GUATEMALA:
Disaster displacement risk profile

Key findings

- Guatemala has recorded over 939,996 disaster displacements between 2008 and 2024.
- Droughts and riverine floods drive the highest displacement levels, with 8,700 – 29,600 people at risk each year under current climate conditions.
- Climate change is expected to intensify these risks under optimistic and pessimistic climate scenarios.
- High-intensity, extreme events are likely to result in large-scale displacements.
- Alta Verapaz, Huehuetenango, Izabal, Petén, Quiché are most at risk of displacement due to disasters.
- Under current climate conditions, severe rare droughts could displace 68,200 people in total across Izabal, Petén, and Quezaltenango.
- Severe rare floods could displace up to 234,300 people in Huehuetenango, under pessimistic climate conditions.
- In the pessimistic scenario, drought displacement levels of Totonicapán and San Marcos rise exponentially.

Implications for government action

1. Integrate displacement risk into national plans
   Focus on National Adaptation Plan (NAP) and disaster risk reduction (DRR) strategies.
2. Prioritise high-risk, densely populated districts
   Target Quezaltenango and other exposed areas for resilient infrastructure and safer housing.
3. Strengthen preparedness and early warning systems
   Improve shelter capacity and local response mechanisms.
4. Scale up nature-based solutions
   Reduce flood and drought risks through ecosystem protection.
5. Improve urban planning and enforcement
   Prevent unsafe expansion in hazard-prone areas and ensure compliance with land-use rules.
6. Plan for high-impact, extreme events
   Use displacement estimates to guide shelter needs, logistics and infrastructure planning.

About this profile

This profile applies IDMC's Global Displacement Risk Model 2.0 to estimate how many people may be displaced by disasters under three climate scenarios:

- Current: observed climate conditions from 1979 to 2016,
- Optimistic: about 1°C temperature rise by 2100, and
- Pessimistic: about 5°C temperature rise by 2100.

The model assesses the likelihood of displacement linked to severe housing damage and loss of livelihoods. It focuses on the risk of medium- to long-term displacement and does not include pre-emptive evacuations.

Outputs are generated at administrative level 1 for each hazard using two metrics:

- Average Annual Displacement (AAD): expected average number of people displaced in any given year.
- Probable Maximum Displacement (PMD): estimated displacement from rare, high-intensity events based on return periods (expected average time between two events of a given intensity).

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Displacement drivers and trends

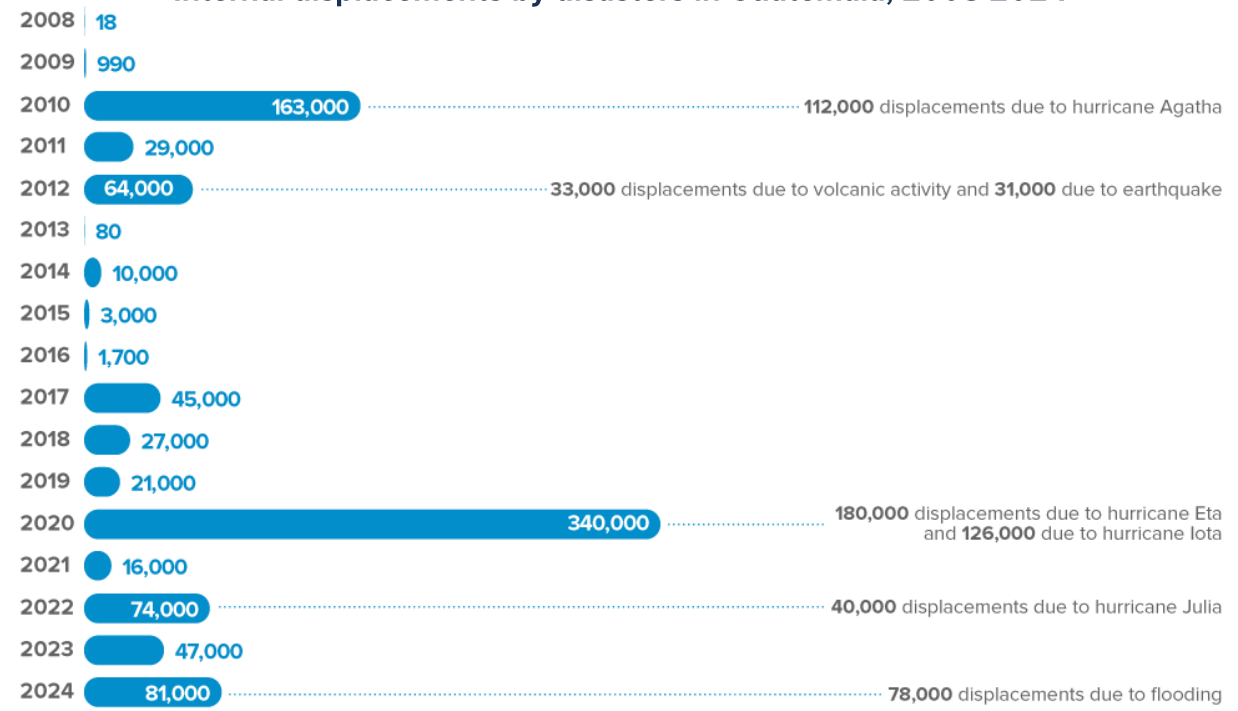
Guatemala's disaster displacement risk is shaped by:

