

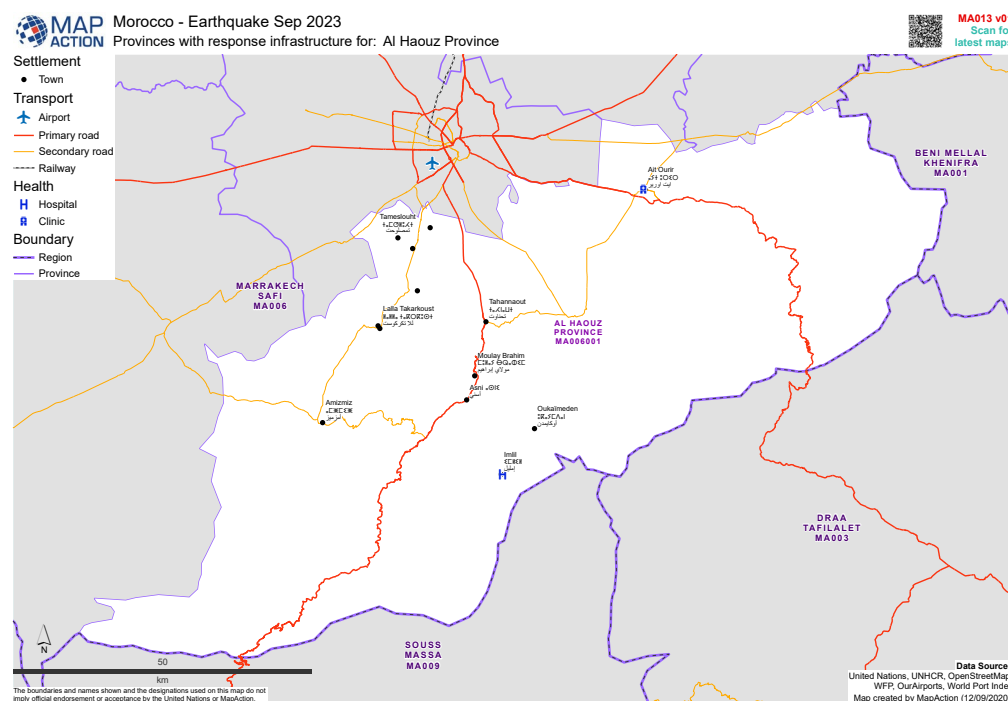
Earthquake: province profiles for al-Haouz, Taroudant, and Chichaoua

OVERVIEW OF THE SITUATION IN MOROCCO

An estimated 380,000 people were exposed to the impact of a magnitude 6.8 earthquake that hit Morocco on 8 September 2023 at 23:11 local time. On 11 September, the Ministry of Interior of Morocco reported 2,862 deaths and 2,562 injuries (Al Jazeera 11/09/2023; France 24 11/09/2023; CBS 11/09/2023). Since the initial quake, a magnitude 4.9 aftershock (19 minutes after the initial quake) and a magnitude 3.9 aftershock (on Sunday, 10 September) have hit the country. These movements affect unstable buildings, slow down rescue response, and increase residents' trauma. There is fear of future aftershocks (AP 11/09/2023; VOA 10/09/2023). The three most

affected provinces are al-Haouz, Taroudant, and Chichaoua which have recorded the most fatalities. Access to these provinces has been challenging because of their mountainous nature, with landslides and rocks blocking the roads, slowing down rescue efforts (Rum Online 10/09/2023; MWN 11/09/2023). Reported needs in these provinces include tents, food, clean water, and blankets (ACAPS 10/09/2023). Across all affected areas, the earthquake has affected about 100,000 children, who likely need protection assistance (UNICEF 11/09/2023).

AL-HAOUZ PROVINCE PROFILE (MARRAKESH-SAFI REGION)



Source: Map Action. See full map on page 6.

