



DAMAGE & REHABILITATION ASSESSMENT

Syria - Ar-Raqqa

April 2021



53%

% of detected¹ affected structures in Ar-Raqqa that were found to be destroyed, damaged, rehabilitated, reconstructed, or demolished since 2013

REBUILT/RECONSTRUCTED

Rebuilt

Reconstructed

39%
2,751

61%
4,353

32%

DAMAGED/DESTROYED

Destroyed

Moderate
Damage

Severe
Damage

33%
1,440

40%
1,752

27%
1,161

15%

DEMOLISHED

1,948

Estimated % of the total population for whom shelter was reported as a priority need (HNAP) (by neighbourhood):

Location Name	Residents	IDPs
Yarmuk	60%	80%
Andalus	80%	80%
Ad Dari'yeh	80%	80%
Al- Thawrah - Ar-Raqqa	80%	80%
Amin - Ar-Raqqa	80%	80%
Ammar Ibn Yaser	70%	0%
Baath - Ar-Raqqa	80%	80%
Batani	80%	80%
Furat	60%	80%
Hettin	60%	70%
Hisham Ibn Abd Al Malek	70%	80%
Hurriyeh - Ar-Raqqa	80%	80%
Ma'amoun	40%	50%
Mahdi	60%	80%
Mansour	50%	70%
Nahda - Ar-Raqqa	50%	60%
Qadessiyeh - Ar-Raqqa	60%	60%
Rafqa	70%	90%
Rashidiyeh	60%	70%
Salhiyeh - Ar-Raqqa	60%	70%
Tas-heeh	60%	70%
Tishrine - Ar-Raqqa	60%	70%
Wihdeh	80%	80%

Context

Between November 2016 and October 2017, the conflict in Ar-Raqqa city escalated, leading to ruined infrastructure and displacement of the larger majority of its population.² The city population dropped from an estimated 300,000 in late 2016 to around 7,000 persons in October 2017. While in February 2017, the city had a total of 1,667 satellite-detected damaged or destroyed structures, the total number of affected structures detected had soared up to 12,707 by October 2017. Since then, there have been waves of returnees and the current population estimates vary from 150,000 up to 330,000 people.³ Shelter needs remain high, and half of the population is estimated to be living in damaged or inadequate shelters.^{4,5} This analysis provides information on rehabilitation, reconstruction and damage to structures across 23 neighbourhoods in Ar-Raqqa.

Overview and Methodology

In partnership with UN Operational Satellite Applications Programme - UNOSAT, REACH conducted a damage and rehabilitation assessment to map damaged, demolished, reconstructed, and rehabilitated buildings to identify neighbourhoods most in need for rehabilitation. This report aims to be a tool for local government and humanitarian organizations to facilitate the planning and implementation of humanitarian activities in the Ar-Raqqa city. In particular, when used together with identified shelter needs as reported by the Humanitarian Needs Assessment Programme (HNAP),⁴ the report aims to assist humanitarian actors performing emergency repairs of War Damaged Shelters (WDS), as well as to advice reconstruction and early recovery.

Using high resolution satellite imagery acquired on 29 April 2021, 21 October 2017, 03 February 2017, 29 May 2015, 12 February 2014, and 22 October 2013 structural changes over time were detected, providing evidence of the physical status of observed structures. Based on the type of change, buildings were categorized to be intact, damaged, destroyed, demolished, rehabilitated or reconstructed. This report presents the results aggregated to a city-level, whereas the detailed neighbourhood-level results can be found at the Ar Raqqa Damage Atlas.

Key Findings

The current assessment detected 4,362 (32%) damaged or destroyed structures and 1,948 (15%) demolished⁶ structures. Moreover, 7,104 (53%) detected¹ structures have been reconstructed or rehabilitated, indicating significant efforts of reconstruction and rehabilitation of housing stock and key infrastructures between 2017 and 2021. The neighbourhoods that remain most affected are Andalus, Ad Dari'yeh and Baath, where between 66% and 85% of the detected¹ structures are still observed to be damaged, destroyed or demolished. Those are also among the neighbourhoods where shelter needs were found to be the most prevalent, as reported by HNAP.⁷

¹ Since 2013, a total of 13,414 affected structures have been detected. Please note that the actual number of affected structures can differ due to the limitations of the methodology of detecting structural change from satellite images.

² UNHCR, April 2018, <https://www.unhcr.org/sy/11607-first-un-humanitarian-mission-raqqa-city-post-isis.html>

³ Save the Children, Return to Al Raqqa. June 2021

⁴ HNAP Mobility and Needs Monitoring Dataset, April 2021, <https://hnap.info/>

⁵ Save the Children used an estimate of 270,000-330,000 while HNAP gave a moderate estimate of 153,000. https://resourcecentre.savethechildren.net/node/19436/pdf/sc_raqqa_area-based_report_final.pdf

⁶ Previously damaged or destroyed structure showing no visible damage, and damaged site has been cleared of debris or remains of damaged building. Moreover, there is no visible effort of reconstruction.

