No Safe Ground: Gaza's Displaced at the Edge of Climate and Conflict

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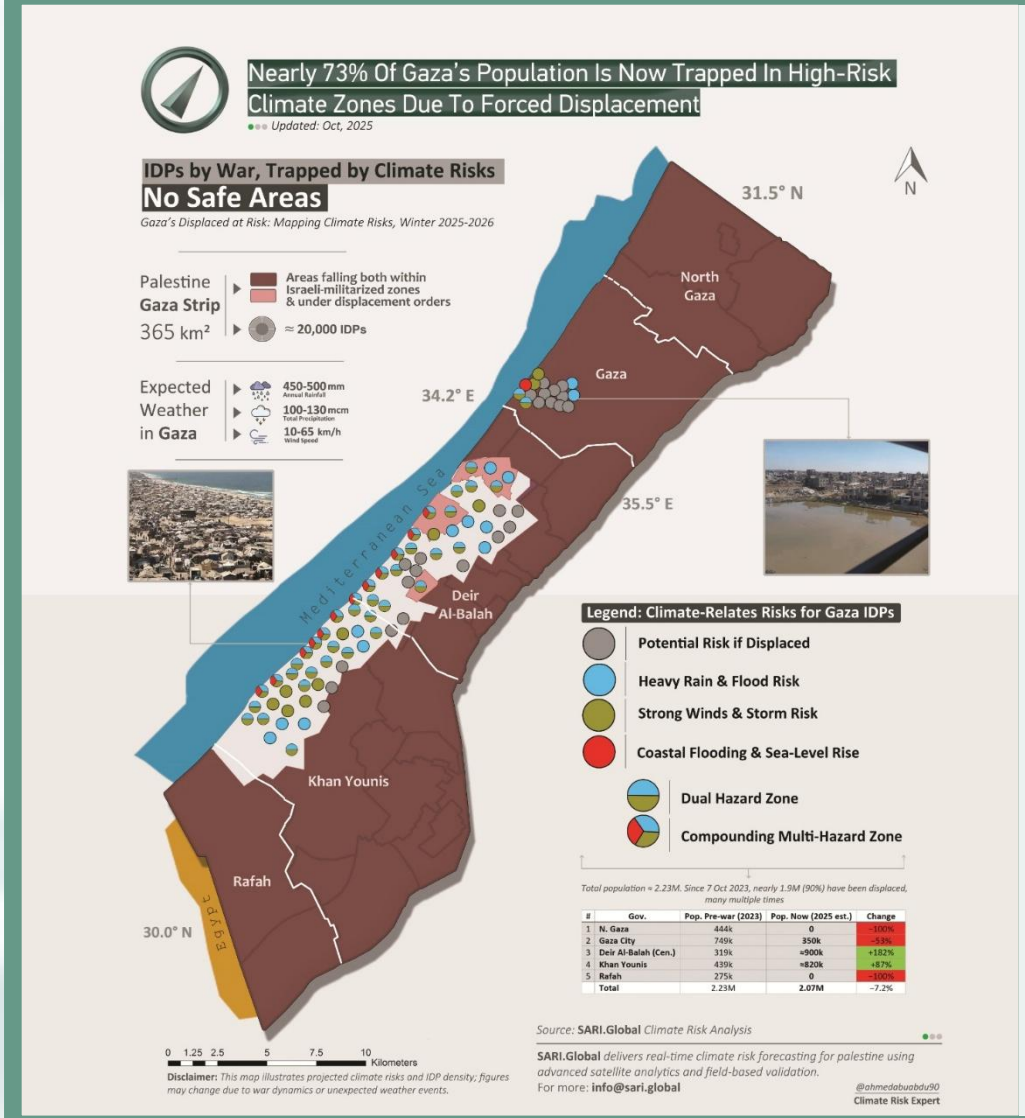

#	Gov.	Pop. Pre-war (2023)	Pop. Now (2025 est.)	Change
1	N. Gaza	444k	0	−100%
2	Gaza City	749k	350k	−53%
3	Deir Al-Balah (Cen.)	319k	≈900k	+182%
4	Khan Younis	439k	≈820k	+87%
5	Rafah	275k	0	−100%
	Total	2.23M	2.07M	−7.2%

Nearly 1.9 million people in Gaza, over 70% of the population, are now confined to areas with extreme exposure to climate hazards and no functioning infrastructure. The 2025–2026 winter season is forecast to bring 450–500 mm of rain, strong winds, and coastal surges to an environment where sewage ponds are already overflowing, half a million tons of waste (including hazardous medical waste) lie uncollected, and fragile tents are pitched on bare, flood-prone ground.

