

CRISIS ANALYSIS – SYRIA

RESEARCH SERIES ON THE MEDIUM-TERM IMPACT OF THE 6 FEBRUARY EARTHQUAKES
ON NORTHWEST SYRIA



Volume 5.

THE RUBBLE VALUE CHAIN IN NORTHWEST SYRIA

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*Photo (above): Earthquake damage in Idleb, February 2023. Cover photo: People working to clear rubble of collapsed buildings in Idleb.
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INTRODUCTION

The UN [estimates](#) that the February earthquakes generated ten times more rubble than the previous major earthquake to strike the region over 20 years ago, generating a waste crisis within the broader humanitarian crisis. Haphazard and ad hoc approaches to clear and sort rubble were well documented in Turkey, where estimates [suggest](#) a rise in respiratory diseases, asthma, and other related illnesses in the coming years as a result of the toxins released by the earthquake's rubble. In Syria, a [lack](#) of international rescue teams, heavy machinery, and coordinated support in the immediate emergency response further encouraged ad hoc responses and rubble clearance methods which could present risks to public health in the years to come.

Rubble removal remains a [priority](#) in the most recent phase of the humanitarian-coordinated earthquake response. However long-term waste storage plans, prospects for reuse and recycling of earthquake waste, and private processes undertaken by residents to deal with rubble in northwest Syria are not well documented. This opacity makes it difficult to assess the full range of risks rubble could present to local communities in the years to come across a variety of sectors, from environmental pollution impacting food security to exploitative waste management industries undermining livelihoods.

In this fifth report in the Northwest Syria Series from Crisis Analysis – Syria (CA–SYR, previously HAT) we aim to assess approaches for rubble removal, transfer, and storage in recent months, and the industries which have emerged around the process. The research is informed by insights from technical experts, traders, local authorities, and residents whose homes were damaged in the earthquake. While not exhaustive, it aims to identify the impacts of earthquake rubble on local communities more broadly in the months and years to come.

Key findings

- Long wait times and limited capacity within the coordinated response by local actors to remove rubble fueled the expansion of the private scrap industry. This industry centered around reusable materials present in earthquake rubble including iron, aluminum, and copper.
- The presence of permanent holding facilities for rubble are not heavily evidenced in northwest Syria, prompting questions regarding long-term storage of waste which could pose environmental and public health risks in the future if not adequately dealt with.
- A significant number of partially damaged homes are still in need of rehabilitation and may require demolition if not rehabilitated soon, adding further to the waste created by the February earthquakes.

THE RUBBLE REMOVAL PROCESS

Capacity limitations among local authorities created delays in the rubble removal process across northwest Syria, giving rise to ad hoc approaches to clear rubble among some residents. Typically, local councils coordinate with homeowners to confirm ownership documents, guarantee rights to any reusable or recyclable materials, and receive consent for removal. In Idleb, if rubble is not claimed by owners within a certain period of time or if the owners are not present, rubble reportedly becomes the property of the local council. While no specific cases were uncovered, this approach could give rise to disputes between residents and local councils, particularly in cases where residents are deceased and inheritance rights are not considered.

The clearing [process](#) is undertaken by the Syrian Civil Defense (also known as the White Helmets), a humanitarian organization made up of volunteers trained in emergency response, and overseen and recorded by technical teams, including technical Engineering Syndicates which coordinate with local authorities and Civil Defense units. Initially, materials are typically taken to temporary holding sites away from residential or commercial centers on the outskirts of cities and villages before being moved to a permanent landfill. Reusable and recyclable materials are sorted by the Civil Defense, and returned or made available for pick up by owners at the Secretariat Offices in local Civil Defense centers.

Local sources in both Idleb and northern Aleppo noted that a lack of heavy machinery and slow processing by local authorities in the weeks following the earthquake created a bottleneck for rubble removal services. While wait times varied from place to place, some residents waited as long as two months before being approached by local authorities to begin the rubble removal process. To avoid these wait times, some residents hired private contractors to clear their properties – typically in exchange for any valuable materials – or rented machinery to clear the rubble themselves. In other cases, people sorted rubble by hand, reportedly often without protective gear. This preference for completing rubble removal independently may also stem from a lack of trust among residents that valuable materials will be returned to them once local authorities clear rubble: Some residents reportedly waited to give consent to local units until they had sorted out reusable material from the rubble themselves.

In cases where residents removed rubble themselves, they likely exposed themselves to health and safety risks. In sorting rubble before technical assessments were completed, residents may have [increased](#) their exposure to harmful chemicals including asbestos. Ad hoc approaches to rubble removal also tend to [increase](#) the amount of toxins released into the air after an earthquake in the absence of necessary dust suppression systems, meaning that such approaches could have long-term impacts on air quality and public health across northwest Syria. The impacts of such risks on children are not clearly defined, but are likely. While not identified through this research, UNICEF has [documented](#) children as young as 13 involved in rubble clearance since the earthquake, presenting not only risks of exploitation and child labor, but also to health and safety.

