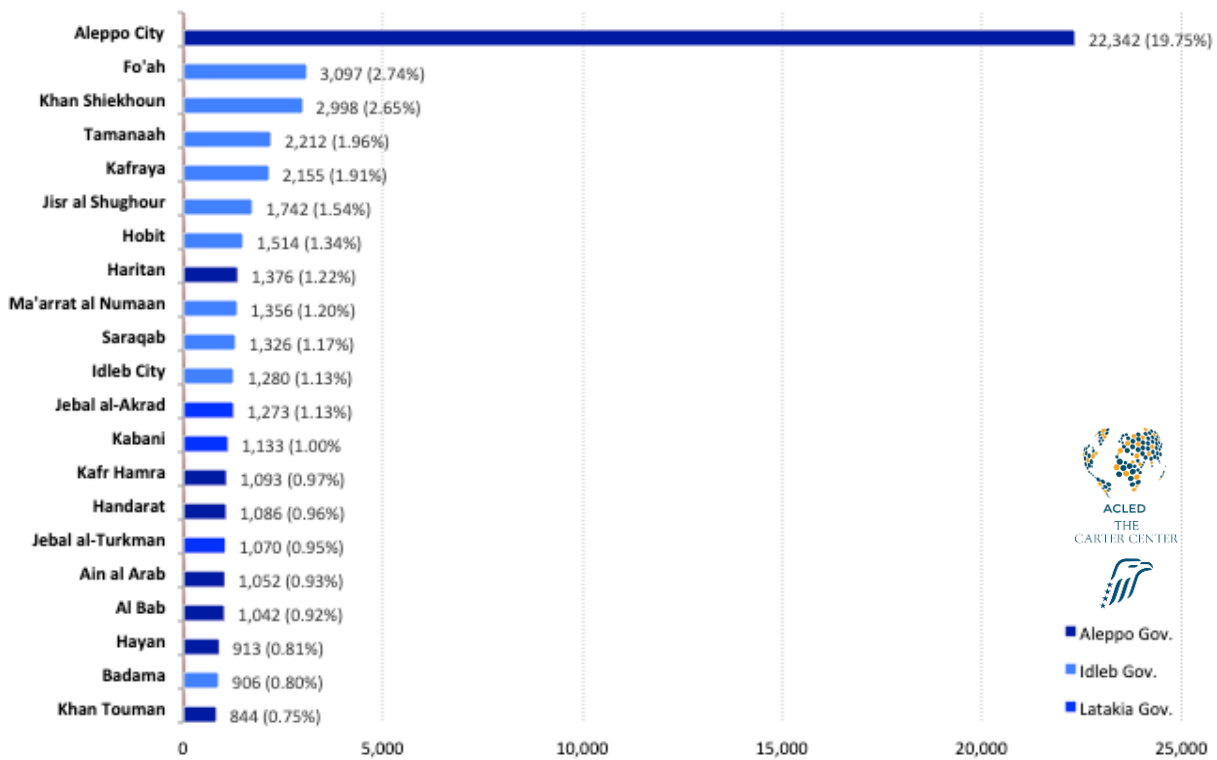


Figure 3. The 21 communities that were impacted by 46% of all munitions use in northwest Syria.

⁵ The term “communities” refers to a town, city, neighborhood, or point of interest with an associated latitude and longitude.

⁶ When all 81 neighborhoods and areas in Aleppo city are combined.

⁷ Including 14 neighborhoods within Idleb city that have been combined.

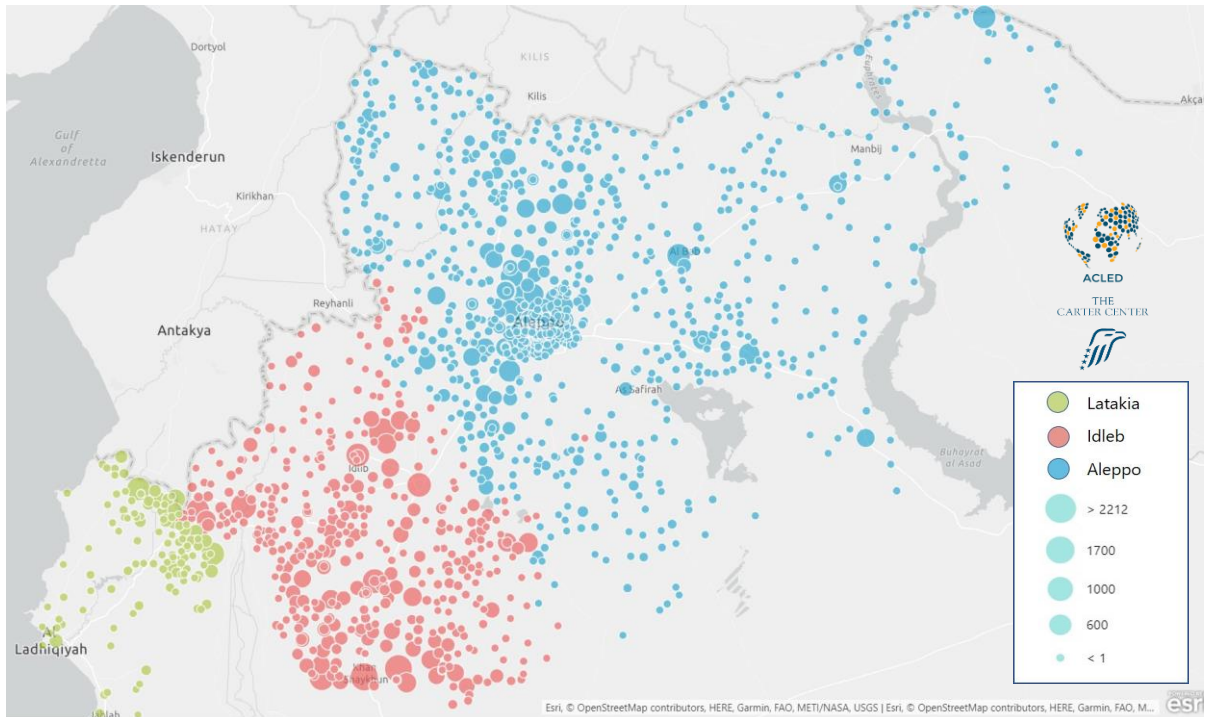


Figure 4. Explosive munitions use across Aleppo, Idleb, and Latakia governorates.

Aleppo Governorate

There were at least 58,084 uses of explosive munitions recorded in Aleppo Governorate in 18,221 conflict events. These activities affected 824 identifiable communities, more than communities in Idleb and Latakia governorates combined.⁸

Ground-launched munitions – mostly shelling of unknown types – made up 50% of all munitions used in the Aleppo Governorate. Munitions dropped by airplane and helicopter represented just under half of all munitions used in the governorate. The remaining 3% of activity was split between landmine, IED, UXO, and various other ground-launched explosive munitions, including 516 cases of cluster munitions, an internationally banned weapon. See Figure 5 and 6 for more details.

⁸ Explosive munitions affected 443 communities in Idleb Governorate and 141 communities in Latakia Governorate.

