

# VERIFICATION OF DAMAGES TO SCHOOLS

Update # 5  
July 2024

based on proximity to damaged sites - Gaza, Occupied Palestinian Territory



## The catastrophic damages to the education system in Gaza!

**In Gaza, 17 years of blockade combined with recurrent conflict have damaged and destroyed an already fragile education infrastructure: increasing pressure on education facilities, disrupting education provision, and impacting the psychosocial wellbeing of children and teachers. The recent hostilities in Gaza has tragically witnessed a high trend of attacks on school facilities, exacerbating the already dire humanitarian situation.**

Since October 7th, the Education Cluster "EC" has been monitoring and reporting on damages to schools through initial reports from Cluster partners in the field, UNOCHA, and

UNRWA. In addition, the EC has activated the Education Cluster Assessment Team (ECAT) that has been deployed to verify damages on each occasion the situation allowed.

# Objective

Due to the increased access limitation to the field across the Gaza Strip, and the intense Israeli bombardment from air, land, and sea across much of the Gaza Strip, in addition to recurrent telecommunication shutdowns, the Cluster administered a Satellite-derived Damage Assessment to:

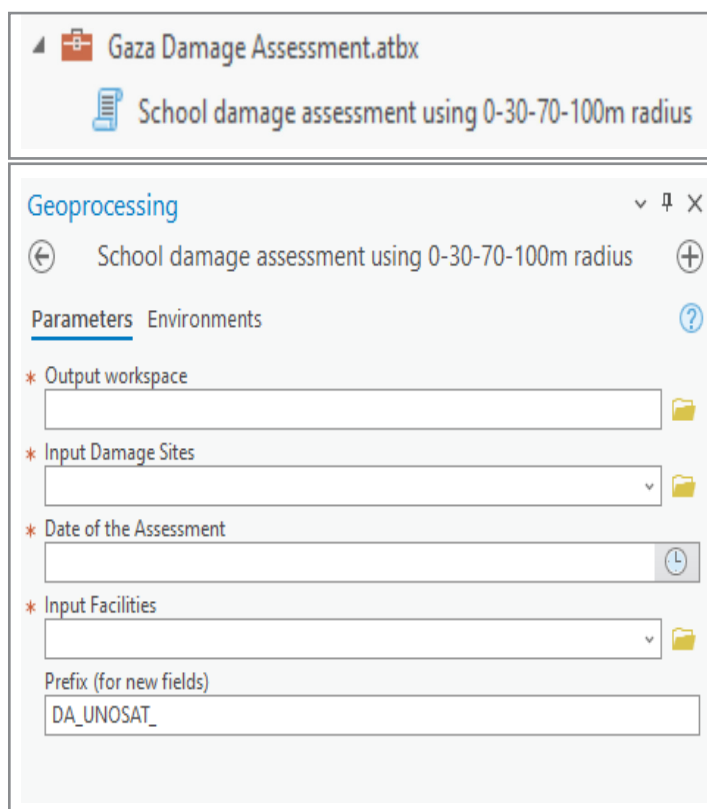
- To update the results of the previous report on school damages based on proximity to damaged sites including new trends and severity of damages.
- To better understand the situation of school buildings and the severity of damage, especially in areas with limited field access.
- To help in updating the Flash Appeal as part of the Cluster Response Plan and allocate resources where they are most needed, ensuring a swift and effective recovery process.

- Communicate the impact of the ongoing hostilities on school facilities to the public, including humanitarian actors. This information helps raise awareness about the severity of the situation and can facilitate evidence-based engagement in recovery efforts.

**The Education Cluster published the first update of the “Verification of damages to schools based on proximity to damaged sites” on the 10th of February, the second update on the 26th of March, the third update on the 25th of April, and the fourth update on the 3rd June**

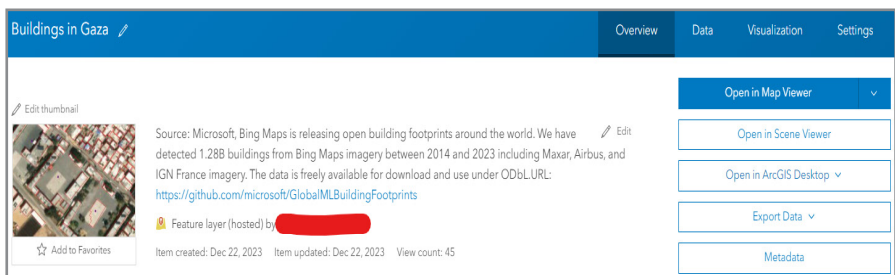
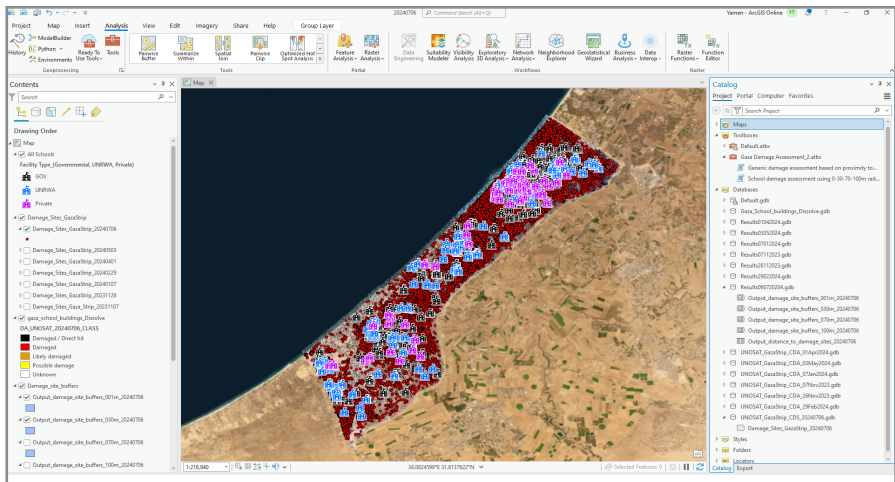
# Methodology