- **Multi-hazard exposure across diverse regions**
  Guatemala is exposed to storms, floods, earthquakes and volcanic activity, making disaster-related displacement recurrent.
- **Escalating impacts from extreme hurricane seasons**
  Highly active Atlantic hurricane seasons have caused large-scale displacement, particularly when storms strike in rapid succession.
- **Concentration of risk in rural and northern departments**
  Displacement is most severe in rural areas and northern departments, where poverty, limited infrastructure and repeated hazard exposure compound impacts.
- **Climate variability shaping disaster risks**
  El Niño-related droughts in the Dry Corridor and intensified rainfall during wetter periods create alternating pressures.
- **Persistent geophysical hazards intensifying vulnerability**
  Guatemala's location at the intersection of three tectonic plates makes it highly prone to earthquakes and volcanic eruptions.

Recent trends

- 2020 was a major outlier, with about 339,000 displacements linked to Hurricanes Eta and Iota.
- Storms and floods have driven recurrent peaks, including Tropical Storm Agatha in 2010, the Volcán de Fuego eruption in 2018, and Hurricane Julia in 2023.
- Flood-related displacement has increased in recent years, reaching about 78,000 movements in 2024, more than the previous six years combined.
- Geophysical events continue to cause episodic but severe displacement, notably earthquakes in 2012 and 2014 and volcanic eruptions with long-term impacts.
- Since 2020, displacement has remained elevated, with protracted displacement increasingly linked to housing destruction, environmental degradation and limited recovery capacity.

Internal displacements by disasters in Guatemala, 2008-2024



Source: IDMC, 2025.

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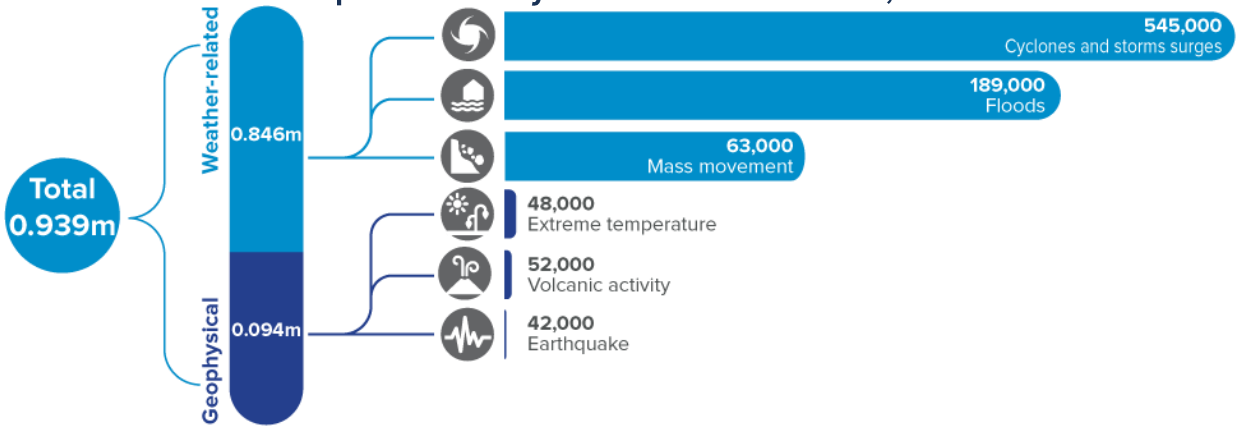


Source: IDMC, 2025.