Breakdown of Explosive Munitions Categories in Aleppo Governorate

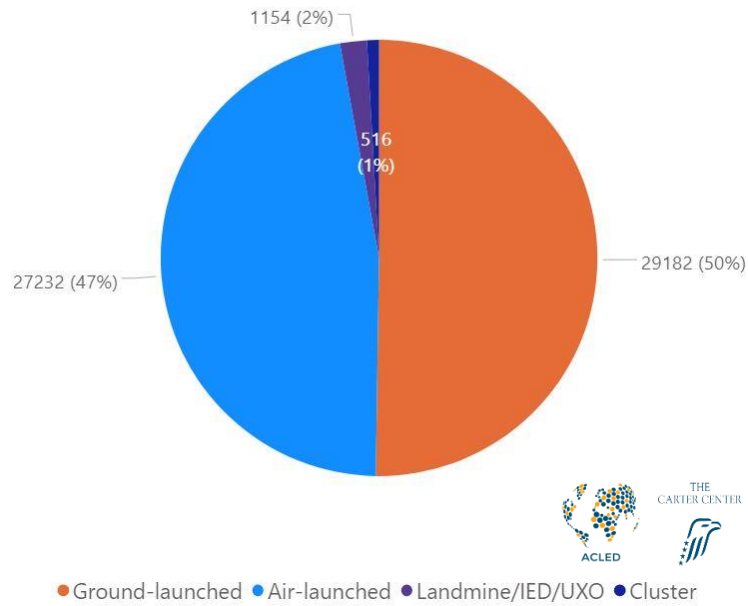


Figure 5. Breakdown of explosive munitions categories in Aleppo Governorate.

Breakdown of Explosive Munitions Type in Aleppo Governorate

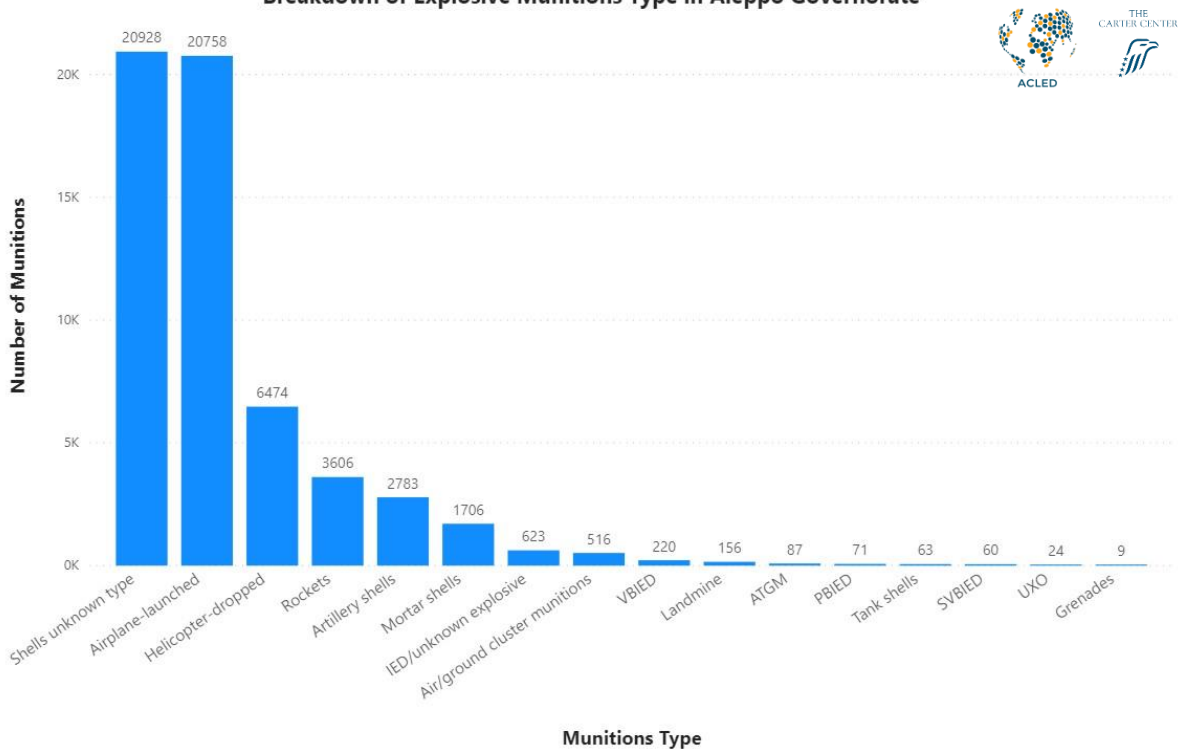


Figure 6. Breakdown of the 18 different explosive munitions types in Aleppo Governorate.

Seventy-five percent of all activities in Aleppo Governorate was recorded in just seven subdistricts: Jebel Saman, Haritan, Atareb, Zarbah, Nabul, Maré, and Al Bab. Jebal Saman subdistrict recorded the most – 50% – which is unsurprising given it contains Aleppo city, which was hotly contested throughout the conflict by multiple belligerents and was also home to a longstanding government of Syria pocket in the western part of the city.

The three sub-districts of Haritan, Atareb, and Zarbah are located directly to the north, west, and southwest of Aleppo city. These areas are suburbs of Aleppo and were some of the first pockets of resistance to the government to form in the northwest, eventually solidifying into longstanding frontlines. These frontlines were either between government of Syria and a variety of anti-government armed groups or between

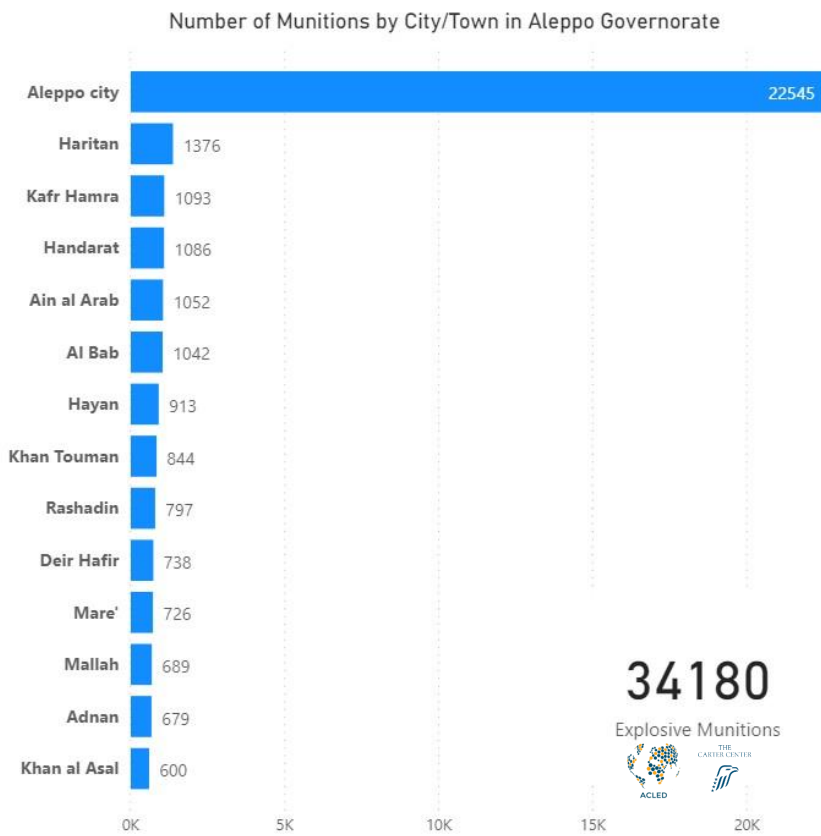


Figure 7. The 14 cities with nearly 60% of all munitions use in Aleppo Governorate.

witnessed high levels of explosive munitions use because of their strategic locations along major roads and near the Turkey-Syria border. The same groups mentioned above also fought for control of Al Bab, but it eventually became a frontline between Turkish military and Turkish-supported opposition groups, the Syrian government, the YPG, and the Syrian Democratic Forces (SDF). Ain Al Arab subdistrict, also known

Turkish-backed groups and groups aligned with Hayyat Tahrir al Sham (HTS). A further two subdistricts—Nabul and Mare’—were also battlegrounds between multiple belligerents during the conflict, including ISIS, the Syrian government, the Kurdish People’s Protection Units (YPG), and – after the Turkish invasion of northern Aleppo Governorate through Operation Euphrates Shield and Olive Branch in 2016 and 2018 – the Turkish military and Turkish-supported opposition groups under the National Liberation Front (NLF). The two subdistricts of Al Bab and Ain Al Arab also

as Kobane, was impacted by heavy fighting as ISIS took control of the area before being recaptured by the SDF and YPG with aerial support from the Global Coalition against Daesh.