- **Tools:**
  1. ArcGIS Pro – mapping environment
  2. Python Script with ArcGIS Toolbox UI



- **Sources:**

1. **UNOSAT damage assessments:**  
Analysis by the United Nations Satellite Centre (UNOSAT) / Damage\_Sites\_GazaStrip\_20240706
2. **Satellite Imagery:** 06 July 2024 © Maxar 2024
3. **Boundaries: OCHA oPt School facilities (GPS coordinates):** Palestinian MoE
4. **Microsoft Building Footprints:**  
Bing Maps is releasing open building footprints around the world. Which have detected 1.28B buildings from Bing Maps imagery between 2014 and 2023 including Maxar, Airbus, and IGN France imagery. The data is freely available for download and use under ODbL.



- **Damage Classifications:**

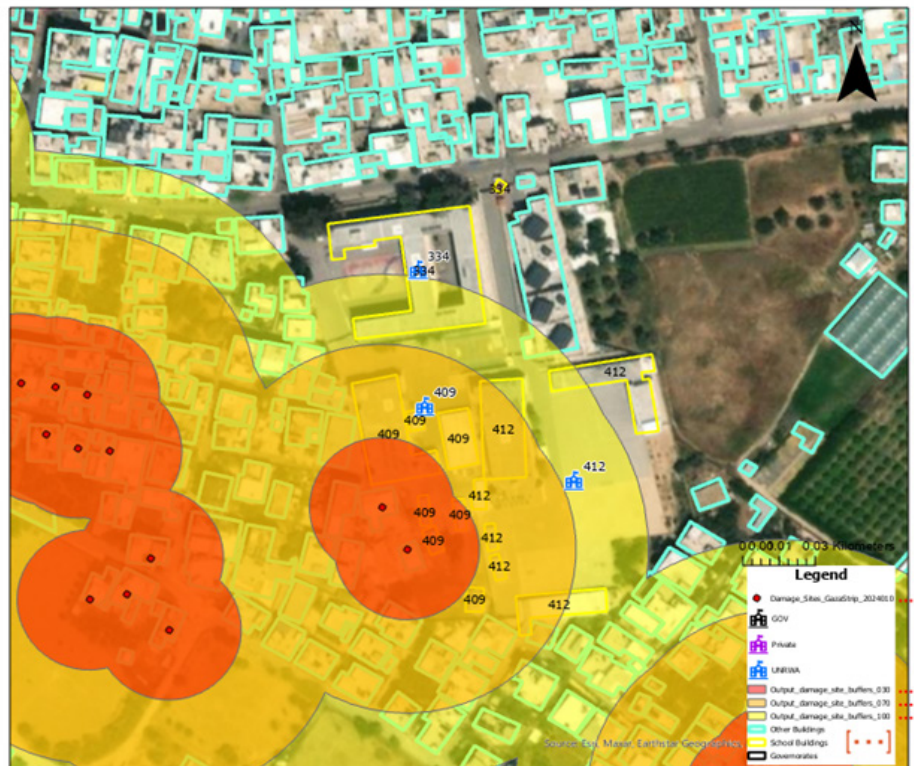
The assessment classify the probability of damage to school buildings (using building footprints) based on the proximity to damage sites identified by UNOSAT:

1. **Direct hit:** at least one school building has been **directly** hit and at least one damaged school structure has been identified within school premises.
2. **Damaged:** at least one damaged site has been identified within 30m of the school buildings. This could indicate **severe damage** to school structures. A hit within school premises but not directly to a building (for example: a hit to school playground) is classified under this category.
3. **Likely damaged:** at least one damaged site has been identified within 30-70m of the school buildings. This could indicate **moderate damage** to school structures.
4. **Possible damage:** at least one damaged site has been identified within 70-100m of the school buildings. This could indicate **minor damage** to school structures.
5. **Unknown:** school buildings with no reported damage sites within 100m. This could indicate that school structures have **not** sustained damage.