Earthquake-related deaths	1,604 as at 11 September (Al Jazeera 11/09/2023)
Total population (in 2020)	635,748 (City Population accessed 11/09/2023 a)
Population under 15 years old (in 2014)	179,471 (City Population accessed 11/09/2023 a)
Population over 65 years old (in 2014)	34,119 (City Population accessed 11/09/2023 a)
Projected population density (in 2020)	104.2/km ² (City Population accessed 11/09/2023 a)
Poverty rates in Marrakesh-Safi region (in 2013)	5.4% (TNA 09/09/2023; WB 04/2023)

Access constraints

- Road closures and blockages by boulders pose access and logistical challenges to rescuers and responders (MWN 10/09/2023).
- Many of the affected villages and towns, such as Amizmiz, are located in mountainous areas featuring challenging geographies and long windy roads, limiting access (OCHA 10/09/2023; Ledbury Reporter 11/09/2023).
- As at 9 September, the residents had cleared most of the rubble along the main access road to the town of Amizmiz, allowing aid to flow in the area (Ledbury Reporter 11/09/2023).
- Marrakesh airport, the main airport entry point to al-Haouz, remained operational as at 10 September, allowing access for international aid responders from the UK, Qatar, Spain, and the United Arab Emirates into the affected areas of Morocco, including al-Haouz (News18 11/09/2023).