Vulnerability has risen from 60% before October 2023 to over 90% today, leaving the vast majority of Gaza's displaced exposed to multi-hazard risks: flooding, disease outbreaks, hazardous contamination, wind damage, and sea-level rise.

This convergence of conflict-driven displacement and escalating climate threats creates a compound humanitarian emergency. Without urgent, climate-sensitive interventions, early warning systems, safer shelter siting, drainage clearance, and adapted aid delivery, the winter ahead may trigger widespread preventable suffering and public health crises.

Donor engagement is essential now: early action to support adaptation and preparedness will save lives, reduce costs, and prevent Gaza's displacement crisis from escalating into a climate-driven disaster.

SARI Global provides real-time climate risk analysis and forecasting, supporting donors, agencies, and NGOs with data-driven insights to anticipate hazards, adapt humanitarian response, and safeguard vulnerable populations.

Population and Displacement Trends

The population of Gaza has undergone massive shifts since October 2023. While official figures often cite 250,000 to 350,000 people remaining in Gaza City, assessments by SARI Global sources suggest the number is closer to 200,000. Many neighborhoods marked on maps as residential are in reality deserted, either due to destruction or because they are under military control. Entire areas of North Gaza are virtually empty of civilians.

For those who remain, displacement is not just about numbers but about the sudden and dramatic transition from stability to vulnerability. Many families who once lived in multi-story homes valued at $150,000–200,000, owned vehicles, and enjoyed modern amenities, now find themselves living in tents or unfinished structures. This sudden shift, unlike contexts such as Sudan or Yemen where tent living has become part of long displacement traditions, has left people psychologically unprepared. The loss of homes and livelihoods has contributed to widespread feelings of despair and helplessness.

Access and Security Constraints

Gov.	Pop. Pre-war (2023)	Pop. Now (2025 est.)	Change
N. Gaza	444k	**0**	**−100%**
Gaza City	749k	**≈350k**	**−53%**
Deir Al-Balah/Center	319k	**≈900k**	+182%
Khan Younis	439k	**≈820k**	+87%
Rafah	275k	**0**	**−100%**
Total	2.23M	**2.07M**	**−7.2%**

Mobility across Gaza is severely curtailed. Cars can leave Gaza City, but entry from the south into the north is blocked after midday each day, with Israeli forces maintaining fire-control over the area. This effectively isolates communities and cuts off northern Gaza from regular access. The inability to transport goods, supplies, or medical referrals on predictable terms has created a transportation and logistical crisis.

Infrastructure Collapse

The collapse of waste management and sanitation services represents one of the most urgent and underreported crises. Since the beginning of the war, over 500,000 tons of uncollected waste have accumulated inside Gaza. With the two principal landfill sites inaccessible due to their location near conflict zones, waste has piled up at urban transfer points such as Yarmouk, Souq Firas, and al-Amal in Khan Younis. These are not engineered landfills but open dumping grounds surrounded by communities.

What makes the problem particularly acute is the nature of the waste. It is not only household refuse. Medical and biological waste from hospitals operating around the clock, such as surgical remains, amputated limbs, birthing waste, and infectious material, is being dumped alongside regular trash. With

no segregation or treatment, this waste is now hazardous. When the rains come, runoff will carry these materials into camps, streets, and public areas, creating a severe public health emergency.

Sewage infrastructure has also collapsed. The Sheikh Radwan pond, Gaza's principal sewage basin, is already more than 90 percent full. Pumping stations are largely non-functional, and sewage discharges into the sea have dropped from 100,000 cubic meters daily before the war to around 20,000 today. With the onset of rains, the majority of stormwater, estimated at 90 percent, will remain on the surface, flooding low-lying areas and mixing with hazardous waste and sewage.