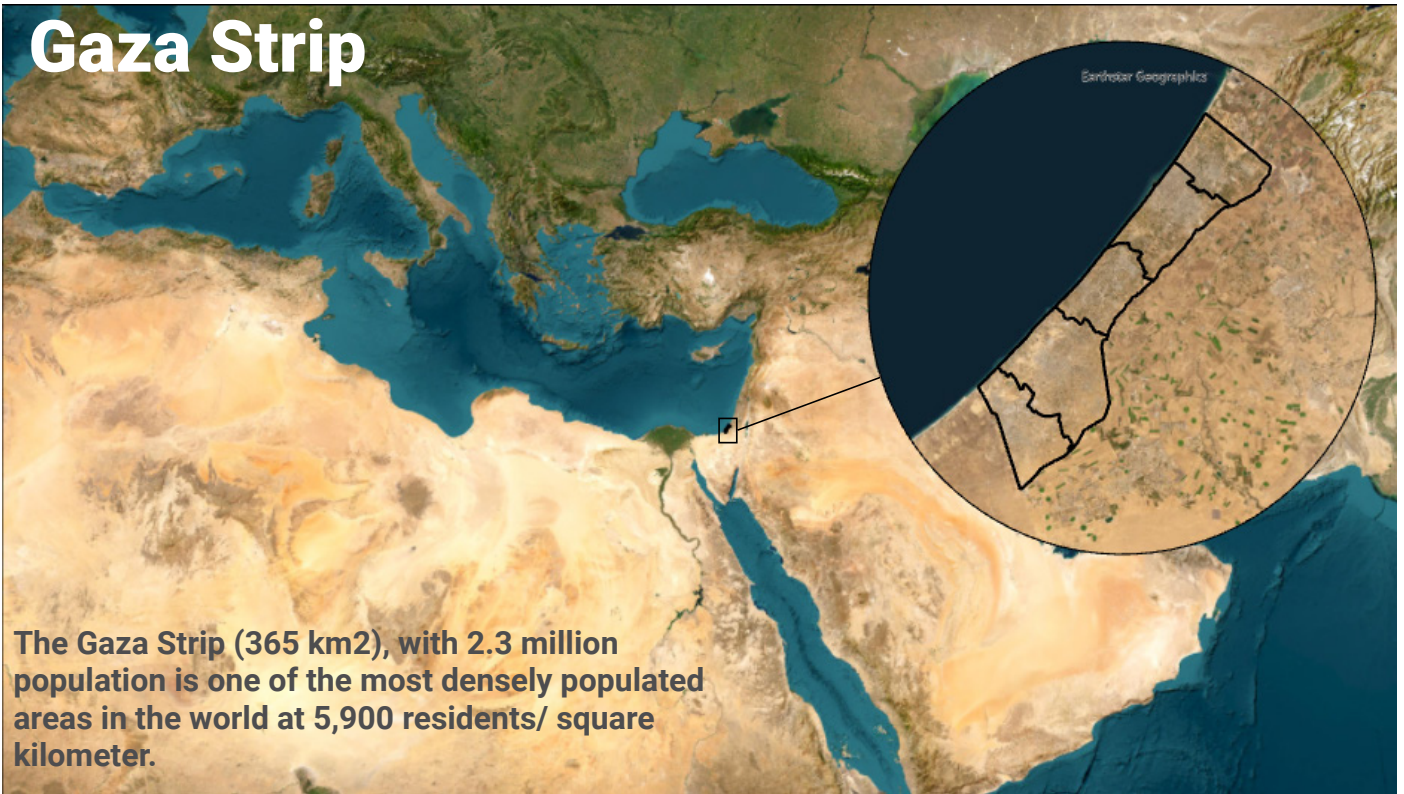
# Building Footprints

Building footprint is a polygon, representing a specific building structure in the physical world.

To represent schools using building footprints rather than points, to enhance the proximity analysis, the Assessment Team utilized Microsoft Building Footprints for the Gaza Strip which has 280,227 features as building footprints. Accordingly, the Assessment Team linked relevant building footprints to their respective schools.

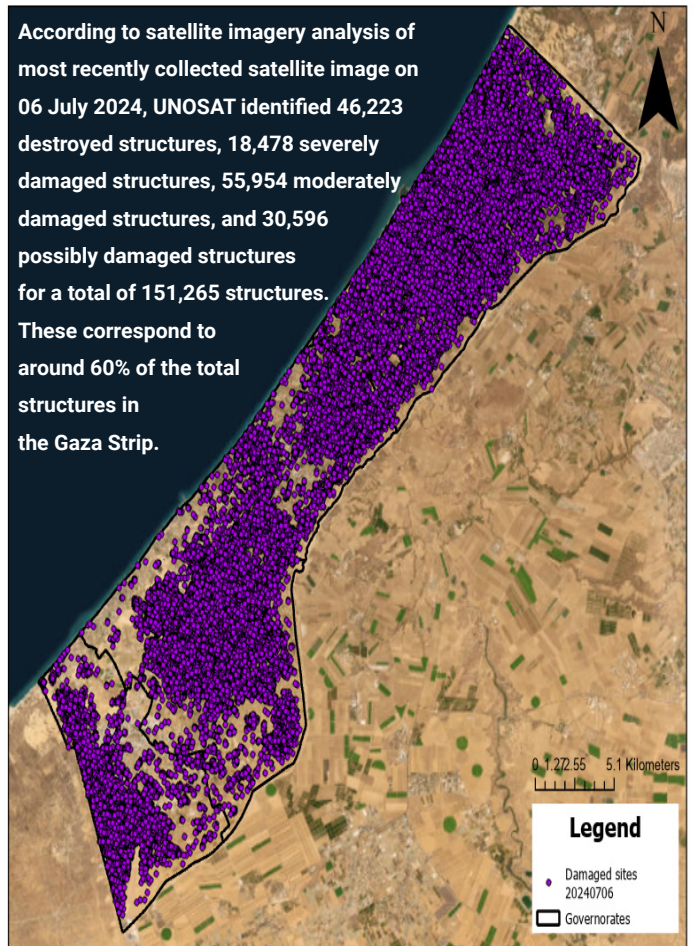
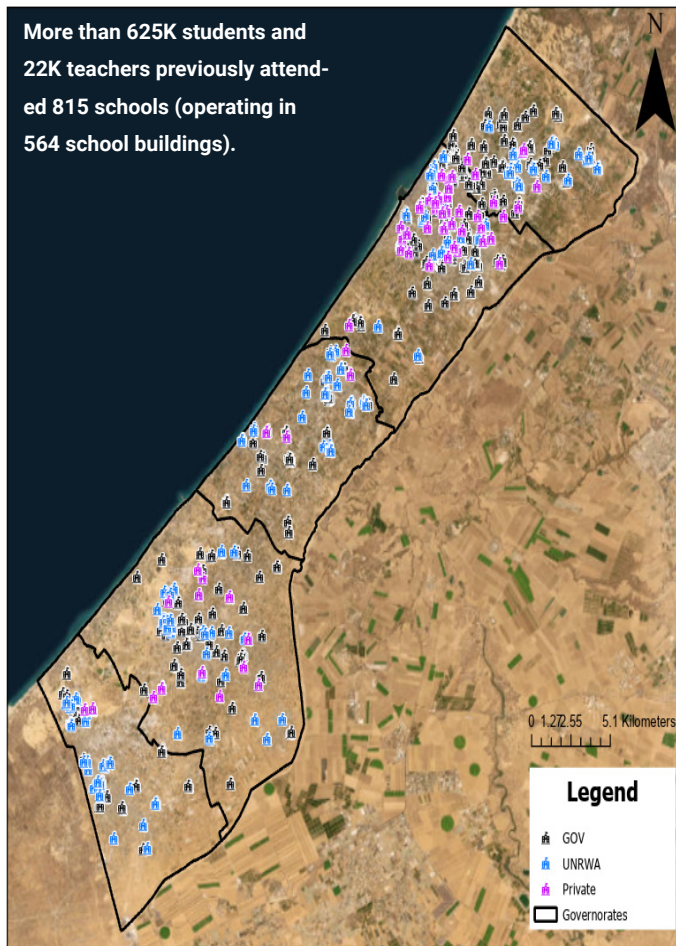


