



Thematic Report: The Impact of Armed Violence on Transport Infrastructure in Yemen

October 2020

Amid the ongoing conflict in Yemen, armed violence continues to take a heavy toll on the civilian population, killing and injuring thousands, destroying homes and livelihoods, and restricting freedom of movement and access to critical infrastructure and services around the country. Since the start of 2018, as many as 2 million households have faced restricted access to domestic and international transport infrastructure as a direct result of armed violence. The isolating effect of conflict on communities in Yemen has been further compounded by incidents of armed violence impacting on telecommunications infrastructure. This report will discuss the trends and implications relating to how armed violence has impacted on transport infrastructure, as hostilities pose restrictions to both domestic and international travel for civilians across Yemen, and telecommunications, as communities become increasingly isolated on account of the conflict. The report is based on CIMP data from 1 January 2018 to 31 August 2020.

The impact of armed violence on transport infrastructure: domestic travel

The conflict continues to impact civilians' access to domestic transport options from the local level up to the inter-governorate and national level. 148 incidents of armed violence have directly impacted roads and bridges, restricting access to domestic transport infrastructure for 572,013 households. Of 118 incidents of armed violence to have directly hit main roads, the majority (95; 81%) have been on account of airstrikes, while CIMP has recorded 17 instances of roads being hit by shellfire. Hudaydah and Sa'dah have been particular hotspots, most notably during 2018 and during the early part of 2019. A greater proportion of households have faced restricted access to transport infrastructure in the north of Yemen, which is host to most of the country's active frontlines.

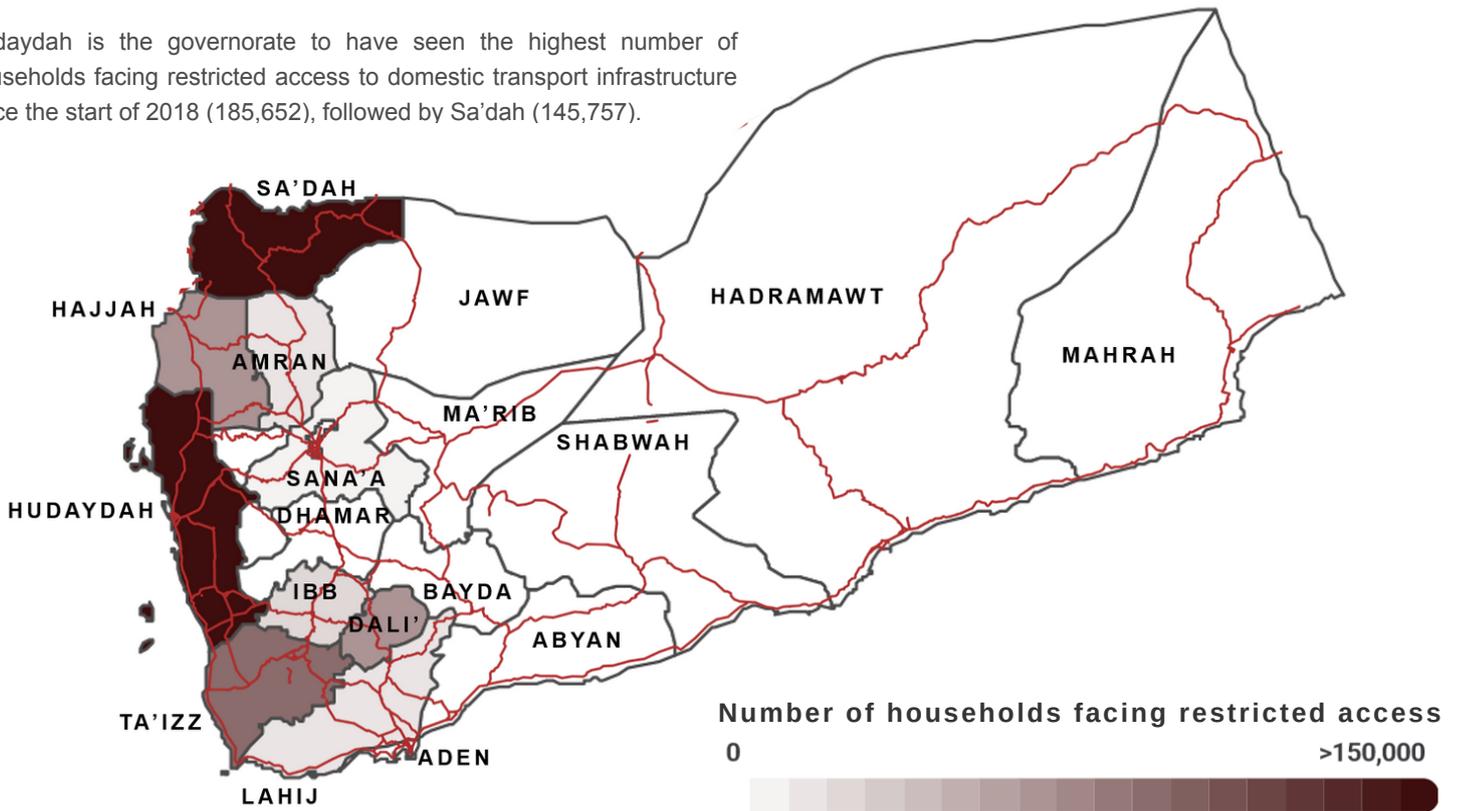
30 incidents of armed violence have directly impacted bridges since January 2018. Of these, 13 were on account of airstrikes, and another 13 were destroyed by IEDs. The targeting of bridges has been a particularly common tactic among the warring parties attempting to cut off supply lines and opposing forces' avenues of advance or retreat. These tactics are especially common in mountainous terrain, where valleys may be unpassable without a bridge, effectively severing routes, impacting not only the forces but also the civilians who rely on them.