At the city and town level, almost 60% of all activity in Aleppo Governorate was recorded in just 14 communities, with over a third in just Aleppo city (Figure 7). The remaining 42% of explosive munitions use in Aleppo Governorate was divided between 749 other locations (Figure 8).

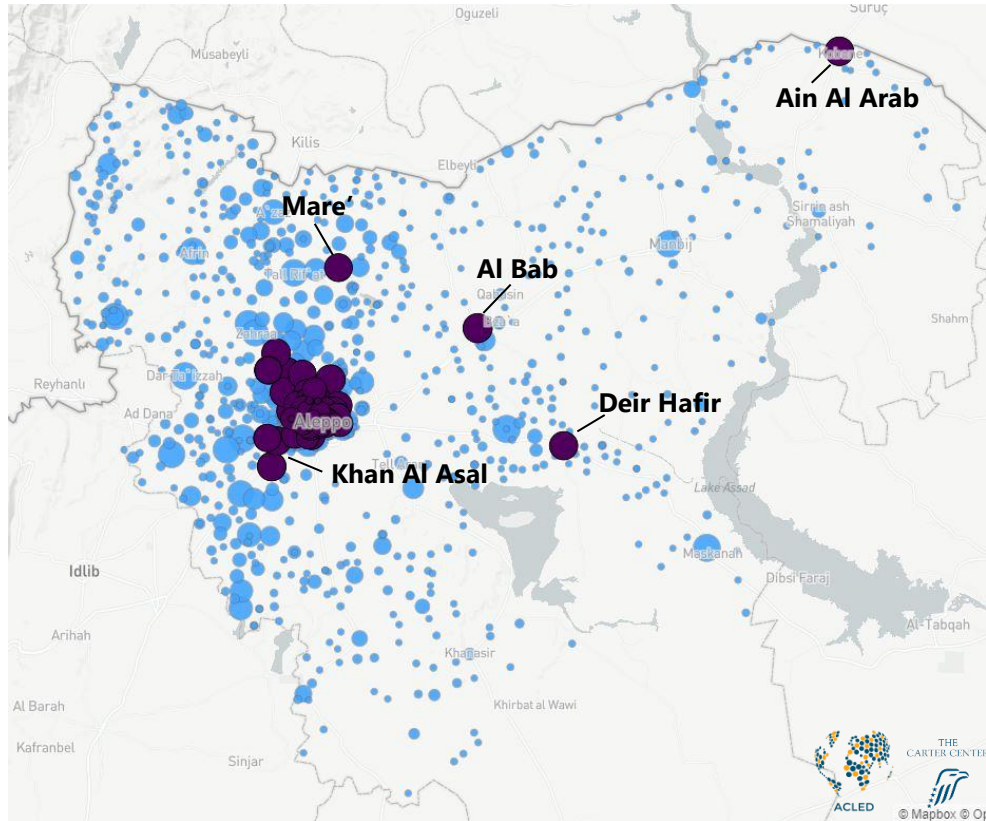


Figure 8. Explosive munitions use across Aleppo Governorate, with the 14 communities that were impacted by nearly 60% of explosive munitions use in the governorate highlighted in darker color dots

In Aleppo city activity was widely distributed – 63% of munitions were used in 72 areas throughout the city. However, there was a concentration of explosive munitions use in just 11 areas of the city, which recorded 37% of activity (Figure 9). These areas were either on frontlines between GoS and various opposition groups (Zahraa, Khaldiyyeh, Salah al Din, Hamadaniyah, Bustan al Qasr, Nile) or were longstanding opposition-held neighborhoods of the city (Shiekh Maqsoud, Ashrafiyyeh, Hanano, Sakhour, Midan). A further 12% of explosive munitions use could not be assigned to a particular neighborhood.

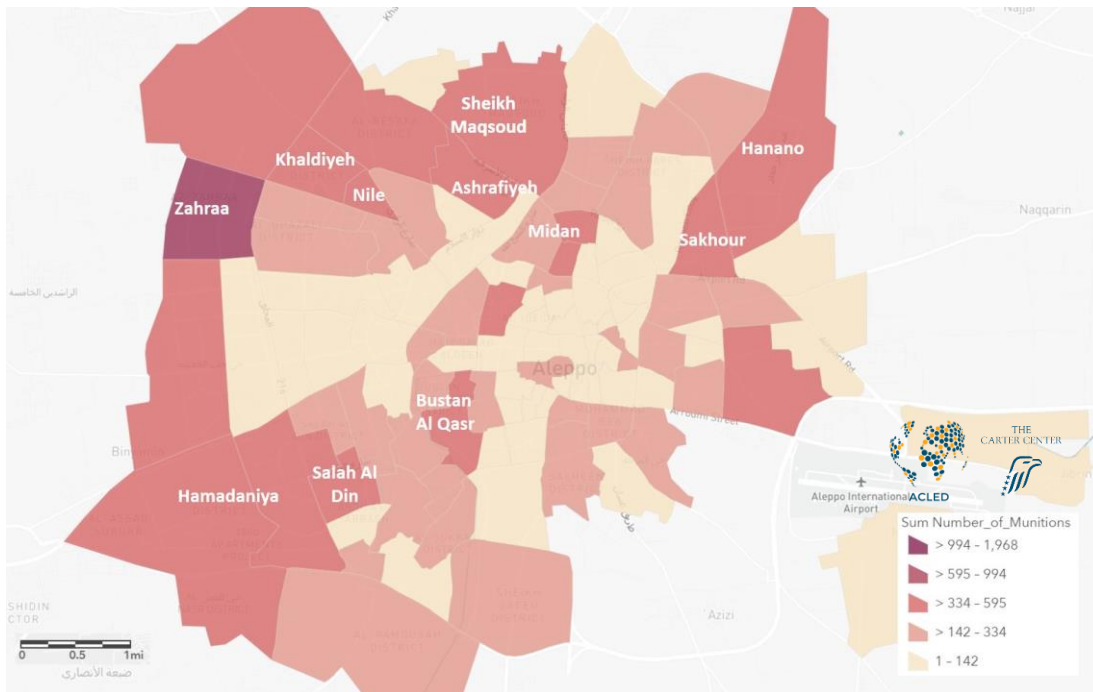


Figure 9. Distribution of explosive munitions use in Aleppo city. The 11 neighborhoods that were impacted more heavily by 37% of total activity in the city are highlighted in darker red and labeled.

Idleb Governorate

From 12,474 conflict events, at least 45,019 individual uses of explosive munitions were recorded in 443 identifiable communities across Idleb Governorate,⁹ representing 40% of the total activity in northwest Syria.

In contrast to Aleppo Governorate, the most common explosive munitions used in Idleb Governorate were air-dropped from airplanes. This accounted for 52% of all documented activity. Ground-launched explosive munitions made up 45% of all explosive munitions in the governorate. Figure 10 provides a breakdown by category of the munitions used in Idleb Governorate.

⁹ Including 15 neighborhoods in Idleb city.

Breakdown of Explosive Munitions Categories in Idleb Governorate

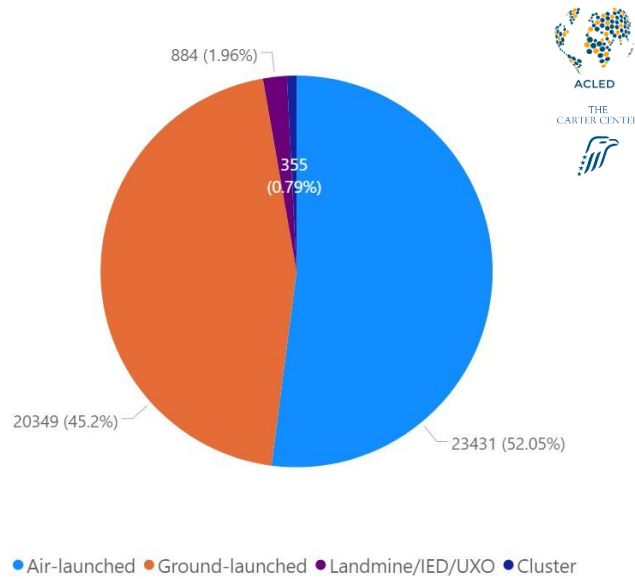


Figure 10. Breakdown of explosive munitions categories in Idleb Governorate.