# Gaza Strip



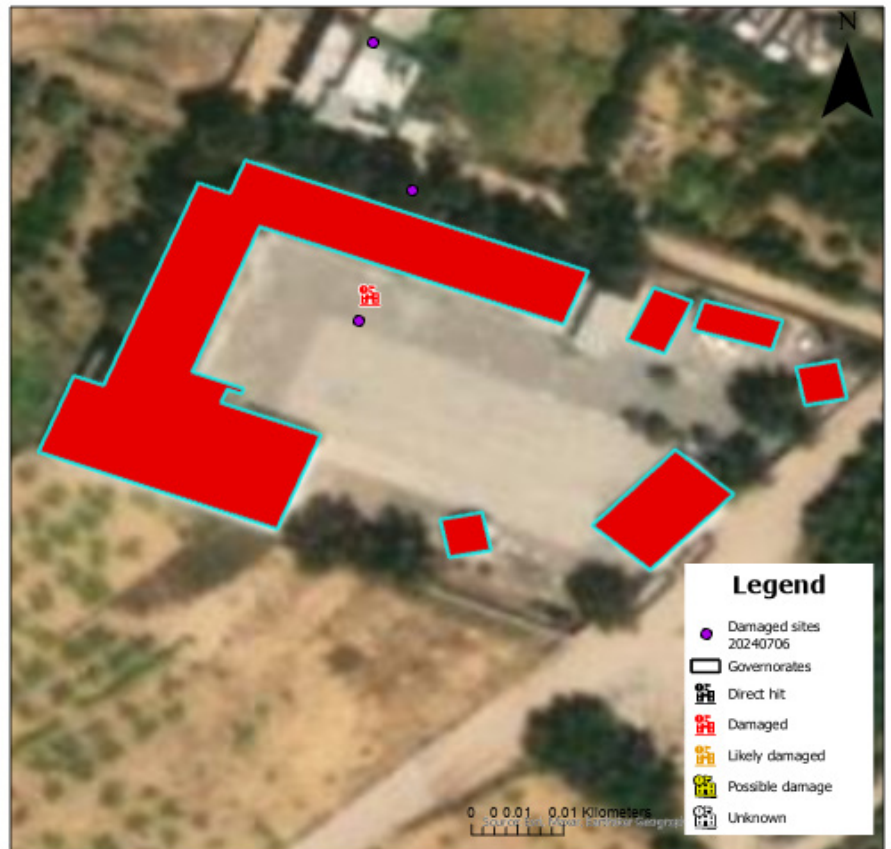
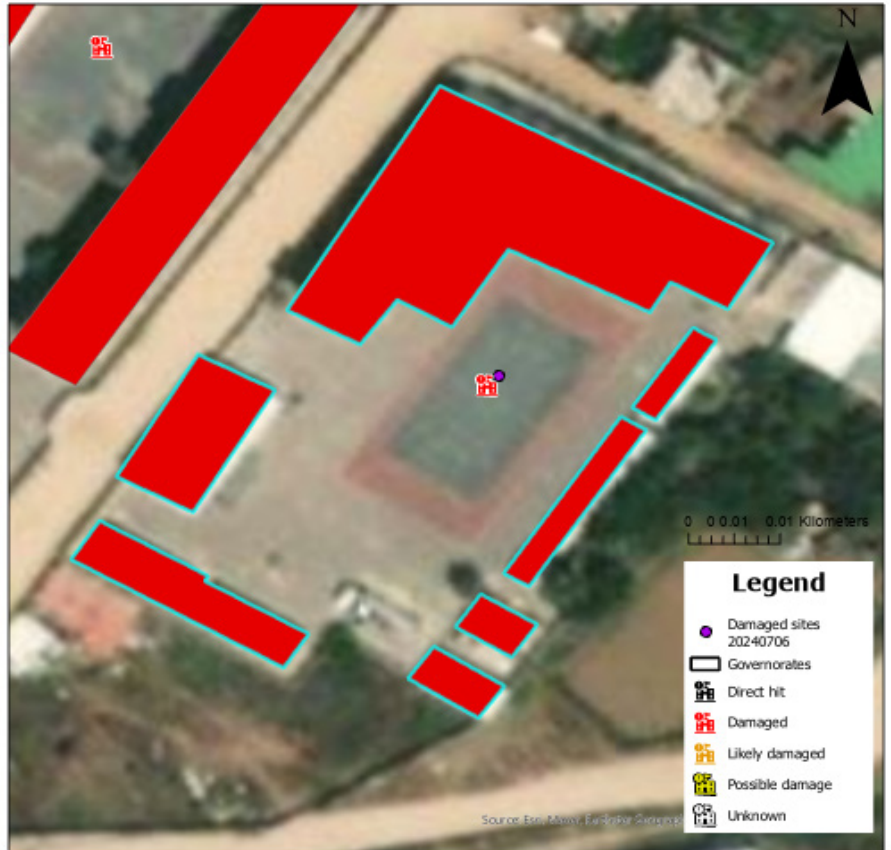
The Gaza Strip (365 km<sup>2</sup>), with 2.3 million population is one of the most densely populated areas in the world at 5,900 residents/ square kilometer.