Charts to show types of armed violence responsible for incidents impacting on domestic transport



Map to show major road networks and governorates with most households impacted

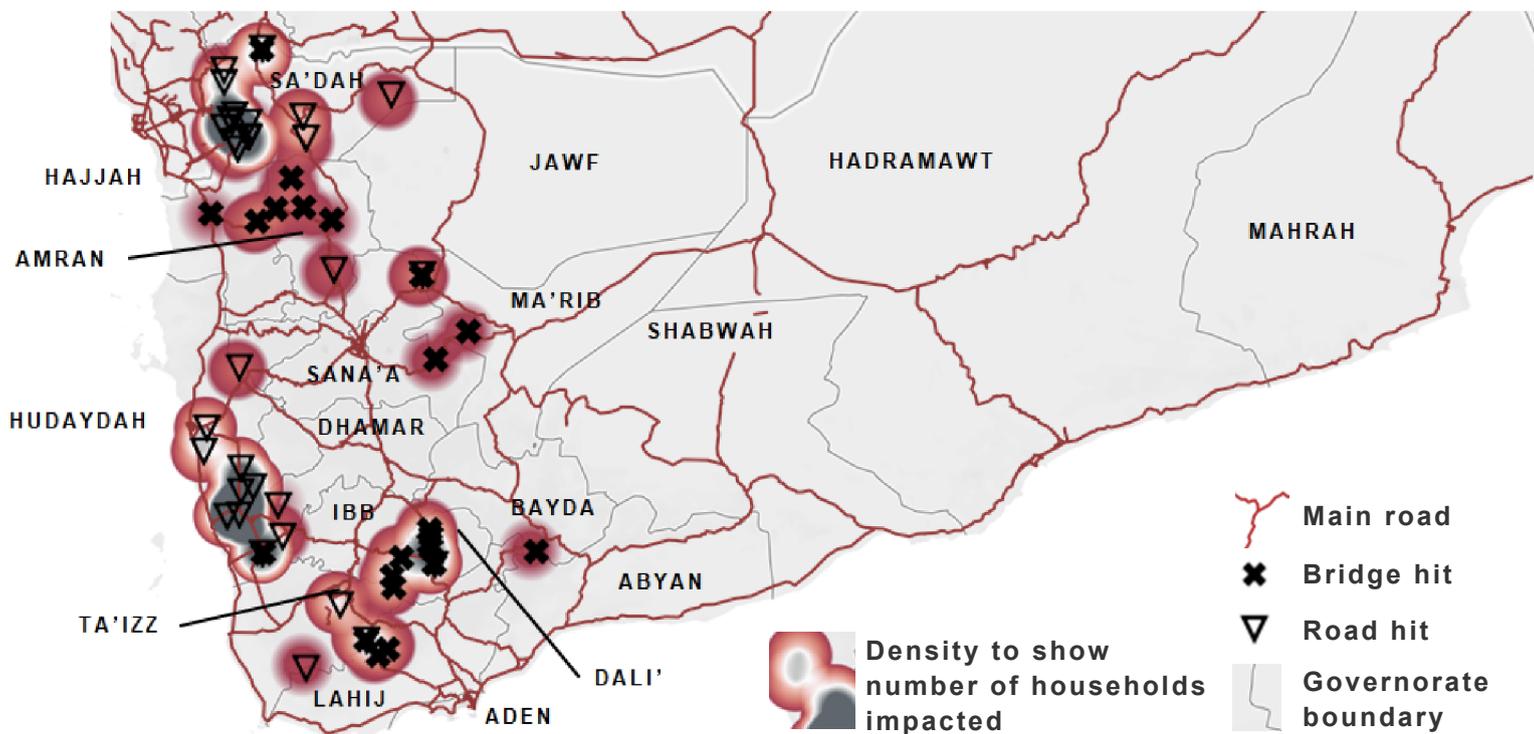
Hudaydah is the governorate to have seen the highest number of households facing restricted access to domestic transport infrastructure since the start of 2018 (185,652), followed by Sa'dah (145,757).