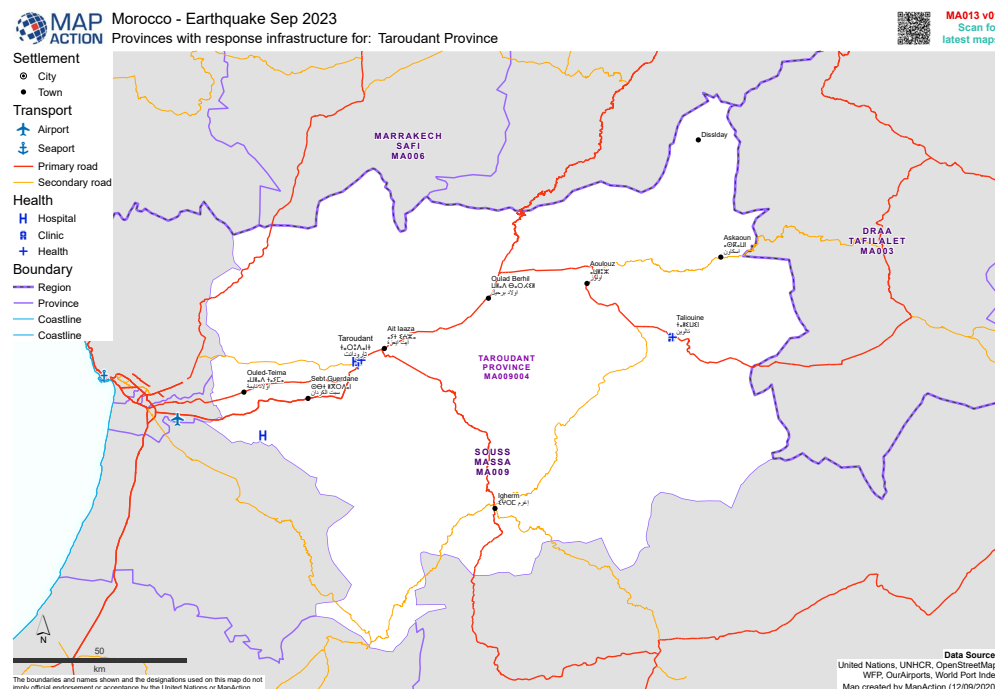
Impact overview

- As at 11 September, the earthquake had killed 1,064 people in al-Haouz (Al Jazeera 11/09/2023).
- Information and figures related to the impact of the earthquake remain limited.
- The impact of the earthquake and its aftershocks has resulted in the widespread destruction of buildings in al-Haouz, almost flattening villages made out of clay or carved into the mountain (News18 11/09/2023). Destroyed villages include Douar El Darb, Moulay Brahim, Saniyat Yaakoub, and Tinkest of Qiyadet Weryen (The National 10/09/2023; Al-Quds Al-Arabi 10/09/2023).
- The number of people displaced by the earthquake is high because of significant damage to buildings, making shelter needs a priority in al-Haouz. The affected population needs tents that can protect from heat during the day and the cold at night. These tents should also be suitable for the upcoming winter season (from December–February) in case people are unable to return to their homes and remain displaced, as Al-Haouz is known for its severe winter season and heavy snowfall (Hespress 11/09/2023).
- As at 10 September, al-Haouz district hospital had received about 1,165 patients injured from the impact of the earthquake. The hospital had exceeded its patient load, and patients with severe injuries were transferred to Marrakesh university hospital (The National 10/09/2023).
- There is a severe shortage of clean water, aggravated by the pre-existing lack of potable water in al-Haouz (Hespress 11/09/2023).
- Education services have been suspended since 11 September, since the earthquake has affected some school buildings and killed or injured a number of teachers (CNN 10/09/2023; Telexpress 10/09/2023).

Background information

- Al-Haouz has one of the highest poverty and acute poverty rates in Morocco. In 2011, more than 50% of the population was in poverty and almost 20% in acute poverty (ESCWA 10/2018).
- The majority of the population depends on agriculture for their income, especially olive, nut fields, and livestock. Other sources of income include handicrafts, such as pottery, textiles, stone carvings, and carpet-making (BBC 10/09/2023). In the aftermath of the earthquake, agricultural activities will likely be disrupted, reducing people's income.
- Tourism is a main pillar of the local economy of al-Haouz because of its landscapes and water springs (BBC 10/09/2023).
- Several years of below-average rainfall and a lack of potable water have been affecting people in al-Haouz since before the earthquake (Hespress 11/09/2023).
- The High Atlas Mountains, including al-Haouz, usually suffer from severe winter seasons, with cold waves and heavy snow. Some areas frequently get cut off because of heavy snowfall (Hespress 11/09/2023).
- The urban infrastructure in al-Haouz was already fragile before the earthquake, with roads in poor condition that often become inaccessible, especially during winter (Hespress 11/09/2023).
- There are three dams in al-Haouz: Lalla Takerkoust Dam in Amizmiz town, Moulay Youssef Dam in Ghajdama city, and Yacoub Al Mansour Dam in Ouirkan city (BBC 10/09/2023). There is no reported damage to the dams.

TAROUDANT PROVINCE PROFILE (SOUSS MASSA REGION)



Source: Map Action. See full map on page 7.

Earthquake-related deaths	976 as at 11 September (Al Jazeera 11/09/2023)
Total population (in 2021)	855,100 (HCP 2021)
Population under 15 years old (in 2014)	248,625 (City Population accessed 11/09/2023 b)
Population over 65 years old (in 2014)	60,653 (City Population accessed 11/09/2023 b)
Projected population density (in 2020)	51.8/km ² (HCP 2021)
Poverty rates in Souss Massa region (2013)	5.1% (TNA 09/09/2023; WB 04/2023)

Access constraints

- Mountains surround many of the villages and towns in Taroudant, and rocks block the roads leading to these areas (Asharq Al-Awsat 10/09/2023).
- Because of access challenges, the Government has been employing helicopters of the Royal Armed Forces to reach injured people in the hardest-to-reach affected areas, such as Tafenkolt in Taroudant, and transfer them to hospitals (Anfas Press 09/09/2023).
- Some communication infrastructure has received damage, resulting in telecommunication disruptions (Asharq Al-Awsat 10/09/2023). It is unclear if these services have been restored.