Displacement risks by hazard type

Droughts

Displacement risk at a glance

Displacements in any given year in the future by climate scenarios:

→ Current: 29,600.
→ Optimistic: 124,300.
→ Pessimistic: 124,300.

Rare 100-year droughts (PMD100)

There is a 39% probability that, in the next 50 years, a severe drought (100-year return period) will displace:

→ Current: 802,900.
→ Optimistic: 1.5 million.
→ Pessimistic: 1.5 million.

Most at-risk districts

Displacements in the current scenario:

→ Quiché: 4,100.
→ Huehuetenango: 3,900.
→ Alta Verapaz: 3,700.

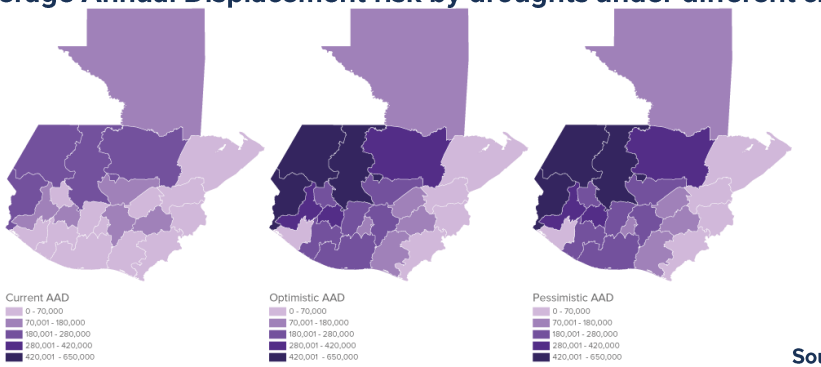
Displacements in the pessimistic scenario:

→ Huehuetenango: 27,600 (+608%).
→ San Marcos: 26,300 (+807%).
→ Quiché: 15,800 (+285%).
→ Quezaltenango: 8,800 (+700%).
→ Totonicapán: 4,800 (+860%).

Under pessimistic climate scenario, severe rare droughts could displace:

→ 259,700 in Huehuetenango.
→ 238,000 in Quiché.
→ 214,800 in San Marcos.

Average Annual Displacement risk by droughts under different climate scenarios



Source: IDMC, 2025.

Riverine floods

Displacement risk at a glance

Displacements in any given year in the future by climate scenarios:

→ Current: 8,700.
→ Optimistic: 8,200.
→ Pessimistic: 8,000.

Rare 50-year riverine floods (PMD50)

There is a 64% probability that, in the next 50 years, a severe rare riverine flood (50-year return period) will displace:

→ Current: 78,700.
→ Optimistic: 81,800.
→ Pessimistic: 85,600.

Most at-risk districts

Displacements in the current scenario:

→ Izabal: 3,300.
→ Petén: 2,600.
→ Alta Verapaz: 400.

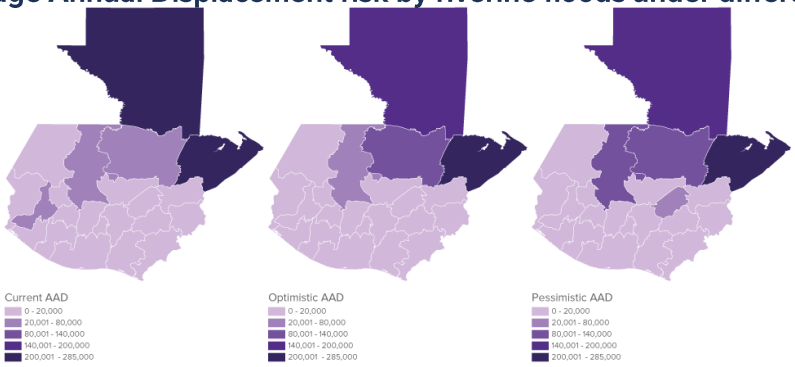
Displacements in the pessimistic scenario:

→ Izabal: 3,500 (+6%).
→ Petén: 1,600 (-38%).
→ Alta Verapaz: 600 (+50%).

Under pessimistic climate scenario, severe rare floods could displace:

→ 52,000 in Izabal.
→ 9,200 in Alta Verapaz.
→ 8,600 in Petén.

Average Annual Displacement risk by riverine floods under different climate scenarios



Source: IDMC, 2025.

Acknowledgements

Read the detailed profile. This profile was made possible thanks to the generous contribution of the European Union and the Federal Republic of Germany Foreign Office.

Co-funded by the European Union

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