## School buildings and Damaged sites

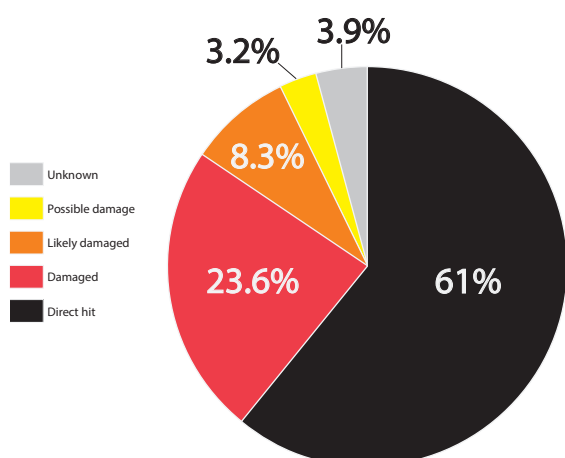


# Remark

A hit within school premises but not directly to a building (for example: a hit to school playground) is classified under “**Damaged**” category.



# Findings



- The assessment found that **344 school buildings** have been “**Direct hit**” since 7 October 2023, this represents **61%** (a **+6.5%** increase from the previous reporting period) of the total school buildings in Gaza.
- Satellite-derived analysis found that at least **65 schools** were **Totally destroyed** (4 schools more compared to the previous reporting period). Another **43 schools** lost at least **half** of its structures.

## PROBABILITY OF DAMAGE

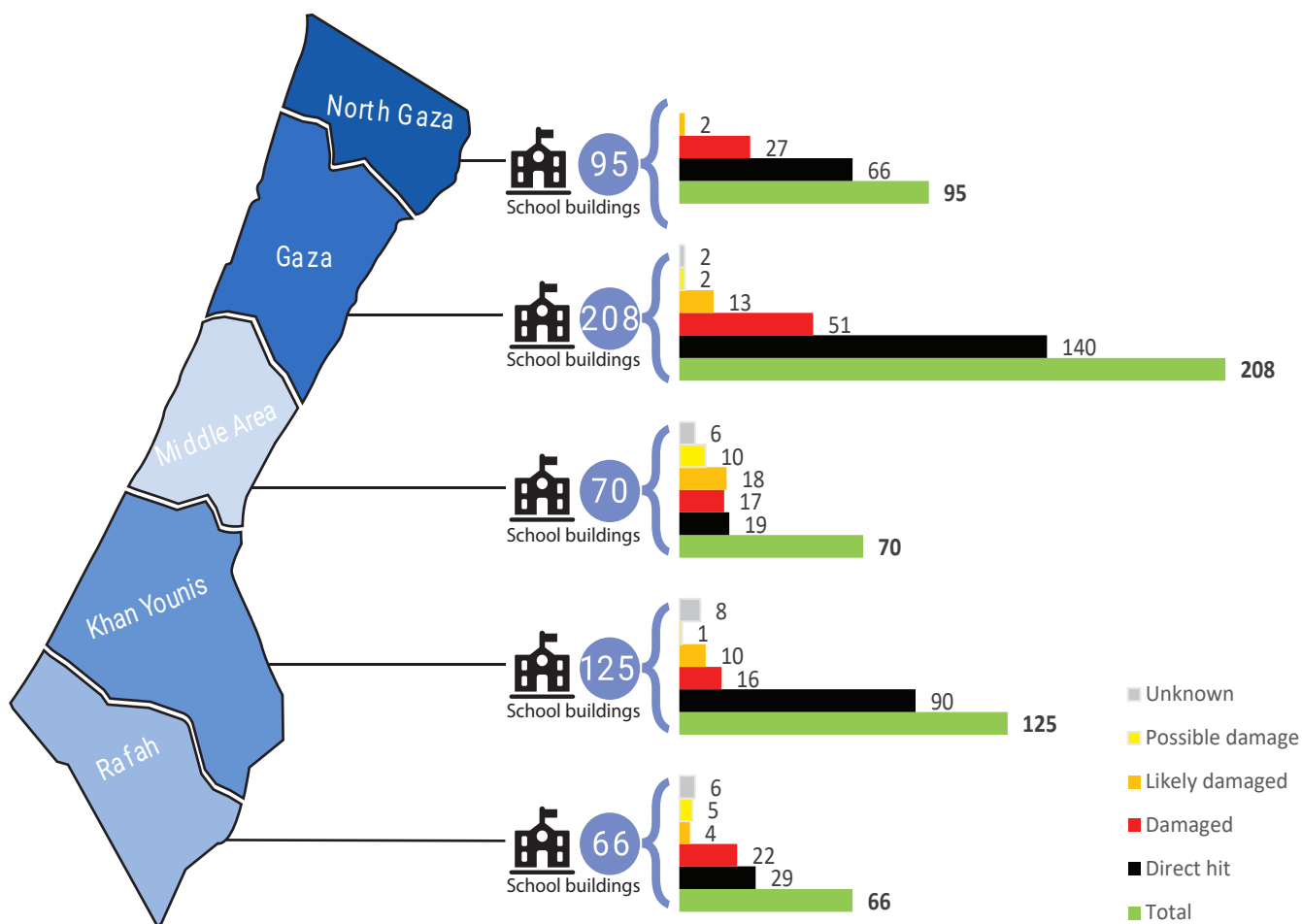
CLASSIFICATIONS	TOTAL (SCHOOL BUILDINGS)	% (OUT OF TOTAL SCHOOL BUILDINGS)
<b>Direct hit</b> (at least one school building has been <b>directly</b> hit and at least one damaged school structure has been identified within school premises)	344	61.0%
<b>Damaged</b> (at least one damaged site has been identified within 30m of the school buildings. This could indicate <b>severe</b> damage to school structures)	133*	23.6%
<b>Likely damaged</b> (at least one damaged site has been identified within 30-70m of the school buildings. This could indicate <b>moderate</b> damage to school structures)	47	8.3%
<b>Possible damage</b> (at least one damaged site has been identified within 70-100m of the school buildings. This could indicate <b>minor</b> damage to school structures)	18	3.2%
<b>Unknown</b> (school buildings with no reported damage sites within 100m. This could indicate that school structures have <b>not</b> sustained damage)	22	3.9%
<b>TOTAL</b>	<b>564</b>	