Within the ground-launched munitions category, shelling of unknown type made up the majority of the explosive munitions use. Rockets, artillery shells, and mortars of various types also made up a sizable amount of activity. The remaining 3% was divided between five different types of ground-launched weapons and various IED / landmine / UXO detonations as well as 355 cases of cluster munitions. Figure 11 provides more detail on the types of munitions used in Idleb Governorate.

Breakdown of Explosive Munition Type in Idleb Governorate

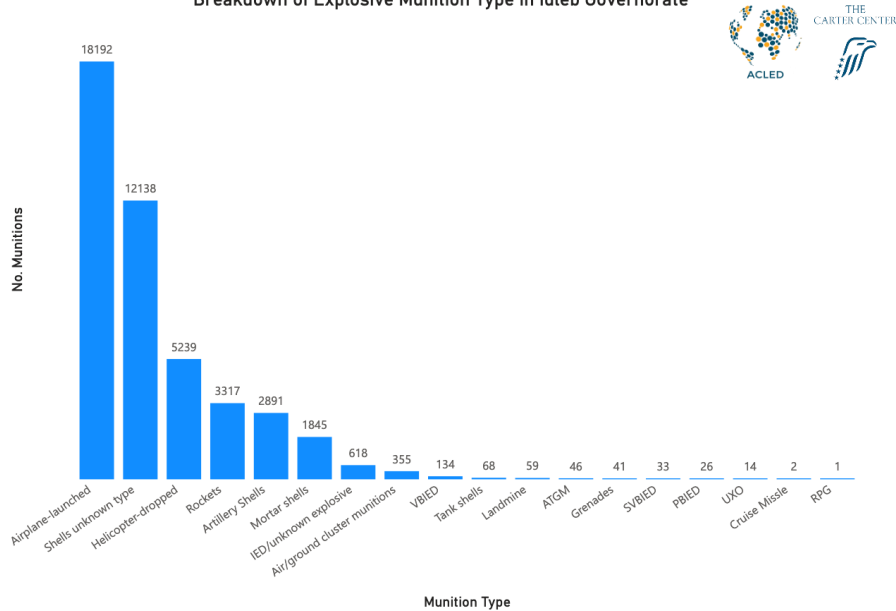


Figure 11. Breakdown of the 18 different explosive munitions types used in Idleb Governorate.

Over 40% of explosive munitions activity in Idleb Governorate was in just 10 communities (Figure 12). Unsurprisingly, there was a focus of explosive munitions use on Fo'ah and Kafraya, two longstanding government-held pockets within Idleb Governorate that were besieged by non-state armed groups for over

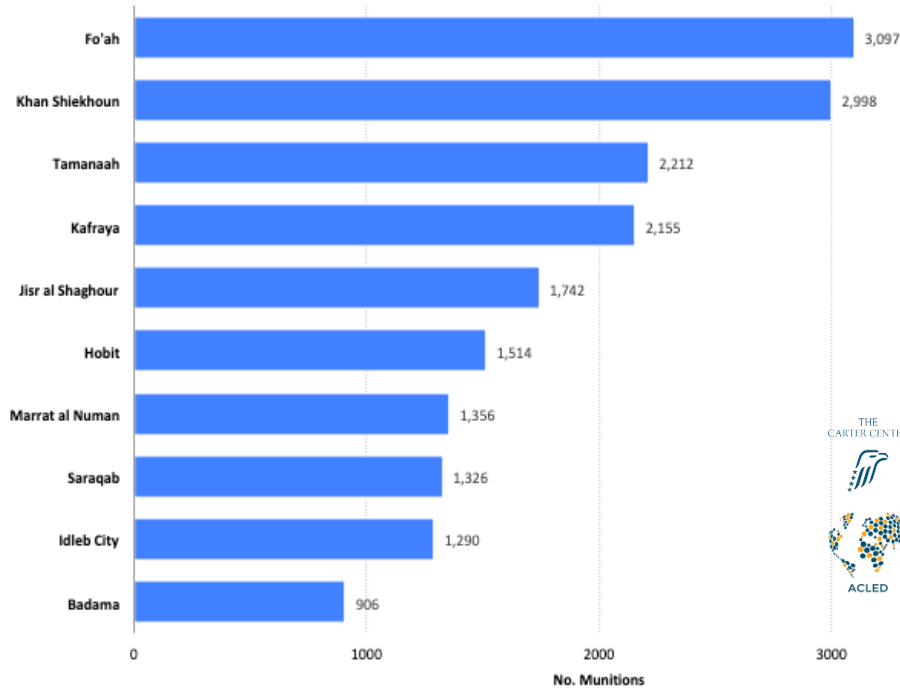


Figure 12. The 10 communities that were impacted from just over 40% of all munitions use in Idleb Governorate.

three years and accounted for 12% (5,252) of total activity in the governorate when combined. Five areas that also experienced high levels of explosive munitions activity were the opposition hubs of Khan Sheikhoun, Jisr al Shaghour, Marrat al Numan, Saraqab, and Idleb city. These were some of the first areas in the governorate to resist government control when the conflict began in 2011, eventually merging with

other pockets in the region to become a contiguous opposition zone by 2014. Since 2014 government aerial and shelling bombardments and infighting among armed groups in Idleb have been reported, especially between Hayyat Tahrir al Sham (formerly Jabhat al Nusra), Hurras al Din, and the Turkish-supported National Liberation Front (NLF). Three towns, Tamanaah, Hobit, and Badama, were longstanding frontlines with Syrian government areas at the south of the governorate. The remaining 59% of explosive munitions activity was divided between 420 communities throughout the governorate. See Figure 13 (below) for the location of the communities.

