

Uncovering the Depths of UXO Contamination: A Town-Level Analysis of Three Areas in Syria

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Alongside armed combat and a dire socioeconomic downturn in Syria, civilians must continue to navigate the hidden threat of unexploded ordnance (UXO). The United Nations Office for the Coordination of Humanitarian Affairs estimates that half of people in Syria are living in areas contaminated with explosive ordnance. The presence of UXO is likely to affect multiple generations of Syrians due to their impact on civilian life, economic activity, and environmental health. In recent years, efforts have been made to clear unexploded munitions, but clearance operations have been limited by access issues and safety concerns. Significant concentrations of UXO remain along present-day front lines, which are largely inaccessible to demining organizations. These efforts could benefit from high-fidelity mapping, creating opportunities for more geographically precise political coordination and cooperation across conflicting parties contaminated by UXO in Iraq.

⁴ The pressing need for all parties to address UXO clearance in Syria can serve as an opportunity for cooperation across political divides among local and international actors. A U.N.-backed demining effort in southern Lebanon in 2006 demonstrated that clearance of UXO allowed communities to better implement development projects, revitalize local economies, and unite various conflicting parties to pursue a common goal. Syria has witnessed some of the worst violence in the 21st century, and the need to reconcile communities is acute.

Using the Carter Center's unique dataset on explosive weapons use in Syria and novel methodology to estimate the density of UXO across the country, there are an

[Ordnance in Syria](#)

[Mapping Unexploded](#)

³ <https://www.mineactionreview.org/assets/downloads/Mozambique-Clearing-the-Mines-2018.pdf>

⁴ https://www.mineactionreview.org/assets/downloads/907_NPA_Clearing_the_Mines_2020_Iraq.pdf

⁵ <https://www.un.org/humansecurity/wpcontent/uploads/2017/08/Socioeconomicempowermentof-mine-affected-communitiesRemovingthreat-of-landminesand-UXOsand-promoting-post-deminingrehabilitation-in-SouthLebanon.pdf>