Rubble holding sites

According to local sources, most of the rubble dumping sites in northwest Syria are temporary holding sites in close proximity to urban areas and displacement camps. The proximity of these sites to rural areas and agricultural lands also presents the possibility that, if maintained in the long term, such sites could present risks to local food supplies and agricultural activities.

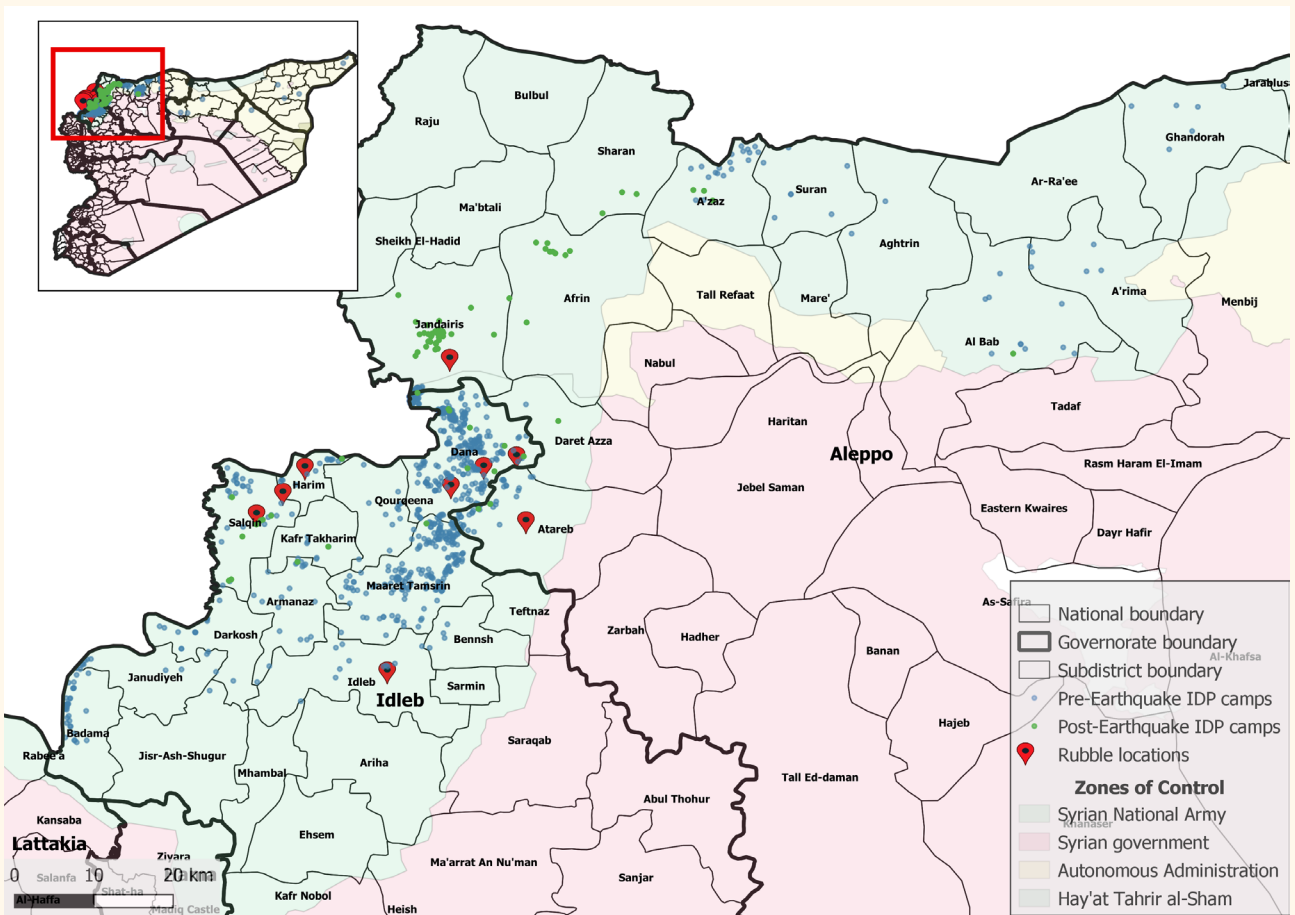


Figure 1: Rubble locations and displacement camps in NWS¹

Mitigating the health and environmental risks posed by such a scale of debris [requires](#) specific approaches for permanent storage to ensure waste does not leak into groundwater sources or agricultural lands, or negatively impact air quality. Typically after a disaster, rubble is moved to a temporary site in proximity to the emergency but away from residents before later being moved to a permanent holding location which meets certain criteria to limit risks. Only one permanent holding site was confirmed through this research, located outside of Jandairis in northern Aleppo. No permanent storage sites were evidenced so far in Idlib. While the current humanitarian-coordinated earthquake recovery has [prioritized](#) rubble removal, environmental management, and debris recycling in the months to come, risks presented by interim holding sites are likely to remain until rubble is moved to a space that meets standards for safe, long-term storage or until it is properly reused or recycled.