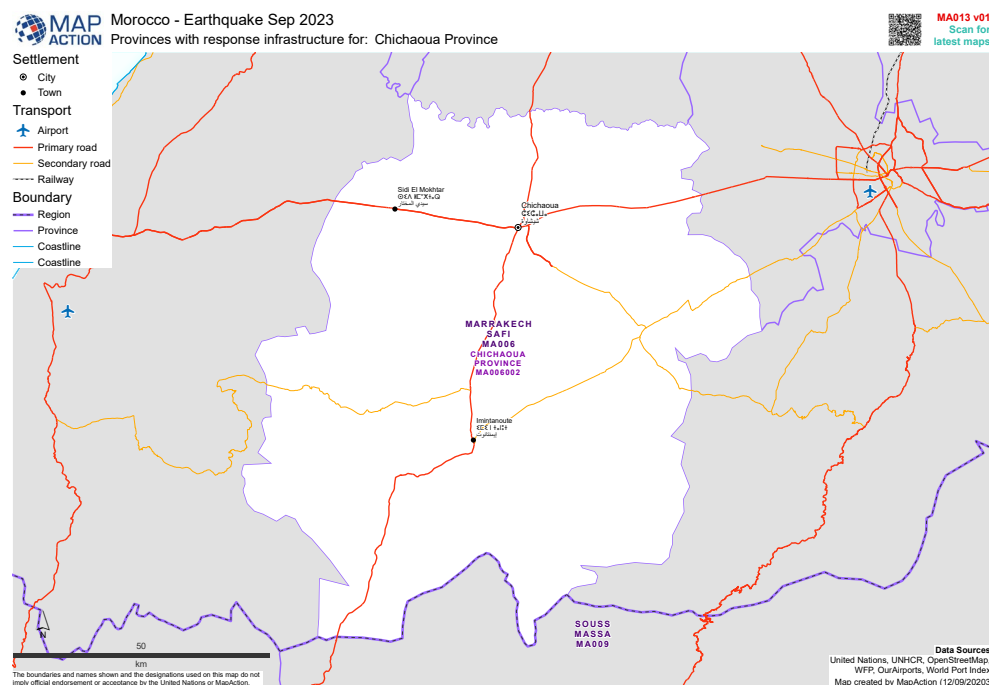
Impact overview

- As at 11 September, the earthquake had killed 976 people in Taroudant (Al Jazeera 11/09/2023).
- The earthquake has caused extensive damage and destruction. Mud houses, typical in the region, have collapsed (World Today 10/09/2023; Peoples Dispatch 11/09/2023). At least 250 houses (mostly built from mud and stones) in Tizi Natast village have completely been destroyed (Asharq Al-Awsat 10/09/2023).
- Old neighbourhoods, including some historical sites and buildings, have sustained severe damage (Ammon News 10/09/2023).
- Injured people are receiving treatment at Taroudant regional hospital, where more medical staff specialised in orthopaedic surgery are needed. Most injuries are fractures that require special examination and care, complicating first-aid efforts. Some doctors and nurses from Inezgane and Tiznit cities are volunteering at Taroudant hospital (2M.Ma 10/09/2023).
- Some critical medical cases received at hospitals in Taroudant are being transferred to the Center Hospitalier Régional Hassan II in Agadir (SNRT News 09/09/2023). This hospital is located around 80km west of Taroudant (approximately 1 hour and 30 minutes away by car).
- Education services have been suspended since 11 September (CNN 10/09/2023).

Background information

- Droughts and floods, which have become worse because of climate change, have been affecting the living conditions of the local population even before the earthquake (RIOB accessed 11/09/2023). Floods killed two people in 2022 and at least seven in 2019 (MWN 23/06/2022; Reuters 29/08/2019).
- Rural areas in the Arghen Sub-basin have suffered from an acute lack of access to potable and sanitation water, leading to the potential pollution of water tables and rivers (RIOB accessed 11/09/2023).
- Taroudant city's infrastructure lacks maintenance and development (MWN 12/02/2023).

CHICHAOUA PROVINCE (MARRAKISH-SAFI REGION)



Source: MAP Action. See full map on page 8.

Earthquake-related deaths	202 (Chichaoua Alyaoum 11/09/2023)
Total population (in 2020)	391,923 (City Population accessed 11/09/2023 c)
Population under 15 years old (in 2014)	121,896 (City Population accessed 11/09/2023 c)
Population over 65 years old (in 2014)	24,055 (City Population accessed 11/09/2023 c)
Projected population density in Chichaoua (in 2020)	55.05/km ² (City Population accessed 11/09/2023 c)
Poverty rates in Marrakesh-Safi region (2013)	5.4% (TNA 09/09/2023; WB 04/2023)