\* 31 hits have been identified inside schools’ boundaries (playgrounds), but have not hit school buildings, classified as “Damaged”, See the previous page.

## PROBABILITY OF DAMAGE (DAMAGE PER GOVERNORATE)

CLASSIFICATIONS	NORTH GAZA	GAZA	MIDDLE AREA	KHAN YOUNIS	RAFAH	TOTAL (SCHOOL BUILDINGA)
Direct hit	66	140	19	90	29	<b>344</b>
Damaged	27	51	17	16	22	<b>133</b>
Likely damaged	2	13	18	10	4	<b>47</b>
Possible damage	0	2	10	1	5	<b>18</b>
Unknown	0	2	6	8	6	<b>22</b>
<b>TOTAL</b>	<b>95</b>	<b>208</b>	<b>70</b>	<b>125</b>	<b>66</b>	<b>564</b>

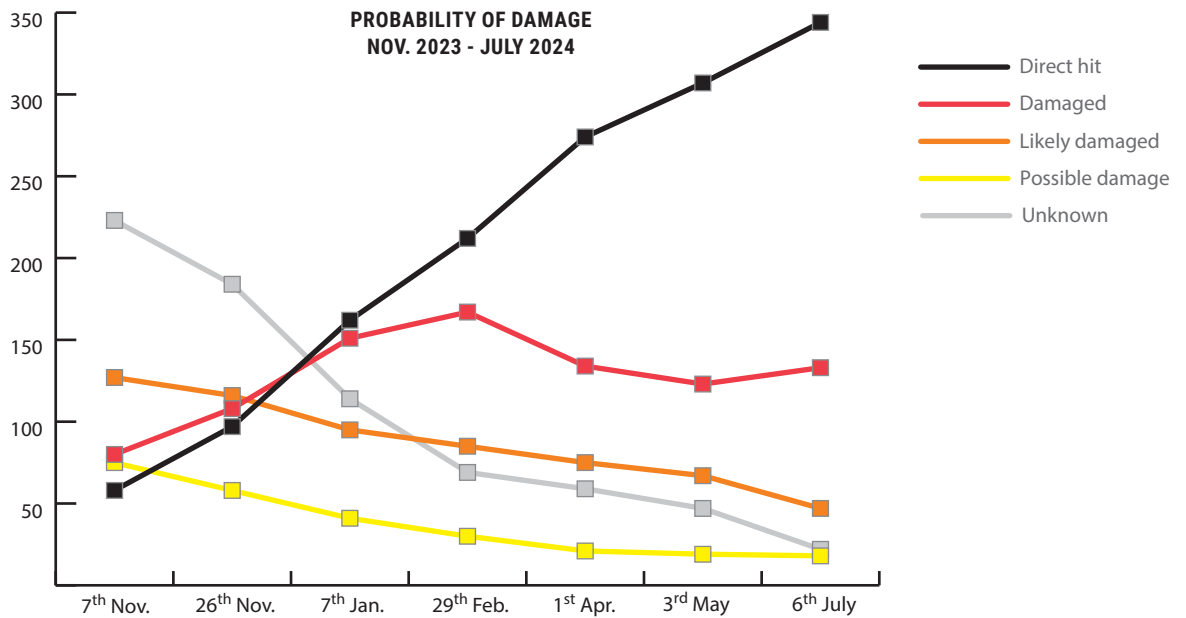
- **North Gaza** governorate is the most affected with **97.9%** of its school buildings being either “**Direct hit**” or “**Damaged**”, followed by **Gaza** governorate with **91.8%** of its total school buildings. While **72%** of **Khan Younis** governorate school buildings are directly hit.