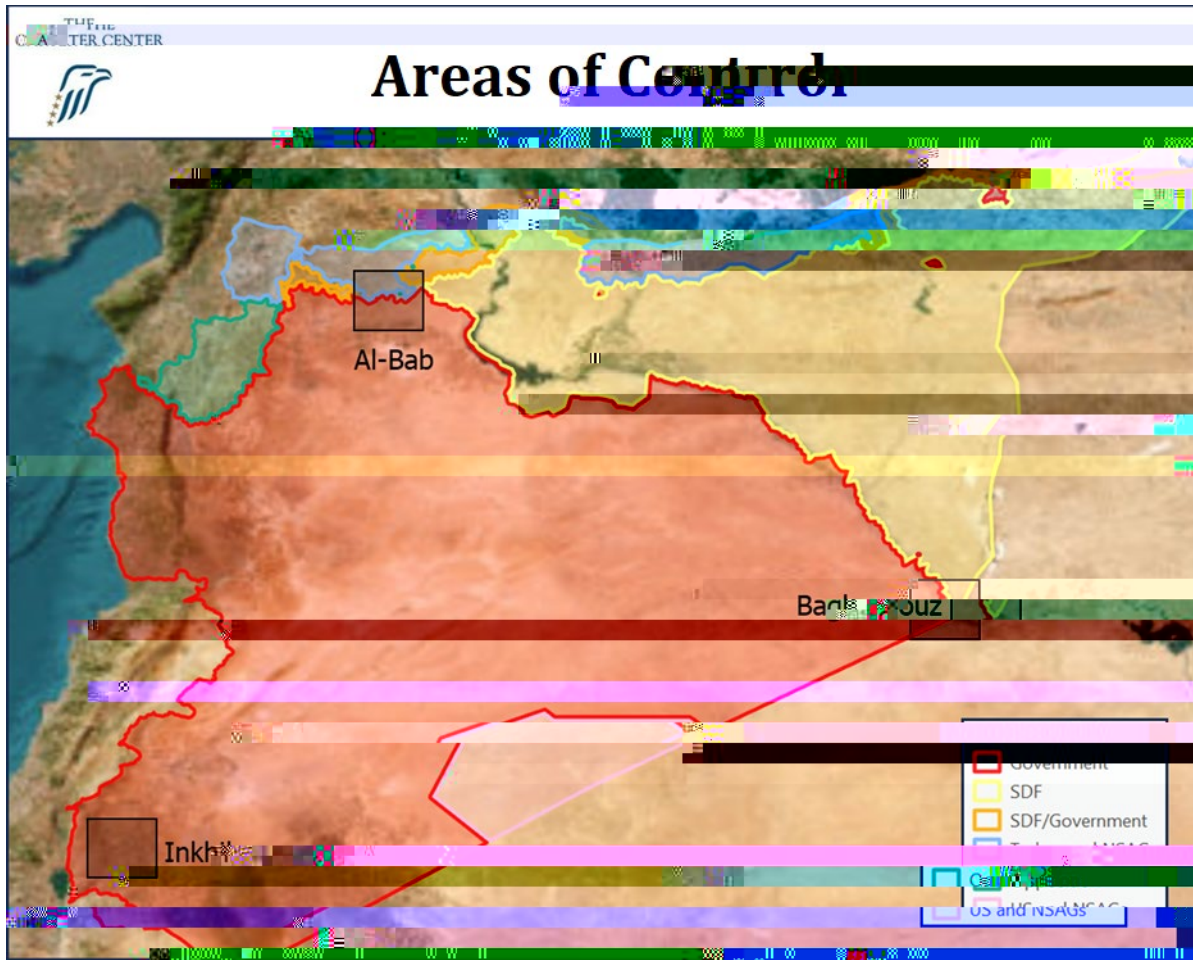


Figure 1: The dominant actors' area of control and influence in Syria as of Feb. 1, 2024. Data from The Carter Center.

4,461 recorded communities impacted by UXO across Syria. This report focuses on three such communities: Al-Bab, Baghouz, and Inkhil. These communities only provide a brief snapshot of the complexity and scale of explosive weapons contamination in Syria. These locations, like others, are now controlled by factions, such as the government of Syria, the Turkish-backed Syrian National Army (SNA), and the Kurdish-led Syrian Democratic Forces (SDF), among others. They once were home to middle-class jobs, business activities, and agricultural production. They are also surrounded by farmland, water, and electrical infrastructure. All these sectors have been heavily disrupted by the conflict and UXO contamination.

To understand the scale of the problem and potential solutions, this report seeks to shed light on the estimated town-level contamination, impact on livelihoods, and the potential for early recovery. As the violence in Syria continues, the already dire state of contamination is compounded, making the need to reach a ceasefire and political solution more crucial than ever.

Figure 2: Explosive munitions use in Al-Bab, Aleppo Governorate over time. Data from ACLED and The Carter Center.

Al-Bab is located in the Aleppo Governorate of Syria, with a population of over 400,000 civilians as of 2022⁶. Since 2017, Al-Bab has been controlled by Turkish armed forces and the SNA. Al-Bab is a significant industrial area and business hub in northwest Syria. It is positioned along the Aleppo-Gaziantep highway and functions as a crossroads for regional and domestic movement of goods and people. Before the conflict, Al-Bab was a thriving commercial center renowned for its bustling markets and economic activities, contributing significantly to the region's trade and business.

Its agricultural sector has suffered since 2017 when the government cut the water supply to Al-Bab. Only two wells supply water to Al-Bab, severely limiting its agricultural sector⁷. The government cut the water supply in response to Syrian opposition forces gaining control over Al-Bab from Islamic State group (IS) forces who had taken over the city in 2013.⁸ During this time, the volume of munitions used in Al-Bab surged. In 2014 and 2015, there were over 300 conflict events involving air-launched, cluster, ground-launched, and improvised explosive device (IED) munitions, with potentially higher numbers due to reporting

The impact of the conflict has led the Syria Civil Defense (White Helmets) to identify ~~Ab~~ as one of the main areas with a high UXO presence.⁹ Amid the ongoing economic crisis in Syria and limited alternative employment options, successfully removing UXO in ~~Ab~~ would further allow for developing its water resources and electrical infrastructure and ultimately encourage economic recovery.

Baghouz

Figure 3: This figure displays the

Figure 4: Explosive munitions use in Baghouz, Deir-ez-Zor Governorate over time. Data from ACLED and The Carter Center.

Baghouz is a city under the control of the SDF. It is in Deir-ez-Zor Governorate in northeast Syria and is notable due to its location near the border of Iraq along the Euphrates River. Baghouz served as an IS stronghold until it was seized by the SDF with support from US-led coalition forces in March 2019.⁶ Between 2017 and 2019, the fighting between IS, the SDF, and U.S. coalition forces saw hundreds of munitions deployed in the Abu Kamal district, where Baghouz is located. 2018 witnessed a peak with over 2,500 munitions deployed. During the final months of fighting around 63

ez-Zor Governorate worked in agriculture, nearly twice the national average¹⁴. UXO contamination slows the return to agricultural production due to the fear that tillers and other agricultural equipment may set off UXO buried in the soil. The high level of contamination in Baghouz has resulted in local volunteers attempting to work with the SDF engineering teams to clear the area. However, more aid and collaboration among different parties are needed to scale up operations in a place where so many residents' lives continue to be impacted by UXO¹⁵.

Baghouz's importance as an agricultural hub, combined with the high prevalence of UXO, makes Baghouz an area where demining would be particularly fruitful. By clearing farmland

Figure 6: Explosive munition use in Inkh

Before the