Case Study 1: Roads in western Sa'dah

The early years of the conflict saw pervasive reporting of airstrikes targeting main roads in Sa'dah's mountainous western border districts, such as the road in Marran, Haydan, which was directly hit 9 times in 2018, cutting off peripheral regions from the interior. Routes through similarly restrictive terrain in the border areas of Shada'a and Razih were also struck repeatedly throughout 2018, damaging routes upon which communities are dependent for inter-connectivity and trade networks, many of which operate across the border.

Map to show roads and bridges impacted by armed violence and density of households impacted



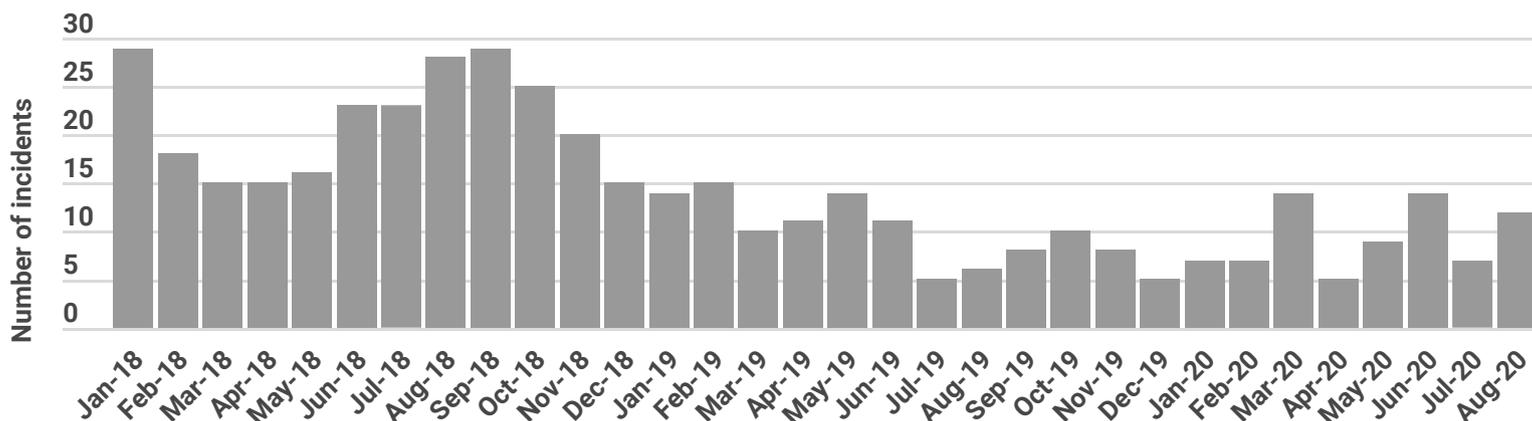
Case Study 2: Bridges in Dali' and Hudaydah

In Dali', the frontlines in Qa'atabah district have been among the most active in the country since March 2019. The hostilities have placed significant strain on access, with six bridge demolitions throughout 2019, posing severe access constraints along the main routes, preventing the movement of goods and inhibiting civilians' freedom of movement, including IDPs. The incidents not only disrupted travel within Dali', but also with other governorates, including neighbouring Ibb, as well as cutting off a critical link between Aden and Sana'a.