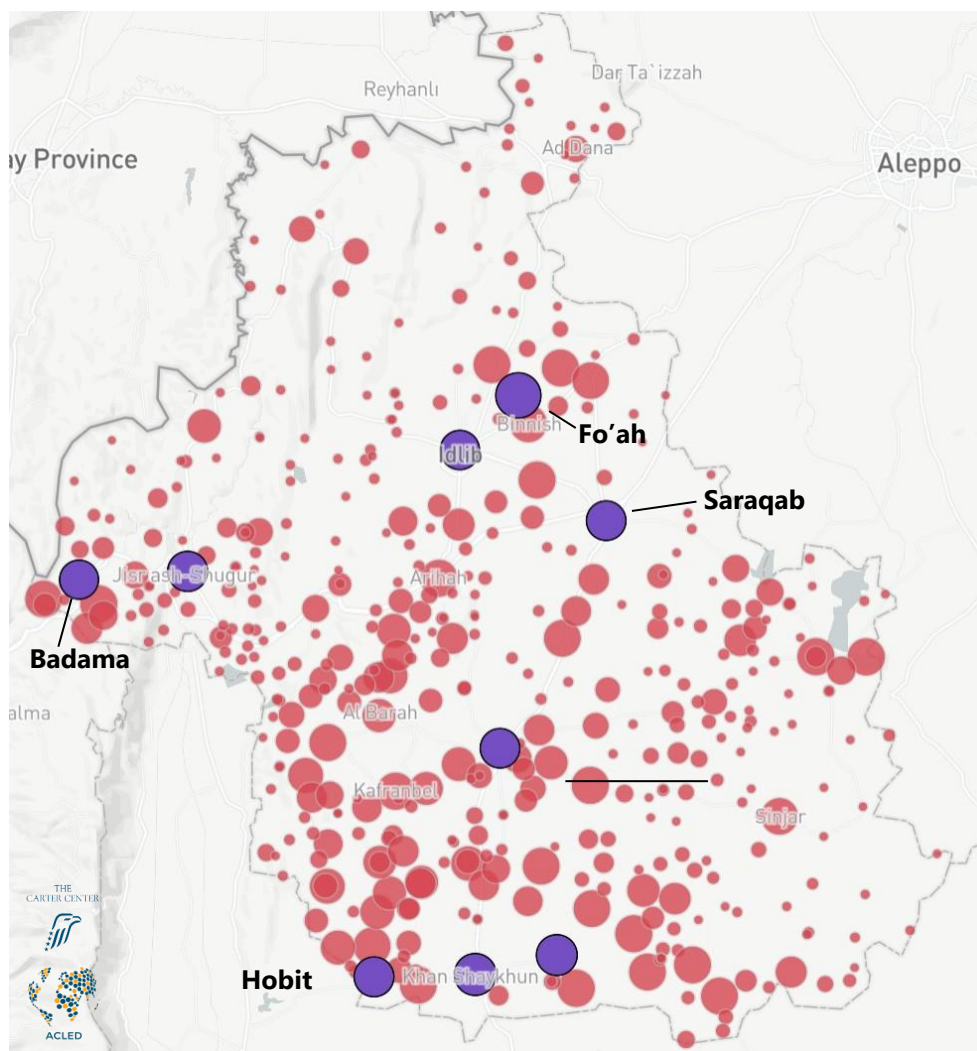


Figure 13. Explosive munitions uses across Idlib Governorate, with the 10 communities that were impacted by nearly 40% of explosive munitions use in the governorate highlighted in purple.

Latakia Governorate

Though Latakia Governorate remained under the control of the Syrian government for most of the conflict, still it experienced notable levels of violence. During 2,634 conflict events, at least 10,004 individual uses of explosive munitions were recorded in 141 identifiable communities in the governorate. As in Aleppo Governorate, the most common explosive munition used in Latakia Governorate was ground-launched munitions, accounting for 73% of all activity (Figure 14). Most of these were documented as shells of unknown type, but mortar shells made up nearly 20% of the explosive munitions count in the governorate. This makes Latakia Governorate different than other regions in the northwest. The use of mortar shells is indicative of close-quarters, given the short ranges of standard 60mm – 120mm mortars (between 3km -

7km). The mountainous terrain of Latakia likely contributed to the increased use of mortars as an infantry support weapon in this governorate.

Other prevalent munitions types in the governorate were airplane-launched munitions, rockets, artillery, and helicopter-dropped barrel bombs. The remaining 2% of activity was split between three types of ground-launched munitions as well as cluster munitions and IED / landmine / UXO detonations. See Figure 15 for more details.

Breakdown of Explosive Munitions Categories in Latakia Governorate

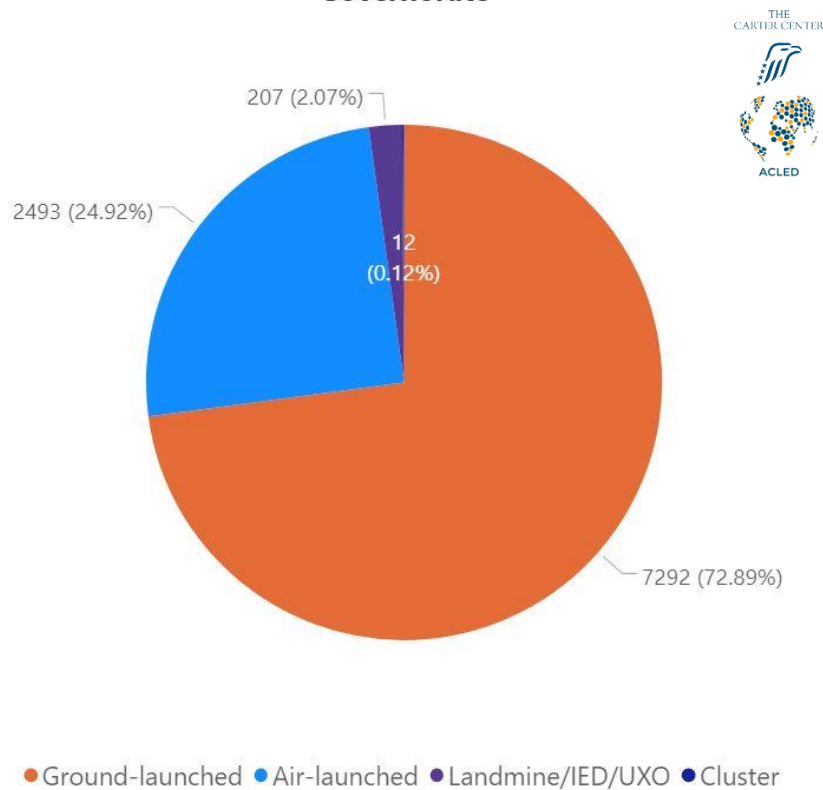


Figure 14. Breakdown of explosive munitions categories in Latakia Governorate.

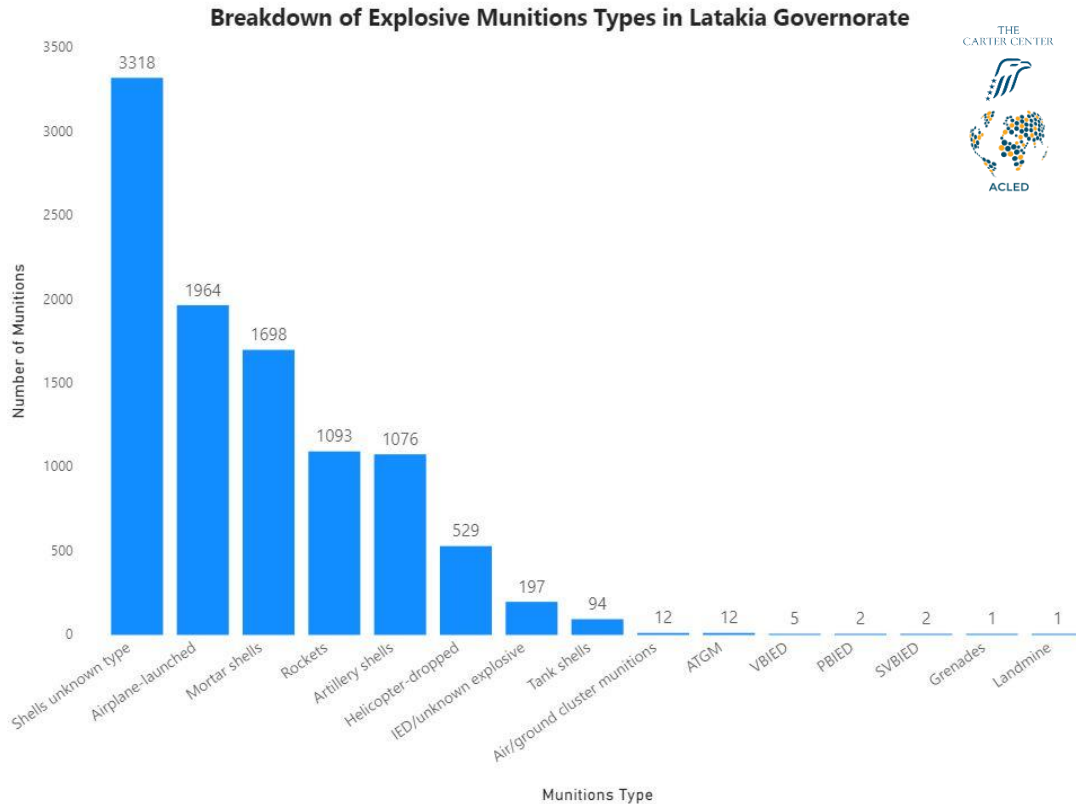


Figure 15. Breakdown of the 18 different explosive munitions types in Latakia Governorate.

