

This initial quantification of conflict generated debris in the Gaza Strip is derived from a UNOSAT Comprehensive Damage Assessment using imagery from 3 and 6 September 2024, in conjunction with updated building footprint as of May 2023 based on the national statistical office data. Damaged building footprints were enriched through zonal statistics with an above surface height model, derived from the difference between a Digital Terrain Model (SRTM) and a Digital Surface Model (ALOS World 3D) as provided by the European Commission in the GHS-Built H product.

For modelling purposes, minimum building height and average story height were considered to be 3m. Each built sq. meter is considered to have generated 1 tonne of debris.

For visualization and modelling purposes, results were aggregated into an H3 hexagonal grid where each cell is 250m wide.

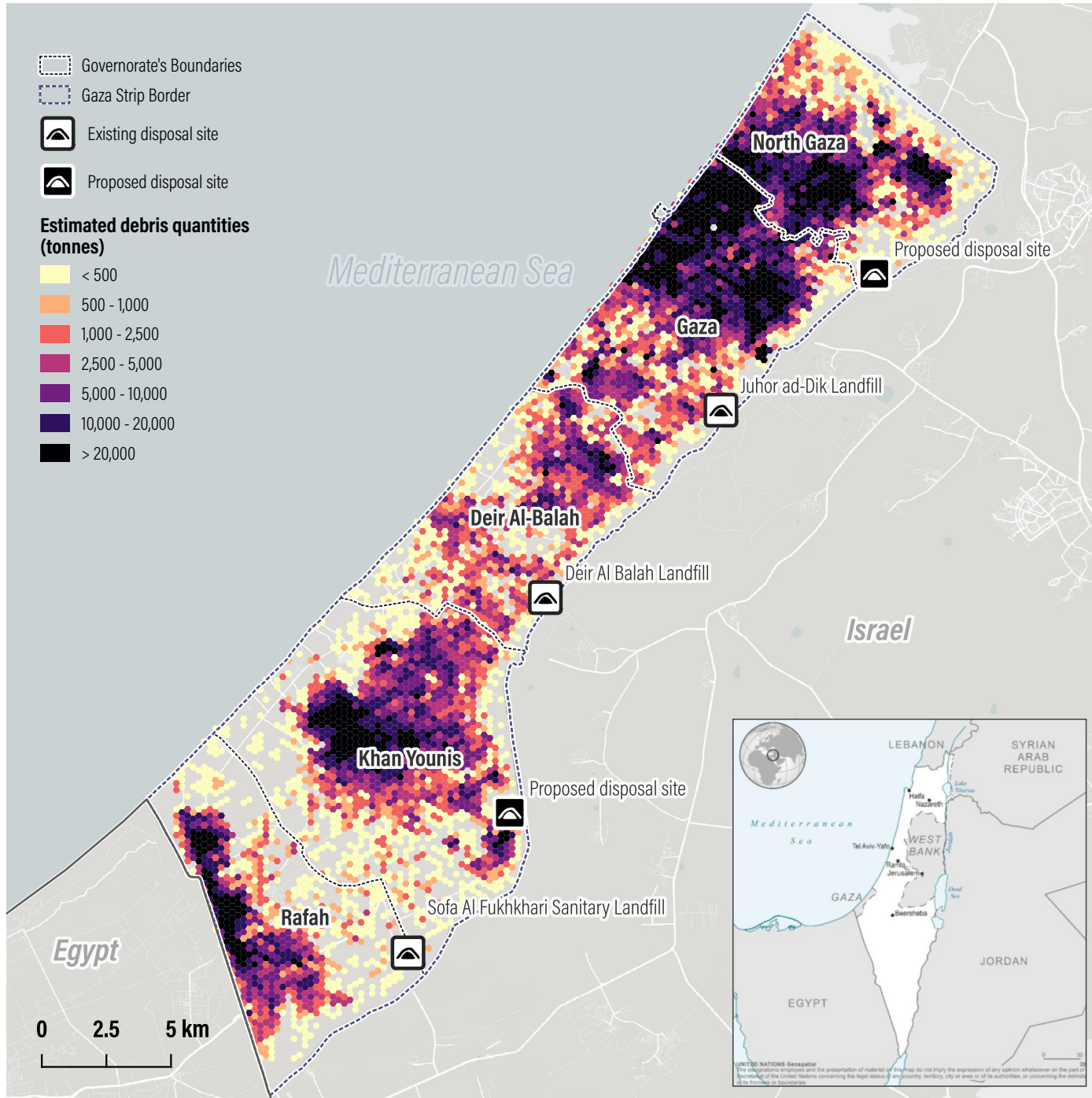
Debris generated in each governorate:

North Gaza	8,805,052 t
Gaza	16,149,019 t
Deir Al-Balah	2,581,786 t
Khan Younis	8,611,816 t
Rafah	4,546,691 t
Damaged Roads	6,705,178 t

Total 47,399,542 t

The debris generated by the conflict increased from 22,930,000 tonnes on 7 January 2024 to 47,399,542 tonnes by 6 September 2024, marking a 107% rise over 8 months.

The most significant increase was observed in Rafah at 1477%, while Khan Younis and Deir Al-Balah saw increases of 166% and 115% respectively. Notably, Gaza Governorate recorded the highest total amount of debris, with a 72% increase during the same period.



- Governorate's Boundaries
- Gaza Strip Border
- Existing disposal site
- Proposed disposal site

Estimated debris quantities (tonnes)

- < 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- 5,000 - 10,000
- 10,000 - 20,000
- > 20,000

Datum: WGS 1984
Coordinate System: Universal Transverse Mercator 36N

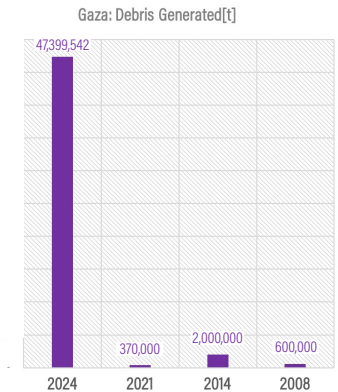
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Debris management Preliminary outputs

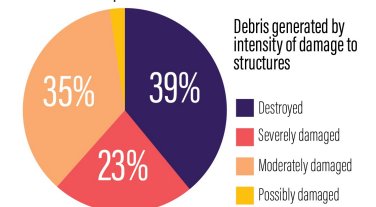
Total debris quantity (metric tonnes) **47,399,542**

According to UNOSAT damage assessment, a total of 163,778 structures were damaged in the Gaza Strip as of 6 September 2024. Of these, 52,564 (32%) were destroyed, 18,913 (11%) severely damaged, 56,710 (34%) moderately damaged and 35,591 (23%) possibly damaged. This corresponds to approximately 66 per cent of the total structures in the Gaza Strip.

So far, debris generated by the current conflict is 16 times more than the combined sum of all debris generated by other conflicts since 2008. For each 1 sqm in the Gaza Strip, there is over 129 kg of debris.



This preliminary analysis has not yet been validated in the field and is appropriate for general planning of debris operational responses and related humanitarian action in the Gaza Strip.



The pie chart above shows the debris generated per number of buildings, categorized by the extent of damage. For example, while the 'destroyed' buildings represent 30% of the affected buildings, they account for 39% of the total debris generated.