Bridges along the Sana'a - Hudaydah road have also been heavily damaged by airstrikes, rendering the route inaccessible to small cars and trucks carrying goods, passable only by 4WD vehicles suited for rough terrain, isolating the west coast.

There has, however, been a significant decrease in reports of roads being hit. In 2018, 48% (68) of the incidents impacting directly on transport infrastructure were recorded in Sa'dah governorate, but this reduced to 6 incidents in 2019, as airstrikes diminished. Similarly, 47 incidents were reported to have hit roads in Hudaydah in 2018, a third of the countrywide total. However, since the Hudaydah Ceasefire entered into force in December 2018, airstrikes decreased across the governorate; the following year, just 8 incidents were reported to have impacted roads in Hudaydah, most (6) on account of shelling. The drop is also possibly linked to coverage in the media, as the weight of the fighting has shifted to more remote areas with a more limited information landscape.

Chart to show monthly frequency of incidents of armed violence directly impacting roads



Protection Implications

Although there have been fewer instances of roads being directly hit by armed violence in the past year, there have been reports of enforced road closures on account of nearby hostilities. As critical supply routes, main roads often become the focal point of hostilities, as forces battle to control strategic routes and junction points. The mountainous terrain in large parts of the country makes these routes particularly important, as route closures risk disrupting, if not entirely preventing, the movements of people, goods, and aid, both in and between different parts of the country.

Communities in Yemen, particularly remote ones, rely heavily on mutually supportive networks, both socially and from a trading perspective. When sections of critical routes are damaged or destroyed by armed violence, family and tribal networks may be cut off from one another, while trading partners and exchange networks may also be severely disrupted. Long term constraints on transport infrastructure will likely serve to alter the trading and exchange networks, especially in mountainous areas. The roads around which hostilities tend to focus are those of strategic significance, often main supply routes, and disruption to these routes can therefore impact upon a broad swathe of the country's population too.

The restrictive, mountainous terrain in Yemen means that these isolated, remote communities are particularly vulnerable when the fragile road systems connecting them with essential hubs and services are rendered unpassable, which is more so the case when bridges are impacted. Households may be cut off from critical services, including health and education facilities, humanitarian assistance, and even sources of food and water, until time and resources are invested in constructing alternative routes.

There are also cases, however, whereby even if directly hit by airstrikes or shelling, roads may remain passable, or may be cleared shortly after an incident. Nonetheless, regardless of the extent of damage, their usability is likely to be impacted due to the very tangible threat associated with passing along a route that has been subjected to violence, and which may again be targeted, especially if clashes are ongoing in the area, exacerbating the psychosocial distress of travelling.

There have been instances of civilians becoming trapped amid hostilities on account of road closures, unable to relocate, heightening their vulnerability to harm. Moreover, civilians have been impacted by armed violence on main roads while attempting to flee from hostilities, with such incidents obstructing civilians' ability to relocate to safety, when the road networks that should facilitate an escape themselves become a danger to use.

Case Study 3: IDPs in Hudaydah

On 23 August 2018, a truck carrying several families was struck by an airstrike in Hudaydah, resulting in 27 civilian fatalities, including 5 women and 20 children. The families had been travelling along a road in Ad Durayhimi in an attempt to flee from Al-Kou'ei village, following airstrikes the night before that had killed five of their family members, and injured two more. Since the start of 2018, Hudaydah has seen 11 instances of displaced persons facing obstructions to flight from hostilities on account of armed violence impacting their vehicles, resulting in 92 civilian casualties, including 50 fatalities. Ad Durayhimi remains an area of particular concern, as the town has been largely cut off from external support due to ongoing hostilities.

