This initial quantification of earthquake generated debris in four cities in the Kahramanmaras province in Türkiye is derived from building footprint data provided by Microsoft along with satellite imagery. This data was combined with an above surface height model, derived from the difference between a Digital Terrain Model (SRTM) and a Digital Surface Model (ALOS World 3D). For visualization and modeling purposes, results were aggregated into an hexagonal grid.

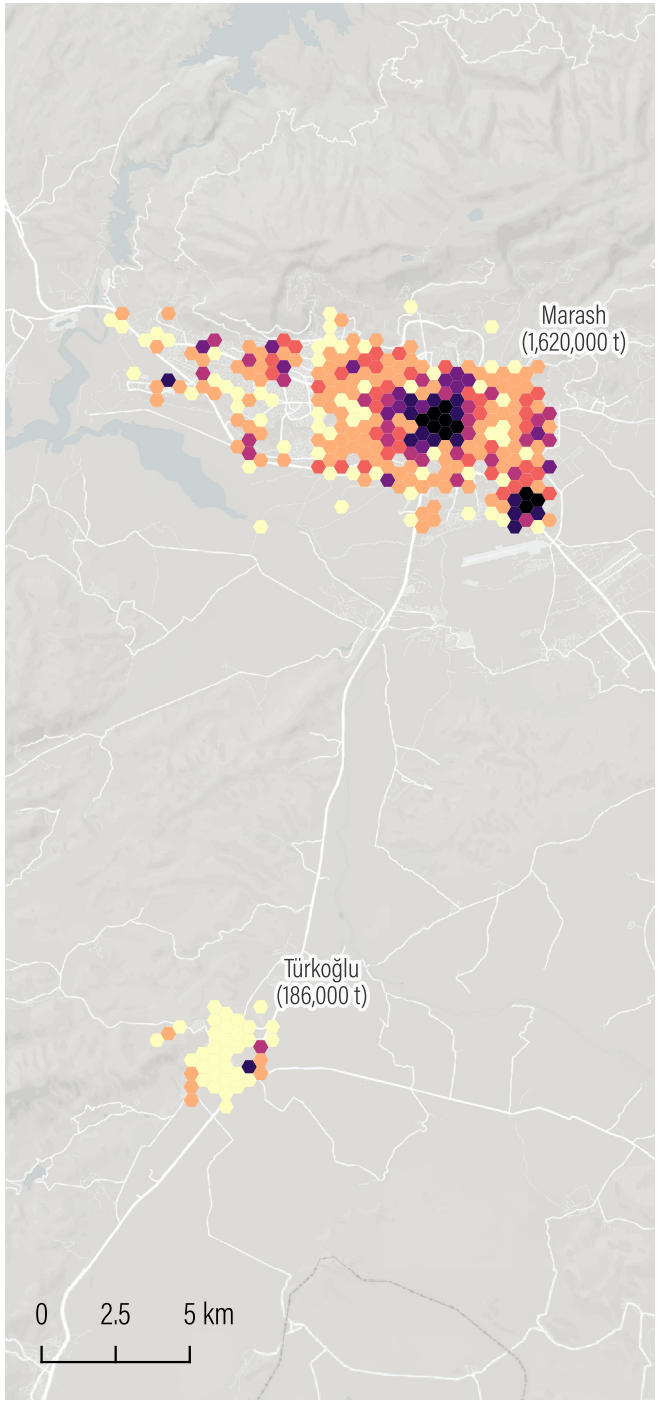
Two scenarios have been developed. Scenario 1 presumes that all debris is to be taken to disposal facilities. Scenario 2 proposes that 50% of that debris is to be processed in a centralized recycling facility, and repurposed for reconstruction. For modeling purposes, disposal and recycling facilities are assumed to be at a 10km distance from debris. Cost assumptions are based on regional debris management costs, and results will need to be refined based on local parameters.