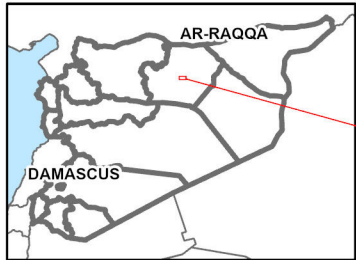
⁷ There is a moderate correlation (Pearson, $r=0.51$, $p=0.01$) between the damaged, destroyed or demolished structures, and reported shelter needs in the neighbourhoods of Ar-Raqqa



Damage & Rehabilitation Assessment:

Syria - Ar-Raqqa

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This map illustrates satellite-detected reconstructed or newly constructed structures in the city of Ar-Raqqa, Syria compared to previous damage analysis. Using imagery acquired on 29 April 2021, UNITAR-UNOSAT detected a total of 4,353 new buildings (or buildings for which construction was ongoing) and 2,751 reconstructed buildings. The previous damage assessments, using imagery from October 2017, reported 12,707 affected structures, of which 3,222 were destroyed, 3,922 severely damaged and 5,563 moderately damaged. In addition, analysis detected 1,948 demolished structures across the city.

and % of detected^a affected structures in neighborhoods that were found to be destroyed, damaged, rehabilitated, reconstructed, or demolished since 2013.



* Peri-urban area defined as the area outside of the city neighbourhood boundaries within the analysis extent.

- Rehabilitated/Reconstructed
- Damaged/Destroyed/Demolished
- Community

^a Since 2013, a total of 13,414 affected structures have been detected. Please note that the actual number of affected structures can differ due to the limitations of the methodology of detecting structural change from satellite images.

Data sources:

Satellite imagery: WorldView 2 from 29 April 2021
Copyright: © 2021 DigitalGlobe
Source: US Department of State, Humanitarian Information Unit, NextView license.

Structure damage analysis: UNOSAT
Neighbourhood: OCHA

Coordinate system: GCS WGS 1984

Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associates, donors mentioned on this map



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Damaged/destroyed or demolished buildings and reported shelters needs by neighbourhoods

The data presented in the table renders a moderate correlation (Pearson, $r=0.51$, $p=0.01$) between the damaged, destroyed or demolished structures, and reported shelter needs in the neighbourhoods of Ar-Raqqa city. This correlation seems to indicate that in Ar-Raqqa city, shelter damage is one of the significant causes of reported shelter needs, while acknowledging that there are other causes as well.

Neighbourhood	Total Population (HNAP)	% of individuals reporting shelter needs (HNAP)	% of buildings Damaged / Destroyed or Demolished ⁹	% of buildings Rebuilt/
Andalus	3,478	80%	50% / 35%	15%
Ad Dari'yeh	3,645	80%	21% / 58%	21%
Baath	7,625	80%	36% / 30%	34%
Yarmuk	4,652	62%	19% / 41%	40%
Al- Thawrah	4,699	80%	33% / 24%	43%
Hurriyeh	6,768	80%	32% / 23%	45%
Wihdeh	6,046	80%	29% / 23%	48%
Nahda	6,482	51%	30% / 21%	49%
Ammar Ibn Yaser	5,750	66%	12% / 38%	50%
Hettin	9,149	60%	17% / 32%	51%
Amin	6,907	80%	18% / 29%	53%

Neighbourhood	Total Population (HNAP)	% of individuals reporting shelter needs (HNAP)	% of buildings Damaged / Destroyed or Demolished ⁹	% of buildings Rebuilt/ Reconstructed
Tishrine	14,294	60%	22% / 24%	54%
Qadessiyeh	7,156	60%	20% / 26%	54%
Tas-heeh	7,955	61%	19% / 24%	57%
Batani	8,825	80%	16% / 27%	57%
Ma'amoun	10,204	40%	14% / 27%	59%
Furat	8,330	61%	11% / 28%	61%
Hisham Ibn Abd Al Malek	6,287	71%	15% / 22%	63%
Salhiyeh	10,781	61%	18% / 17%	65%
Rashidiyeh	6,211	61%	16% / 18%	66%
Mansour	5,486	51%	17% / 17%	66%
Rafqa	7,150	71%	16% / 15%	69%
Mahdi	9,770	61%	18% / 12%	70%

⁹. Since 2013, a total of 13,414 affected structures have been detected. Please note that the actual number of affected structures can differ due to the limitations of the methodology of detecting structural change from satellite images.

UNOSAT Rehabilitation Classes



Demolished structure: Previously damaged or destroyed structure showing no visible damage. Damaged site has been cleared of debris or remains of damaged building. Moreover, there is no visible effort of reconstruction.



Rehabilitated structure: Previously damaged structure no longer showing visible damage. The previously damaged structure has been repaired and restored to its original state as observed in imagery before damage.



Reconstructed structure: Previously damaged structure has been demolished and a new building is constructed at the same location. The construction process can be either ongoing or completed.