Access constraints

- Rugged terrain and landslides impede rescue efforts in the mountainous region around Adassil town, Chichaoua province (MWN 10/09/2023). The roundabout in Adassil village itself has collapsed (Hespress 09/09/2023).
- The Royal Moroccan Armed Forces and Gendarmerie, the Civil Protection, the Auxiliary Forces, and local authorities are currently conducting operations to clear rockfalls in and around the town of Adassil (Ynet News 10/09/2023; MWN 10/09/2023).
- The closest airport to Chichaoua province is Marrakesh airport, which remained operational as at 10 September, allowing access for international aid responders from the UK, Qatar, Spain, and the United Arab Emirates into the country (News18 11/09/2023; Agenzia Nova 11/09/2023)

Impact overview

- As at 11 September, the impact of the earthquake had killed 202 people in Chichaoua (Chichaoua Alyaoum 11/09/2023). This figure might not be reliable, as communities in remote mountainous areas are difficult to reach and telecommunication systems in affected regions are not fully functional (CDP accessed 12/09/2023).
- UNOSAT imagery from 8 September showed damaged and destroyed buildings in the Chichaouan villages of Adassil, Anebdou, Targua, Tiname, and Tounghast (UNOSAT 10/09/2023 a). As at 10 September, 140 buildings were damaged and 76 potentially damaged in Adassil town, while 73 structures were damaged and three potentially damaged in the village of Douar Tagadirte (UNOSAT 11/09/2023 a and 11/09/2023 b). Nearly every building was destroyed in the village of Tikht, which housed over 100 families (France 24 11/09/2023).
- As at 8 September, people displaced by the earthquake were congregating in temporary shelters around Adassil, Chichaoua, and Tounghast villages (UNITAR/UNOSAT accessed 12/09/2023; UNOSAT 10/09/2023 b). The numbers of people remaining in temporary shelters in their village and those displaced to other villages or provinces are unclear. Moroccan authorities have provided tents for earthquake-affected families in Tikht village (MWN 10/09/2023). Displaced people fear the onset of winter rain and snow in the coming weeks, which will necessitate adequate shelter and NFIs (El País 11/09/2023).
- Earthquake survivors in Adassil town and Tikht and Tagadirte villages, urgently need food, hygiene kits, and tents (Islamic Relief 11/09/2023). As at 11 September, mountain villages further from Marrakesh, such as Tagadirte, had not yet received food, shelter, or NFI assistance. Residents in some of these villages also did not have access to electricity or running water (El País 11/09/2023; Channel 4 11/09/2023; le360 12/09/2023).

- According to the Ministry of Education, the earthquake has damaged 530 schools and 55 boarding schools, mostly in Chichaoua and Taroudant provinces (OCHA 11/09/2023). Education services have been suspended since 11 September in Chichaoua (CNN 10/09/2023).
- Injured people from Chichaoua have been brought to the provincial hospital, Mohammed VI Chichaoua Hospital. As at 9 September, more than 50 of these victims were critically injured, 17 of whom were sent to the University Hospital Mohammed VI in Marrakesh (Hespress 09/09/2023). According to the Ministry of the Interior, the provincial hospital in Chichaoua has a capacity of fifty beds. There are also two urban health centres and 15 rural health centres in the province, but there is no information available on whether these centres are still functioning post-earthquake (Ministry of Interior accessed 12/09/2023 a).