Post-earthquake recycling prospects

The scrap industry was prevalent in northwest Syria before the earthquakes but further expanded with the waste created by them. In particular, the rubble increased access to reusable and recyclable iron, copper, and aluminum in local markets in ways which facilitated small-scale reuse and trade.

While recycling capabilities are limited in northwest Syria, certain materials are able to be repurposed and reused locally. The industrial zone in al Bab hosts several aluminum recycling facilities, offering

¹ Data on displacement camps established after the earthquakes was sourced from the Camp Coordination and Camp Management Cluster (CCCCM) and reflects data as recent as May 2023. Data on pre-earthquake IDP camps was sourced from the Humanitarian Needs Assessment Programme’s (HNAP) Mobility and Needs Monitoring Assessment in November 2022. The locations of IDP camps may not be exact at the time of publication, but aim to identify areas where rubble sites may be in close proximity to camp-based communities.

local, recycled aluminum as a more affordable alternative to imported aluminum. Iron can also be repurposed and reused for construction using simple machinery or by hand and sells locally for between US\$450 and \$600 per tonne. In addition to the sale of such materials locally to construction companies, wholesalers, and other entities, materials are also exported by larger-scale traders to other regions of Syria and to Turkey.

Where possible, homeowners benefited from the reusability and profitability of these materials, and took particular care to collect such materials present in their rubble. The Civil Defense also reported [reusing](#) a portion of the sand and gravel caused by the earthquake to repave roads.

However, large-scale prospects to reuse the waste created by the earthquake are limited. While large stones present in the debris rubble could be reused for reconstruction, the region lacks the machinery needed to reshape and repurpose them. As a result, construction still has to rely heavily on imported materials despite their widespread presence following the earthquakes.

The scrap value chain

A scrap industry surrounds the trade and sale of reusable materials present in earthquake rubble. While moderate in size, the industry involves a multi-step market where scrappers collect from residents or unattended waste piles and sell to traders, wholesalers, and scrapyards. While profits in the scrap industry are likely concentrated among the larger-scale traders able to sell larger quantities or manage exports, the industry does not appear to have given rise to rampant profiteering. Private contractors who arranged deals with homeowners to remove rubble in exchange for reusable materials did not appear to have distinct links to harmful actors or the local war economy. Larger-scale traders involved in export appear to have been involved in the trade since prior to the earthquake, while new actors tend to operate at lower levels – typically residents trading or selling their scraps and individuals with access to heavy machinery who can be hired as contractors. One exception was, however, mentioned in Jandairis, where rubble was reportedly seized from a temporary dumping site by a local faction and sold to an affiliated merchant. While the case could not be independently verified, it indicates, at minimum, rumors circulating in the scrap industry following the earthquake.

For their part, local residents were highly cognizant of the risks of profiteering and looting in the weeks following the earthquake. Local residents often guarded their damaged homes and rubble piles and avoided engaging with local merchants and scrappers until after they had sorted their rubble. Fear of looting likely also contributed, in part, to preferences among some people to sort rubble themselves rather than wait weeks for the process undertaken by local authorities.

Local authorities' involvement in the scrap trade was not heavily noted in northern Aleppo. Comparatively, it appeared more visible in Idlib where some local councils mediate auctions of rubble materials between homeowners, traders, local construction companies, and scrapyard managers in attendance.

CONCLUSION

Communities in northwest Syria will continue to deal with rubble removal and earthquake waste in the months to come. The [latest data](#) on rubble clearance by OCHA (nearly three months dated at the time of writing) shows that at least 53% of all rubble has been cleared in northern Aleppo and 75% from Idlib. In some cases, a second round of removal will be needed, particularly in areas beyond the immediate earthquake zone where rubble has been stored temporarily in recent months. In Aleppo, local reports indicated that heavy machinery and support offered in the immediate weeks following the earthquake have since been withdrawn, creating potential gaps in upcoming phases of rubble removal. Some buildings damaged by the earthquake and still in [need](#) of rehabilitation are reportedly also at risk of demolition if not rehabilitated soon, which would prompt an additional round of rubble removal.

Given existing capacity limitations among local authorities, residents would likely bear part of the burden of new rounds of rubble removal, further exposing them to the risks highlighted here. This dynamic also indicates that several of the institutional limitations to a coordinated, quick response by the international community in the days following the earthquake continue to plague the response in northwest Syria, further undermining long-term recovery.

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The Crisis Analysis – Syria team (formerly HAT), was established in Beirut in March 2015 in response to the collective challenges facing the remote humanitarian response in Syria. CA-SYR's most important function is to collect and analyze data and information. Since 2015, our analysis has provided a forward-looking template for international interventions in Syria, and facilitated an increasingly adaptive, integrated, and ultimately impactful international response to the conflict. CA-SYR is a team within Mercy Corps, and is part of the Mercy Corps response to the Syrian crisis.