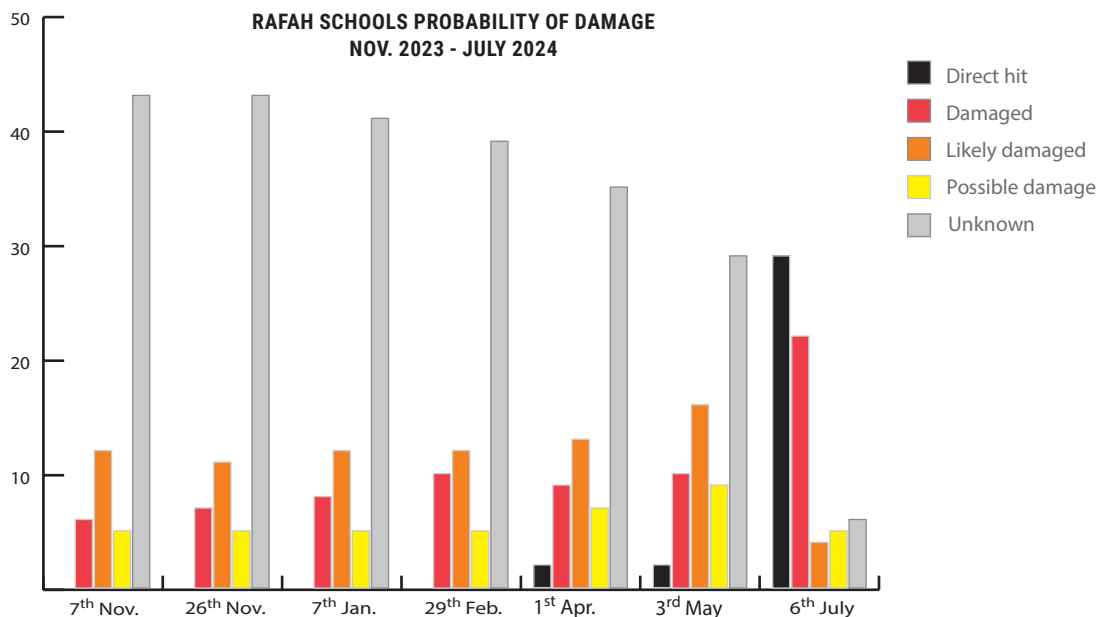


# Trends

- The spike in directly targeting schools continues throughout this escalation, the assessment shows that schools have been affected by damages several times, including **22** schools that had been classified as “**Damaged**” in the previous analysis on 3<sup>rd</sup> May have been affected by additional hits during June and now classified as “**Direct hit**”.
- The assessment found that **344** school buildings have been “**Direct hit**” since 7 October 2023, this represents **61%** (a +6.5% increase from the previous reporting period) of the total school buildings in Gaza.



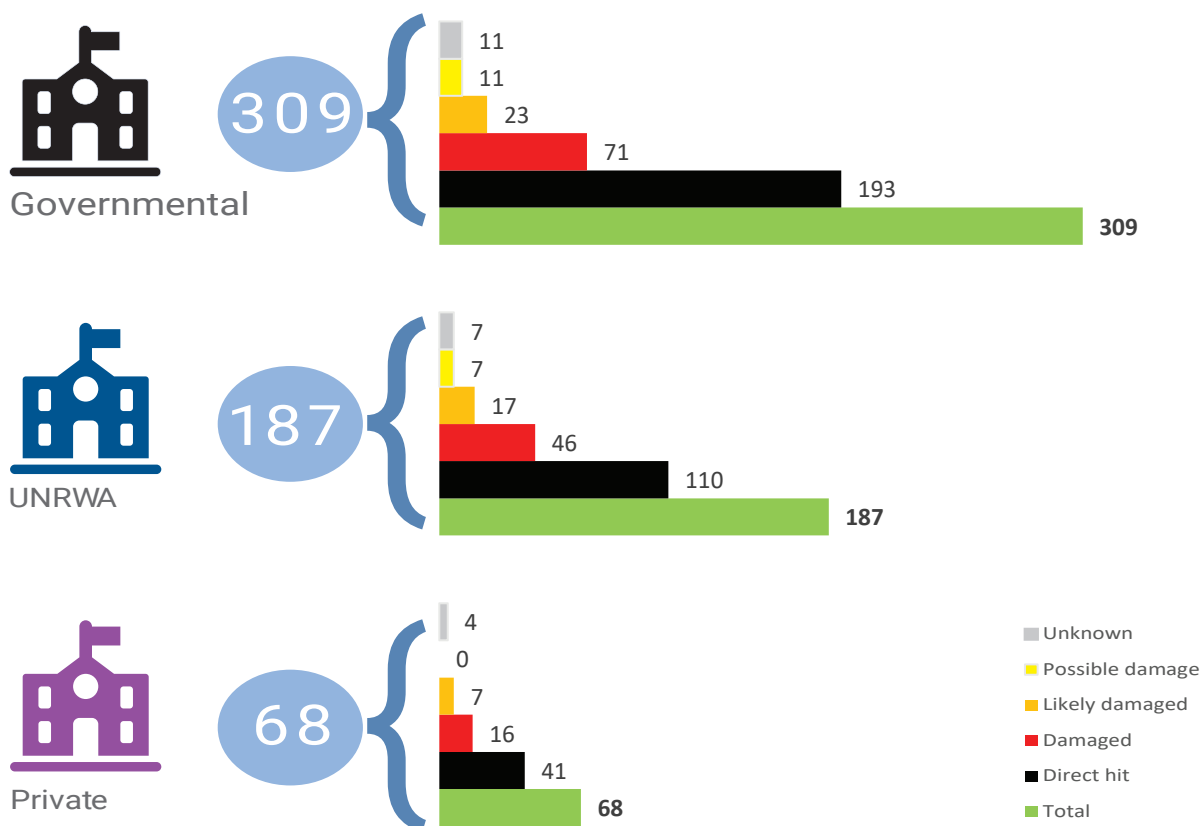
- Since the last damage analysis on the 3<sup>rd</sup> May, an additional **35** school buildings have been classified as “**Direct hit**”, **21** of them in the Rafah governorate.