Background information

- The economy of Chichaoua depends primarily on agriculture and livestock farming. The earthquake has likely had a significant impact on both activities. A cement factory in Lamzoudia, several quarries, and three active mines also generate economic activity in Chichaoua (Ministry of Interior accessed 12/09/2023 b). There is no information on earthquake damage to these facilities.
- Chichaoua province has experienced persistent drought in recent years, partly because of the decreasing flow of its main watercourse, Ain Abaynou (Afrik21 17/09/2020). The drought has affected the agricultural and livestock farming sectors and led to a water deficit in much of the province (Ministry of Interior accessed 12/09/2023 b; Fatima-Ezzahra and Ahmed 07/2022). The earthquake has cut off some mountain villages' access to running water and may have worsened the need for drinking water in other provinces, leading to health and WASH risks (El País 11/09/2023). The Abou el Abbas Sebti Dam provides clean water to much of Chichaoua. The province has two other smaller dams: Sidi Abdellah El Oual and Bouarrouch (Ministry of Interior accessed 12/09/2023 c). There is no information available on earthquake damage to these dams.
- The rainy season in Chichaoua generally extends from October–May, with higher levels of rainfall in mountainous areas. The coldest months in Chichaoua also occur during this period (from December–January), with average temperatures of 11.2–12.4° C (Fatima-Ezzahra and Ahmed 07/2022). Displaced people and those with inadequate shelter in the coming months are at risk of exposure to cold temperatures and associated health problems.



Morocco - Earthquake Sep 2023

Provinces with response infrastructure for: Al Haouz Province



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Settlement

- Town

Transport

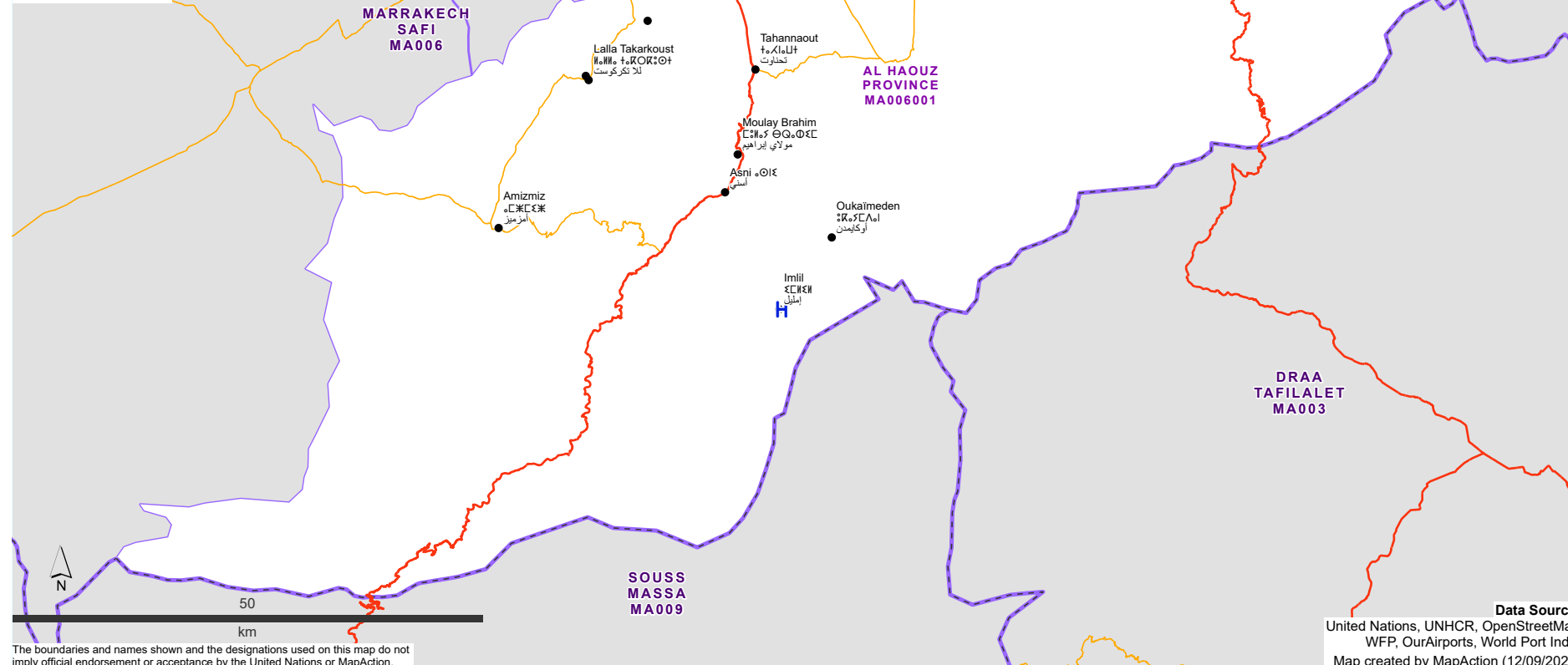
- ✈ Airport
- Primary road
- Secondary road
- Railway