Methodology notes

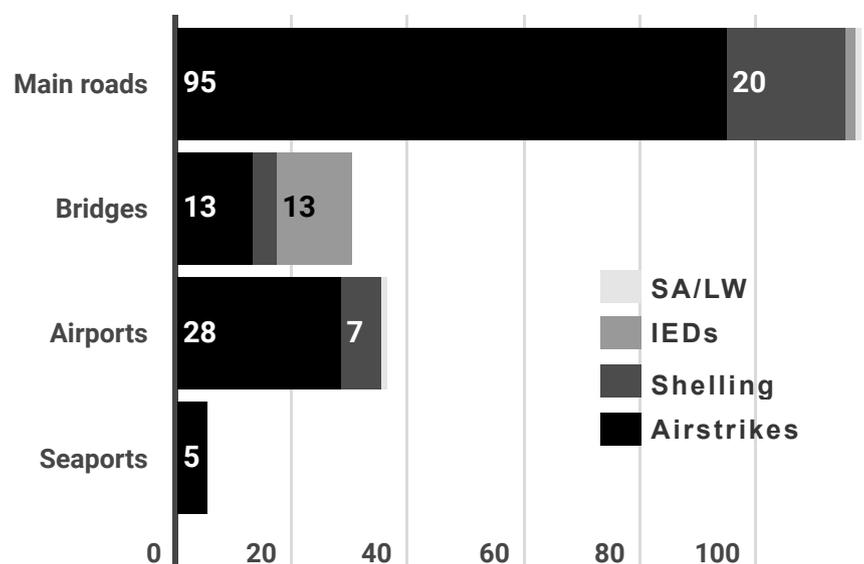
When transport infrastructure is impacted, the number of households impacted is calculated using 2017 district-level population projections, based on the assumption that restricted access to transport infrastructure will impact on all households in the affected district. This report has also taken incidents impacting civilian vehicles as an indicator of restricted access to domestic transport, on the assumption that the vehicles were travelling on roads when hit, also acting as a deterrent to road use.

The impact of armed violence on international travel

International transport hubs have also been among the sites impacted by armed violence in Yemen. 40 incidents of armed violence have impacted directly on airports and seaports in Yemen since 1 January 2018, 80% of which have been on account of airstrikes. These incidents, including 12 instances of airstrikes hitting Sana'a airport, and another 12 on Hudaydah airport, have resulted in restricted access to overseas travel for as many as 1,767,638 households. International transport has been less impacted in the south of the country, which is largely removed from the main frontlines and sees significantly fewer airstrikes.

Although many of these sites are currently unavailable for civilian use due to broader conflict dynamics, such incidents run the risk of prolonging the post-conflict rehabilitation period, posing the threat of UXO, while also resulting in damages to these critical sites.

Number of incidents to impact transport infrastructure sub-types, by type of armed violence



The impact of armed violence on vehicles

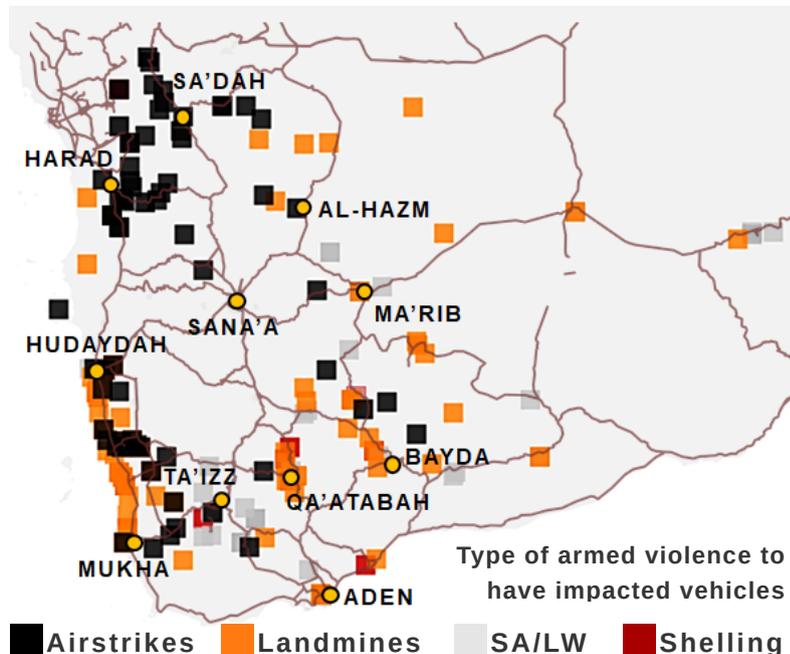
Also presenting severe restrictions to civilians' freedom of movement along roads are incidents impacting on civilian vehicles. Since 1 January 2018, CIMP has recorded 300 instances of armed violence impacting civilian vehicles, including 100 landmine incidents. Another 13 landmine incidents have impacted civilians travelling by foot along roads; whether travelling by car, cart, bicycle or on foot, incidents impacting on civilians' safety along roads result in severe restrictions to freedom of movement. Incidents impacting on vehicles have resulted in 920 civilian casualties, including 213 children and 70 women. The incidents largely correspond with active and former frontline areas, predominantly mapping to the country's main lines of control.