## PROBABILITY OF DAMAGE (DAMAGE PER TYPE)

CLASSIFICATIONS	GOVERNMENT	UNRWA	PRIVATE	TOTAL (SCHOOL BUILDINGA)
Direct hit	193	110	41	<b>344</b>
Damaged	71	46	16	<b>133</b>
Likely damaged	23	17	7	<b>47</b>
Possible damage	11	7	0	<b>18</b>
Unknown	11	7	4	<b>22</b>
<b>TOTAL</b>	<b>309</b>	<b>187</b>	<b>68</b>	<b>564</b>

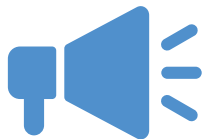
- The assessment found that during the last two months, there has been a significant spike in targeting UNRWA school buildings! **156** UNRWA school buildings have been either “Direct hit” or “Damaged” since 7 October 2023, this represents **83.4%** (a **+16.4%** increase from the previous reporting period) of the total school buildings in Gaza.



# Conclusion

- This Satellite-derived Damage verification exercise **CONFIRMED** the large level of damage to schools previously reported by the cluster in Gaza.
- This exercise indicates that **92.9%** of schools sustained some level of damage to their buildings, this includes “Direct hit”, “Damaged” and “Likely damaged”.
- At least **84.6%** of schools in Gaza will either need full reconstruction or major rehabilitation work to be functional again.
- **32.7%** of “Directly hit” and “Damaged” schools are UN-run schools through UNRWA.
- The **344** school buildings classified as “Direct hit” previously served approximately 371,430 students and 13,832 teachers, representing about 59% of the total student population and 60% of the total teaching staff.
- The **133** school buildings classified as “Damaged” served roughly 153,756 students and 5,741 teachers, accounting for around 25% of the total student population and 25% of the total teaching staff.
- **53.5%** of school buildings that have been used by IDP as shelters are “Directly hit”.
- There is a clear trend linking the majority of schools “Directly hit” in the Gaza Strip to the areas targeted by the Israeli military’s evacuation orders.
- Since the beginning of the escalation, the Education Cluster has been receiving several concerning reports, pictures, and videos, showing that schools are being used for military operations by Israeli Security Forces (ISF) including use as detention, interrogation centers, and military bases. The satellite-derived images provide further evidence for the military use of schools.

# Call for Actions



## ■ CALL TO ACTION TO THE PARTIES TO THE CONFLICT:

- » To cease fire immediately.
- » To take all possible measures, as required under international humanitarian law, to safeguard schools, so they can be used for educational purposes and remain safe.
- » To recognize the right of children to learn as set out in the Convention on the Rights of the Child including during emergencies as set out in UN Resolution 64/290 of 2010.

## ■ CALL TO EDUCATION SERVICE PROVIDERS:

- » To prepare to resume appropriate education activities once the conflict ends. In doing so, paying close attention to children's psychosocial, cognitive, physical health and wellbeing development.
- » To prepare and implement alternative learning solutions – such as distance learning or learning in non-formal settings - for children to continue learning.

## ■ CALL TO ACTION TO DONORS:

- » To recognize the catastrophic damages to the education system in Gaza.
- » To advocate for a long-term ceasefire and the stop of the war, and advocate for safeguarding of schools, so they can be used for educational purposes and remain safe for children.
- » To ensure that the funds needed to support the immediate education requirements, as well as the long-run reconstruction of the education structures, are provided.

# Snapshots

## MILITARY USE OF SCHOOL PREMISES

5 Oct.  
2023



6 July  
2024



# Snapshots

## SCHOOLS AS IDP SHELTERS

3 May  
2024



6 July  
2024



# Snapshots

Moghraqa Prep. Girls and Moghraqa Elem. Boys / Gaza - Al Mughraqa



Al Qourania Al Maleazia Private School / Middle Area - An Nuseirat



Al-Zahra Al Namouthajea Private School / Gaza - Madinat Ezahra



# Snapshots

Ibn Sina Basic Girls School / Gaza - An Naser



Al Shouka Secondary Girls School / Rafah - Shokat as Sufi



Masadaa Ibn Abed Allah Al Azmi School / Middle Area - Wadi as Salqa





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Occupied Palestinian Territory: Education | ReliefWeb Response**