Climate and Environmental Hazards

The winter season is forecast to bring between 450 and 500 mm of rainfall. In a functioning system, much of this would be absorbed or drained, but in Gaza it will translate directly into surface flooding. Families living in tents pitched on bare ground will face inundation of their shelters, belongings, and food supplies. The threat is not only from rain; the sea itself poses dangers. Even without major storms, tidal surges can push inland. A surge of only ten meters could flood 1,000 tents along the shore, while larger events could affect many thousands more.

Wind is another underestimated hazard. While international standards classify winds above 30 km/h as hazardous, in Gaza today even 10 km/h gusts can destabilize tents. During recent storms, winds of 60–65 km/h tore apart shelters, uprooted poles, and carried tents into the air. For families with no reinforced shelter options, wind can be as dangerous as rain, particularly for children and the elderly. The convergence of these hazards, rainfall, runoff, sewage overflow, hazardous waste, and wind, creates a situation where every storm has the potential to become a disaster. The humanitarian consequences will include waterborne disease outbreaks, further displacement, and direct casualties.

Vulnerability Indicators

Before October 2023, studies estimated that about 60 percent of Gaza's population was considered vulnerable based on access to services and infrastructure. Today, vulnerability is estimated to exceed 90 percent. This escalation reflects near-universal exposure to multiple overlapping risks.

The assessment draws on 12 primary indicators, including population density, exposure to flood zones, and infrastructure quality. Additional indicators, such as proximity to emergency services and access to passable roads, reinforce the conclusion that Gaza's population is trapped in compounding risk zones with no safe alternatives.

District	Total Pop. (2025 est.)	Pop. in Camps / IDP sites	Heavy Rain & Floods	Potential Risk if Displaced	Strong Winds & Storms	Coastal Flooding & Sea-Level Rise
N. Gaza	0	0	0	0	0	0
Gaza City	≈350k	10%	8%	100%	8%	4%
Deir Al-Balah/Center	≈900k	62%	30%	25%	23%	12%
Khan Younis	≈820k	74%	33%	17%	34%	19%
Rafah	0	0	0	0	0	0

Recommendations

To mitigate the looming crisis, a set of priority interventions is recommended.

- Early warning systems should be established to alert communities to incoming rainfall, storms, or surges. Even basic notification mechanisms can save lives if families are given hours or days to prepare.
- Adaptation measures are critical. This includes reinforcing shelters, creating makeshift drainage channels, and relocating the most exposed clusters of tents.
- Safe zones must be mapped and identified to prioritize aid delivery and reduce exposure. Humanitarian distributions should also adapt, with waterproof packaging and contingency planning for storm disruptions.
- Health preparedness must focus on isolating hazardous waste, pre-positioning hygiene and water kits, and preparing cholera and disease response capacities.
- Policy-level strategies are essential. Donors and agencies should integrate climate risk into humanitarian programming, support local municipalities in clearing drainage bottlenecks, and design medium-term adaptation plans.

Conclusion

The displaced population of Gaza is entering winter under conditions of extraordinary vulnerability. Conflict-related displacement has forced families into exposed areas where climate risks intersect with infrastructural collapse and public health hazards. With vulnerability now surpassing 90 percent, the stakes are clear: without urgent, climate-sensitive intervention, the coming season will bring not only flooding and disease but also preventable human suffering on a massive scale. Donor investment in early warning, shelter adaptation, and environmental health interventions is both urgent and essential to prevent this secondary humanitarian disaster.

SARI Global delivers advanced climate risk forecasting and field-validated analysis across high-risk environments. By integrating satellite data, proprietary frameworks, and local ground networks, SARI helps donors, agencies, and NGOs anticipate emerging hazards, design adaptive interventions, and allocate resources more effectively. This approach ensures that humanitarian action in Gaza, and in comparable contexts, is informed by the best available evidence, reducing costs, saving lives, and strengthening resilience against compounding climate and conflict risks.

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