In large parts of Idleb and Aleppo governorates, explosive munitions use was widespread, but explosive munitions use in Latakia was concentrated along longstanding frontlines in the north and northeastern areas of the governorate. The three mountainous subdistricts of Kansaba, Rabee'a, and Qastal Maaf recorded 82% of the governorate's conflict activity. Conflict in the governorate developed differently than in other areas of Syria, which may somewhat explain this difference. Instead of numerous pockets of resistance to government control forming and merging into a contiguous pocket, resistance in Latakia was only seen in the north, between the Akrad and Turkmen mountains. Merging with pockets in neighboring Idleb Governorate, these opposition positions in northern Latakia were cemented through a series of armed group offensives in 2014 and 2015, including by Jabhat al Nusra and their allied Turkistan Islamic Party (TIP). Despite several GoS attempts to dislodge these groups, there have not been notable changes in territorial control in Latakia.

At the city or town level, just seven communities accounted for over half of the total number of explosive munitions used in Latakia Governorate: the Akrad mountains (Jabal al Akrad); the hilltop, TIP-controlled town of Kabani; the Turkman mountains (Jabal al Turkman); and the towns of Yamadiyah, Salma, Qal'a,

and Ain Issa.¹⁰ The remaining 45% of conflict events were split among 134 communities, including the governorate's capital city, Latakia. This is different than other provinces of Syria, which were impacted by considerable levels of explosive weapons use in the governorate capitals. Figures 16 and 17 summarize the above in more detail.

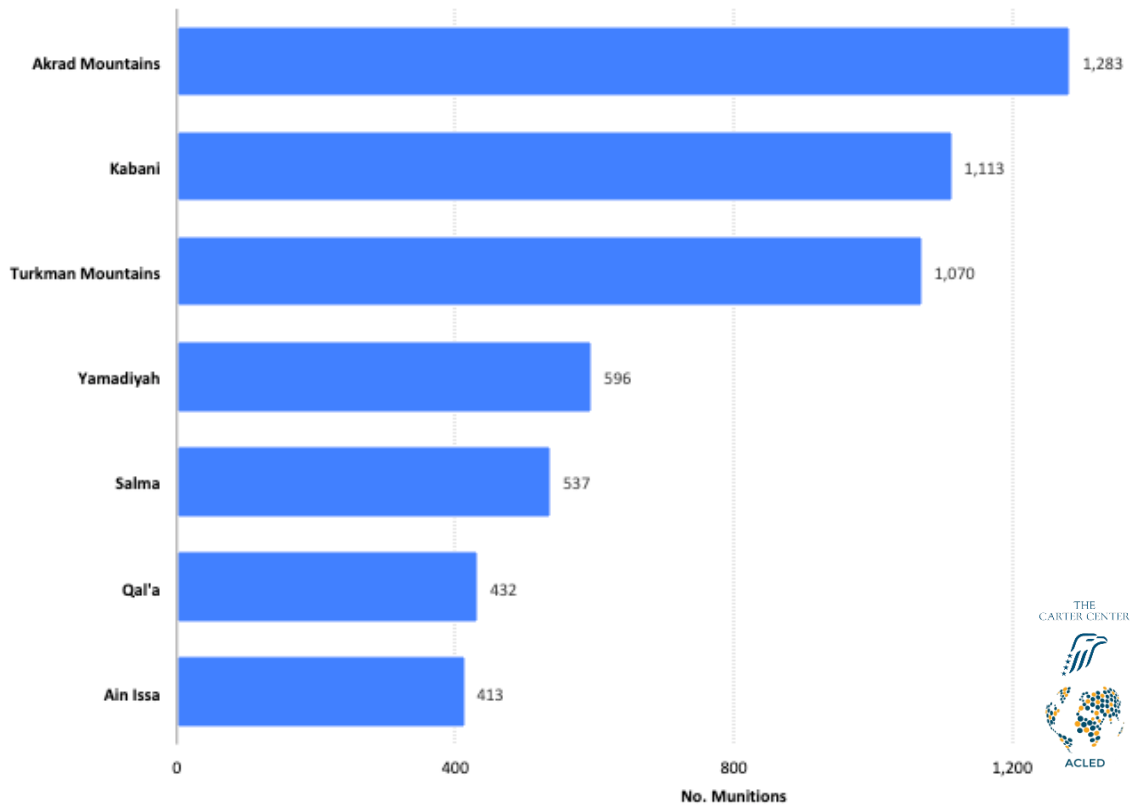


Figure 16. The 7 communities that were impacted by over 50% of all munitions use in Latakia Governorate.

¹⁰ Ain Issa in Latakia's Rabee'a subdistrict is different from the Ain Issa town near the Turkish border in Ar-Raqqa Governorate.

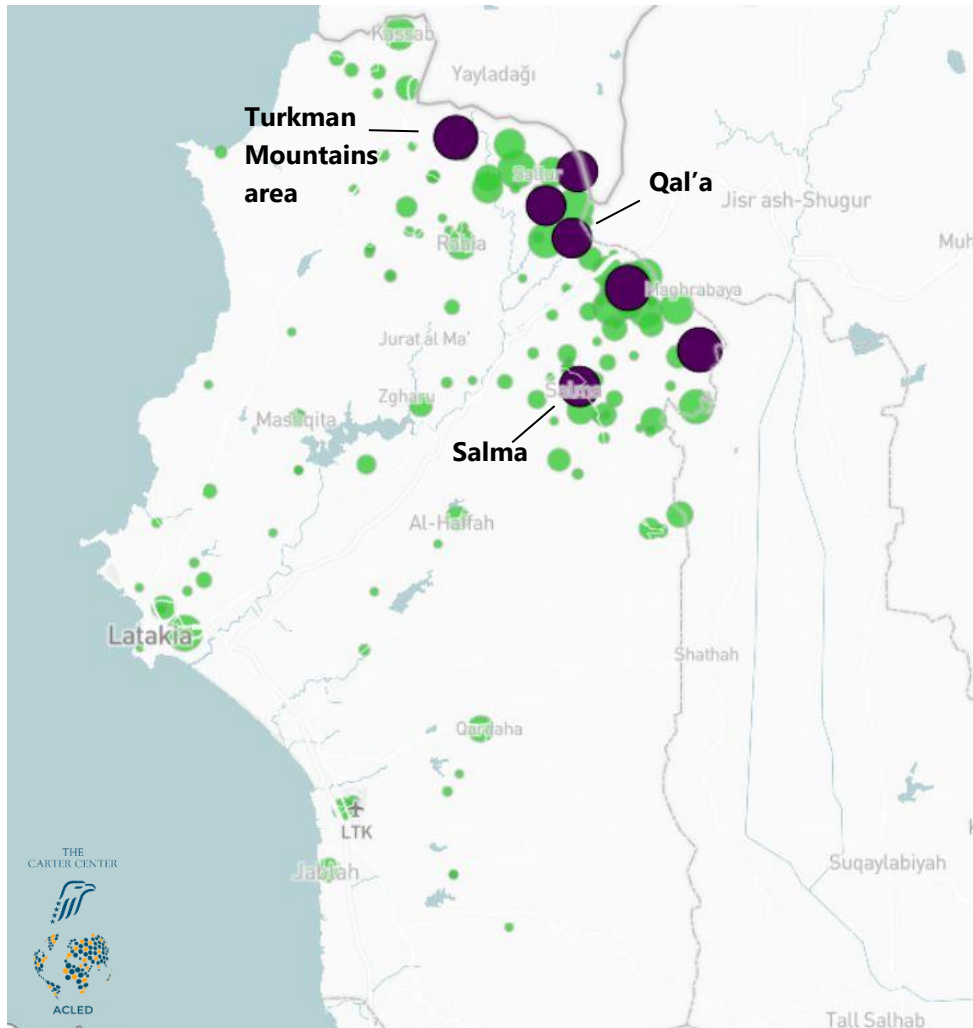


Figure 17. Explosive munitions use across Latakia Governorate, with the seven communities that were impacted by over half of explosive munition use in the governorate highlighted.