Health

- H Hospital
- C Clinic

Boundary

- Region
- Province



Data Sources

United Nations, UNHCR, OpenStreetMap,
WFP, OurAirports, World Port Index
Map created by MapAction (12/09/20203)



Morocco - Earthquake Sep 2023

Provinces with response infrastructure for: Taroudant Province



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Settlement

- City
- Town

Transport

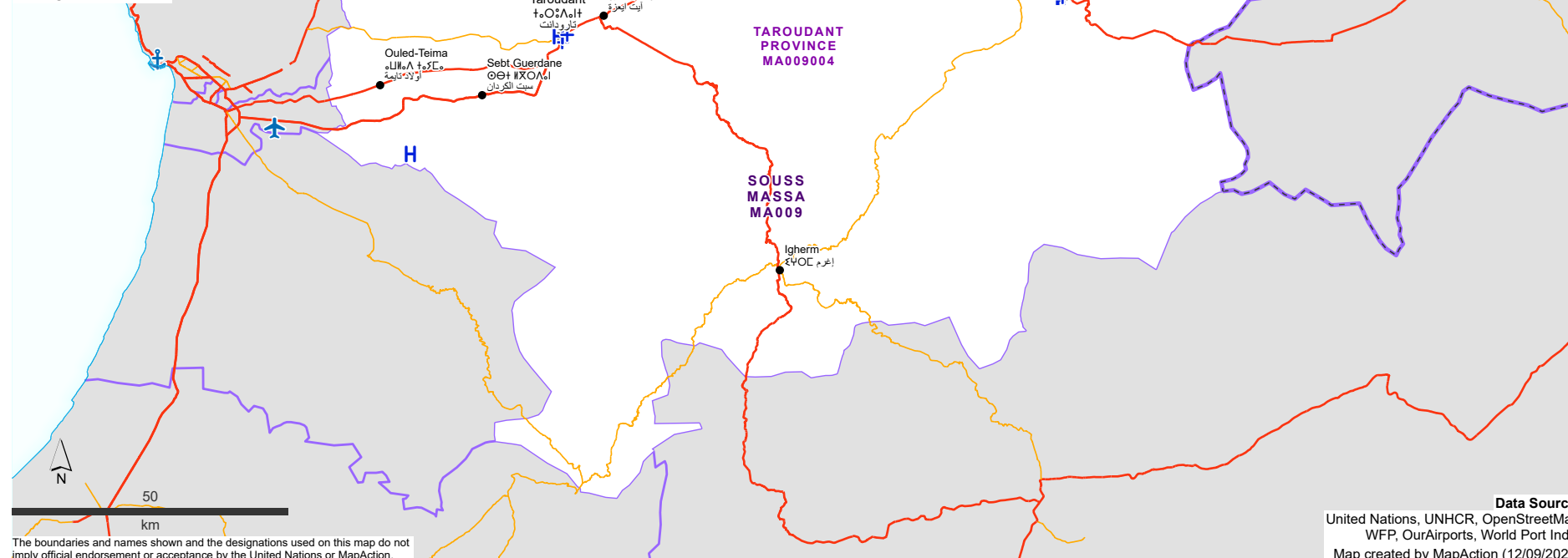
- ✈ Airport
- ⚓ Seaport
- Primary road
- Secondary road

Health

- H Hospital
- 🏥 Clinic
- + Health

Boundary

- Region
- Province
- Coastline
- Coastline



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

Data Sources

United Nations, UNHCR, OpenStreetMap,
WFP, OurAirports, World Port Index
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Morocco - Earthquake Sep 2023