Protection Implications

Even if roads do not necessarily themselves sustain significant damage, routes along which civilians are more commonly impacted by armed violence while travelling are likely to become associated with danger, indirectly restricting access. This may hinder civilians' propensity to travel,

impinging on access to essential services and facilities, including humanitarian assistance, and serving to further isolate communities impacted by hostilities. Moreover, should necessary travel be required, the prospect of travelling along a route known to harbour a potentially fatal threat is also likely to heighten issues of distress and trauma. Civilians may be forced to travel cross-country or along alternative routes, lengthening journey times and potentially exposing them to further landmines.

Map to show incidents impacting vehicles

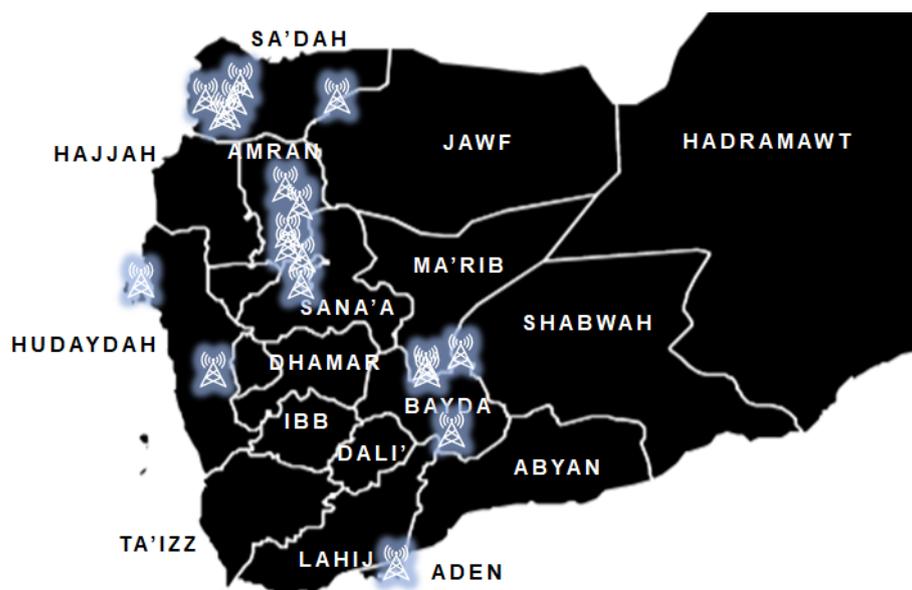


Impact of armed violence on telecommunications infrastructure

Incidents impacting on telecommunications infrastructure have served to isolate communities in a more virtual sense. 44 incidents of armed violence have impacted telecommunications infrastructure since the start of January, restricting virtual access for as many as 312,886 households. Governorates to have seen the highest numbers of households impacted by virtual access constraints are Hudaydah (88,237), Sa'dah (75,475 households), and Sana'a (54,496). 39 (89%) of incidents impacting telecommunications have been on account of airstrikes, restricting access to communications for as many as 295,622 households.

17 incidents have already impacted on communications infrastructure in 2020; while the number of incidents directly impacting on physical access routes appears to be decreasing, 2020 has seen a resurgence in the number of incidents impacting on telecommunications infrastructure; it is not an uncommon tactic for warring parties to cut telecommunications across districts prior to the launch of military offensives, or amid ongoing hostilities, to put opposition forces at a disadvantage.

Map to show locations of impacted telecommunications towers



Protection Implications

Incidents damaging or destroying telecommunications infrastructure affect virtual access networks across the country, exacerbating the isolating effect of armed conflict, particularly for those communities that are already peripheral or in remote mountainous communities, such as those in Sa'dah.

The Civilian Impact Monitoring Project is a service under the Protection Cluster for the collection, analysis and dissemination of open source data on the civilian impact from armed violence in Yemen, to inform and complement protection programming.



Protection Cluster Yemen

For more information, please visit www.civilianimpactmonitoring.org



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