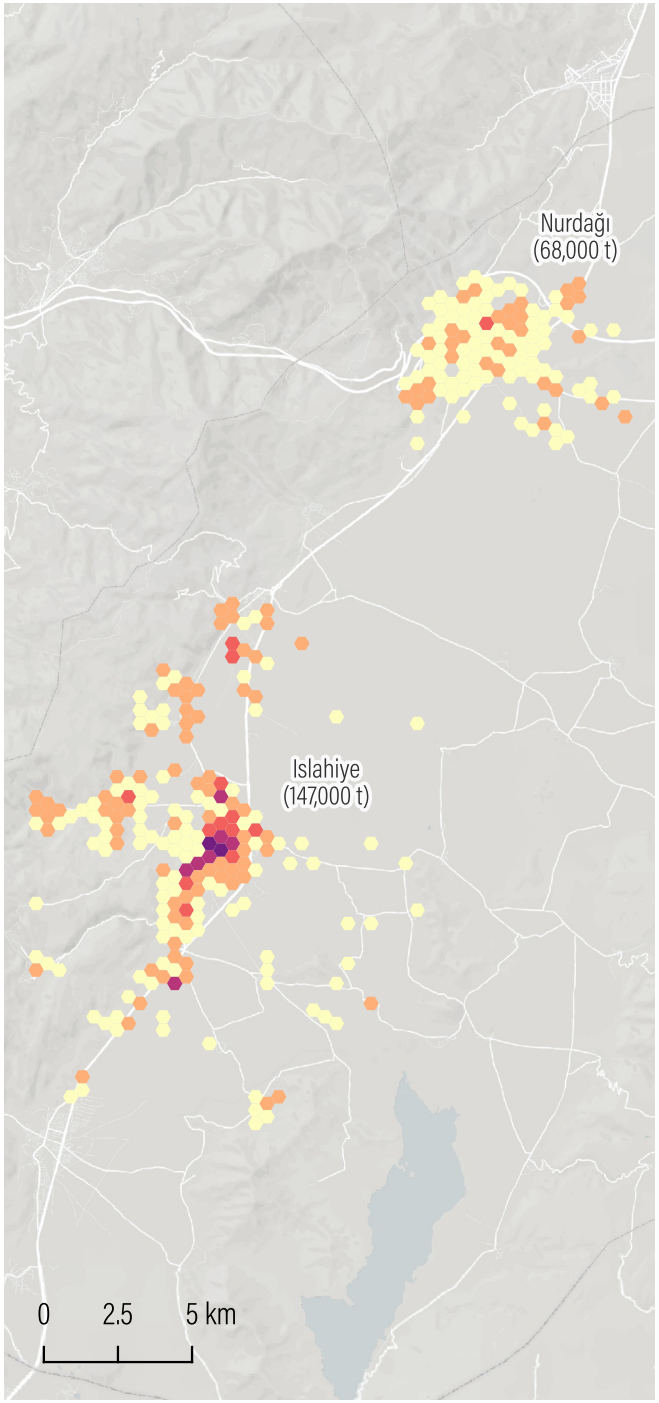
Estimated debris quantities (tonnes)

- < 100
- 100 - 1,000
- 1,000 - 2,000
- 2,000 - 4,000
- 4,000 - 10,000
- 10,000 - 20,000
- > 20,000

Total debris quantity **2,020,771 t**

Datum: WGS 1984
Coordinate System: Universal Transverse Mercator 37N





Debris management - Preliminary outputs

Total debris quantity **2,020,771 t**

	Scenario 1	Scenario 2
Time to clear (months)	9	9
Time to recycle (months)	0	28
Total time to clear and recycle (months)	9	28
Total cost to clear (US$)	1,700,000	3,700,000
Revenue from recycling (US$)	0	1,700,000
Cost less revenue (US$)	1,700,000	2,000,000
Total distance covered (km)	1,800,000	1,800,000
CO2e from trucking (tCO2)	3,400	3,400
Cost of haulage (US$)	1,600,000	1,600,000
Material recovered for reconstruction (tonnes)	0	700,000
Material recovered for reconstruction (%)	0	50
Cost of processing of debris (US$)	0	2,000,000
Value of recovered material in market (US$)	0	1,700,000
Total cost saving of natural raw materials substituted (US$)	0	2,900,000
Material disposed (tonnes)	2,020,000	1,010,000
Material disposed (%)	100	50
Total space required for disposal (ha)	25	12.5