Conclusions

The findings in this analysis could provide operational planners guidance for the prioritization of humanitarian mine action activity, especially with respect to directing on-the-ground surveys, clearance operations, and risk-education programs. It can also serve as a preliminary guide to assess risk for staff doing this clearance on the ground. It helps illustrate the scale and complexity of potential explosive munitions contamination in the northwest, helpful for strategic-level engagement, especially with political and donor advocacy.

When the findings of this report are combined with findings from the Center’s previous reports on [southern Syria](#) and [Damascus city and its surroundings](#), the scale of the challenge begins to become apparent. A minimum of 244,103 individual explosive munitions were used in 1,987 identifiable communities across Aleppo, Idleb, Latakia, Damascus, Rural Damascus, As Sweida, Quneitra, and Dar’a governorates. Just 21 communities recorded 43% of explosive munitions use in these areas: nine communities in Rural Damascus Governorate, seven communities in Idleb Governorate, two communities in Dara’a Governorate, two communities in Aleppo Governorate, and the Jobar neighborhood in Damascus city (Figure 18).

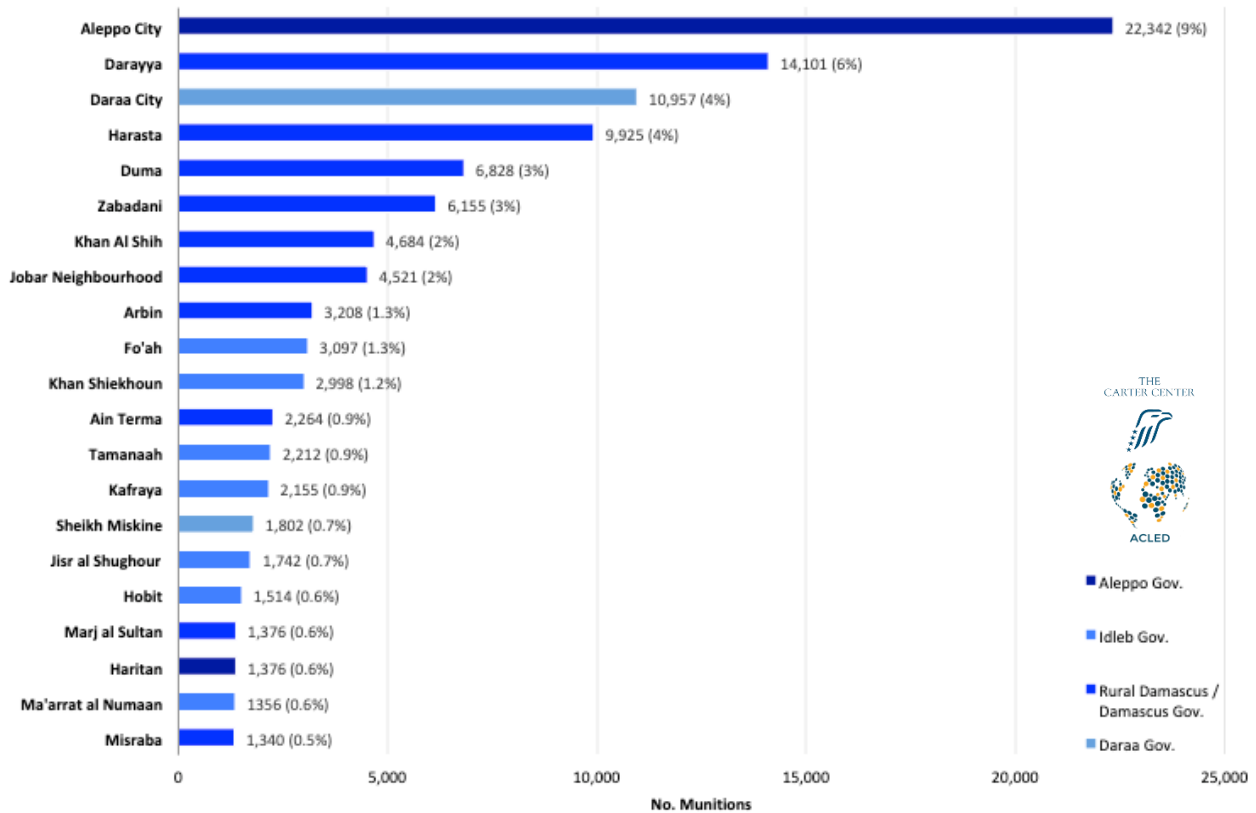


Figure 18. The 21 communities that were impacted by 43% of all munitions use in southern Syria, northwest Syria, and areas around Damascus.

It is difficult to estimate failure rates of explosive munitions for a variety of reasons, including lack of information on failure rates from weapons manufacturers, military reluctance to disclose failure information publicly, the age of munitions, conditions of munitions storage as well as weather conditions during the use of munitions, to name a few. However, some assistance can be found in a RAND Corporation report, [“Unexploded Ordnance Clean-up Costs; Implications of Alternative Protocols” \(2005\)](#). This report focuses on strategies for improving explosive munitions cleanup and provides a baseline failure rate of 10% based on use conditions at U.S. military firing ranges. Other studies from Vietnam and Laos mentioned in the same report have put failure rates of U.S.-launched munitions in battle conditions at between 10% and 30%.

While there are notable differences between firing conditions on U.S. ranges and battle conditions in Syria, as well as differences between the quality of U.S.-made munitions and the Russian-made munitions that are predominantly used in Syria, the study is nonetheless helpful. If we apply a failure rate of 10% - 30% to the total documented explosive munitions uses from all three reports, then at a minimum, between 24,430 – 73,290 explosive munitions have failed to detonate in northwest Syria, southern Syria, and in and around Damascus.

Explosive munitions clearance in Syria will most likely be long in duration. In [Mozambique](#), it took 23 years to clear over 86,000 explosive hazards in the country. In [Iraq](#), it took from 2015 to 2018 to destroy 11,549 UXO and landmines in federal and Kurdish Regional Government-controlled parts of the country.

IF 10% - 30% FAILURE RATE IS APPLIED,
**24,430 – 73,290 EXPLOSIVE MUNITIONS HAVE
 FAILED TO DETONATE IN NORTHWEST SYRIA,
 SOUTHERN SYRIA, AND IN AND AROUND
 DAMASCUS**

In [Angola](#), clearance is still ongoing 18 years after the civil war ended in 2002. Costs for conducting such mine action programs typically run into the hundreds of millions of dollars. Of the 21 mine action projects currently listed in the U.N. Mine Action Service's

(UNMAS) [portfolio](#), project budgets for operations around the world average US\$27,063,234.

Given the considerable challenges in responding to this multigenerational challenge in Syria, including urban clearance, it is likely that the time and cost needed to address explosive munitions contamination will continue to grow. A variety of other issues must be overcome before mine clearance entities can operate effectively there, such as the divided and polarized humanitarian response,¹¹ the large number of humanitarian needs in addition to the need for demining and clearance, severe sanctions and counter-terrorism laws (and over compliance with these), the limited funding appetite of Western donors (especially for activities in government areas), and the limited access to parts of the country because of ongoing

¹¹ This has resulted in few Western demining entities being present in many parts of the country, especially government areas.

conflict. In the meantime, the contamination from explosive munitions in Syria will continue to have an economic, social, environmental, and psychological impact on communities. Some of these issues can be addressed by humanitarian action, but they should also be addressed by development, security, and peacebuilding initiatives, as recommended in Geneva International Center for Humanitarian Demining and Swiss Peace's [Mine Action and Peace Mediation](#) guide (Figure 19)¹².