Provinces with response infrastructure for: Chichaoua Province



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Settlement

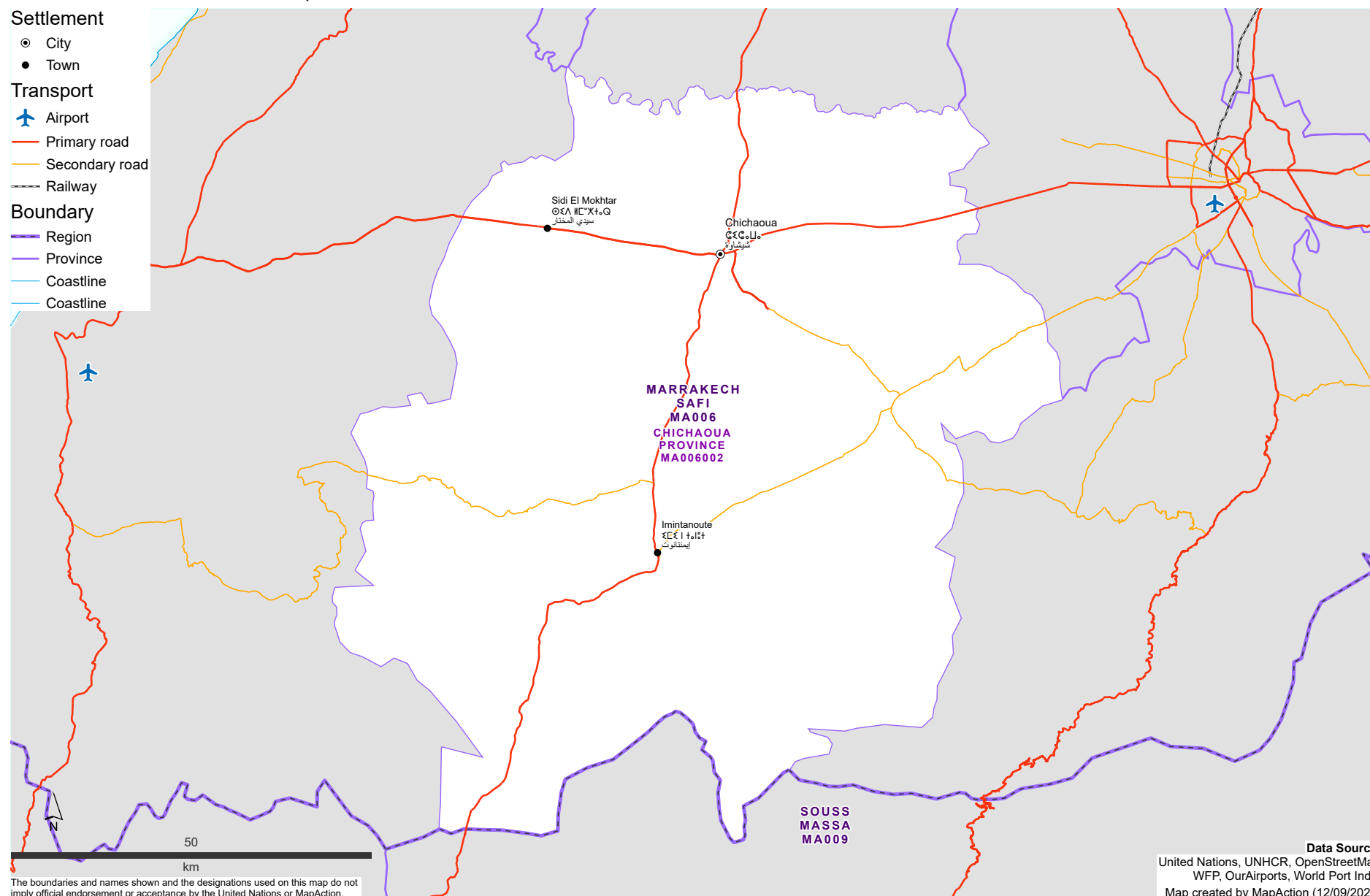
- City
- Town

Transport

- ✈ Airport
- Primary road
- Secondary road
- Railway

Boundary

- Region
- Province
- Coastline
- Coastline



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United Nations, UNHCR, OpenStreetMap,
WFP, OurAirports, World Port Index
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