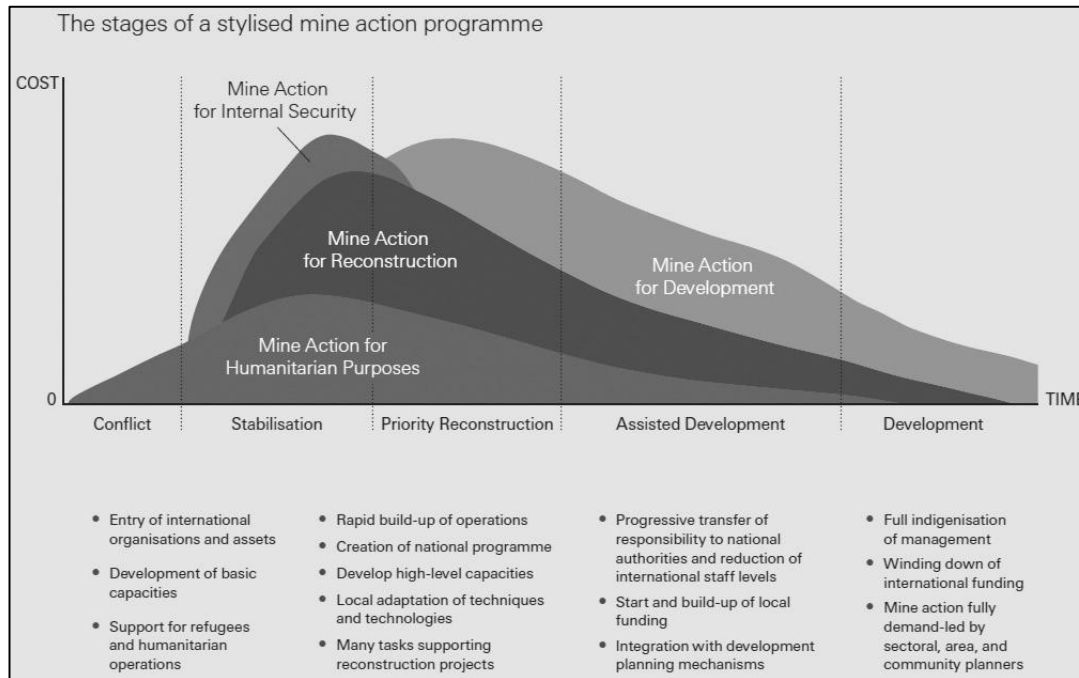


Figure 19. The stages of an ideal mine action program from humanitarian action to development from the Guide to Mine Action.

For example, clearance efforts can create livelihoods in post-conflict environments, especially for women and youth, as seen in [Lebanon](#) and [Iraq](#). In places such as Somaliland, Afghanistan, and Columbia, former combatants took part in demining activities, using their experience and knowledge to help agencies map where explosive munitions were used. This provided the former combatants a livelihood and help build community cohesion by bringing together combatants from conflicting sides and victims of violence. In Sri Lanka and Sudan, explosive munitions clearance was integrated into, or used as, a vehicle for peace agreements and ceasefires.¹³ As such, policymakers should think in holistic terms about their response to explosive munitions contamination in Syria and consider how demining can be utilized to not only achieve

¹² Page 12, Geneva International Center for Humanitarian Demining and Swiss Peace's [Mine Action and Peace Mediation Guide](#) (2014).

¹³ Page 56, International Peace Research Institute (PIRO)'s [Preparing the Ground for Peace – Mine Action in Support of Peace building](#) (2004).

their policy goals, but also to help Syrians civilians who must live with the effect of these weapons every day.

Appendix - Terminology

As terminology used in the explosive weapons clearance and demining field is highly specialized and often used interchangeably outside the sector. The following section highlights commonly used terms in this study and the demining field. Definitions for these terms were compiled from [International Mine Action Standards \(IMAS 04.10\) Second Edition \(May 2013\)](#) as well as from [Conflict Event Data and Beyond](#) from World Bank Training Workshop March 2018.

Ammunition, munition, or munitions are complete devices charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations, including demolitions. In common usage, “munitions” are often referred to as military weapons, ammunition, and equipment.

Clearance in the context of mine action refers to the tasks or actions to ensure the removal and/or the destruction of all mine and ERW (see below) hazards from a specified area to a specified depth.

Cluster Munition(s) refers to a conventional munition that is designed to disperse or release explosive submunitions that each weigh less than 20kg and includes those explosive submunitions. It does not include a) munition or submunition designed to dispense flares, smoke, pyrotechnics, or chaff, or a munition designed exclusively for an air defense role; b) a munition or submunition designed to produce electrical or electronic effects; c) a munition that in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions has all of the following characteristics (i) each munition contains fewer than 10 explosive submunitions; (ii) each explosive submunition weights more than 4kg; (iii) each explosive submunition is designed to detect and engage a single target object; (iv) each explosive submunition is equipped with an electronic self-destruction mechanism and (v) each explosive submunition is equipped with an electronic self-deactivating feature.

Demining involves activities that lead to the removal of mine and ERW hazards, including technical survey, mapping, clearance, marking, post clearance, documentation, community mine action liaising and handover of cleared land. International Mine Actions Standards (IMAS) considers mine and explosive remnants of war (ERW) clearance one part of the demining process.

Explosive Ordnance Disposal (EOD) is the detection, identification, evaluation, render safe, recovery and disposal of explosive ordnance or munitions.

Explosive Ordnance (EO) or munitions refers to all munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes a broad range of weapons that use components that are explosive in nature, such as bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and small-arms ammunition; all mines, torpedoes, and depth charges; pyrotechnics; clusters and dispensers; clandestine and improvised explosive devices. The explosive munitions included in this study are airstrikes, incendiary airstrikes, barrel bombs, cluster munitions, drone attacks, rockets, improvised rockets, incendiary rockets, artillery, incendiary artillery, tank shelling, mortars, shelling of unknown type, incendiary shelling, anti-tank guided missiles (ATGM), rocket-propelled grenades (RPG), grenades, suicide vehicle-borne improvised explosive devices (SVBIEDs), vehicle-borne improvised explosive devices (VBIEDs), person-borne improvised explosive devices (PBIED), improvised explosive devices (IED), unidentified explosives, landmines, and unexploded ordnance of unidentified type (UXO).

Explosive Remnants of War (ERW) refers to both abandoned explosive ordnance and unexploded ordnance (UXO), though not landmines. These are all explosive munitions left behind after a conflict and can be used or unused. This includes conventional ground- and air-launched explosive weapons, such as artillery and cluster munitions, as well improvised weapons.

Improvised Explosive Device(s) (IED) are devices placed or fabricated in a makeshift or improvised manner (with whatever materials are available) incorporating explosive material, destructive, lethal, noxious, incendiary, pyrotechnic materials, or chemicals designed to destroy, disfigure, distract, or harass.

Landmines are explosive devices designed to lie hidden in an area (sometimes for years) and kill or injure people who trigger the device. These victim-triggered devices can be classified as anti-personnel, which are activated by a person or animal stepping on them, or anti-vehicle, which are activated when a vehicle drives over them. The International Mine Ban Treaty prohibits their use, and their clearance is conducted in a specialized way. Increasingly, this category covers improvised explosive devices (IEDs), which act as improvised landmines as they are also typically victim-triggered.

Unexploded Ordnance (UXO) are munitions that are used in conflict and for some reason fail or partially fail to detonate. These unstable explosive devices are left behind during and after conflicts and pose dangers similar to landmines.

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