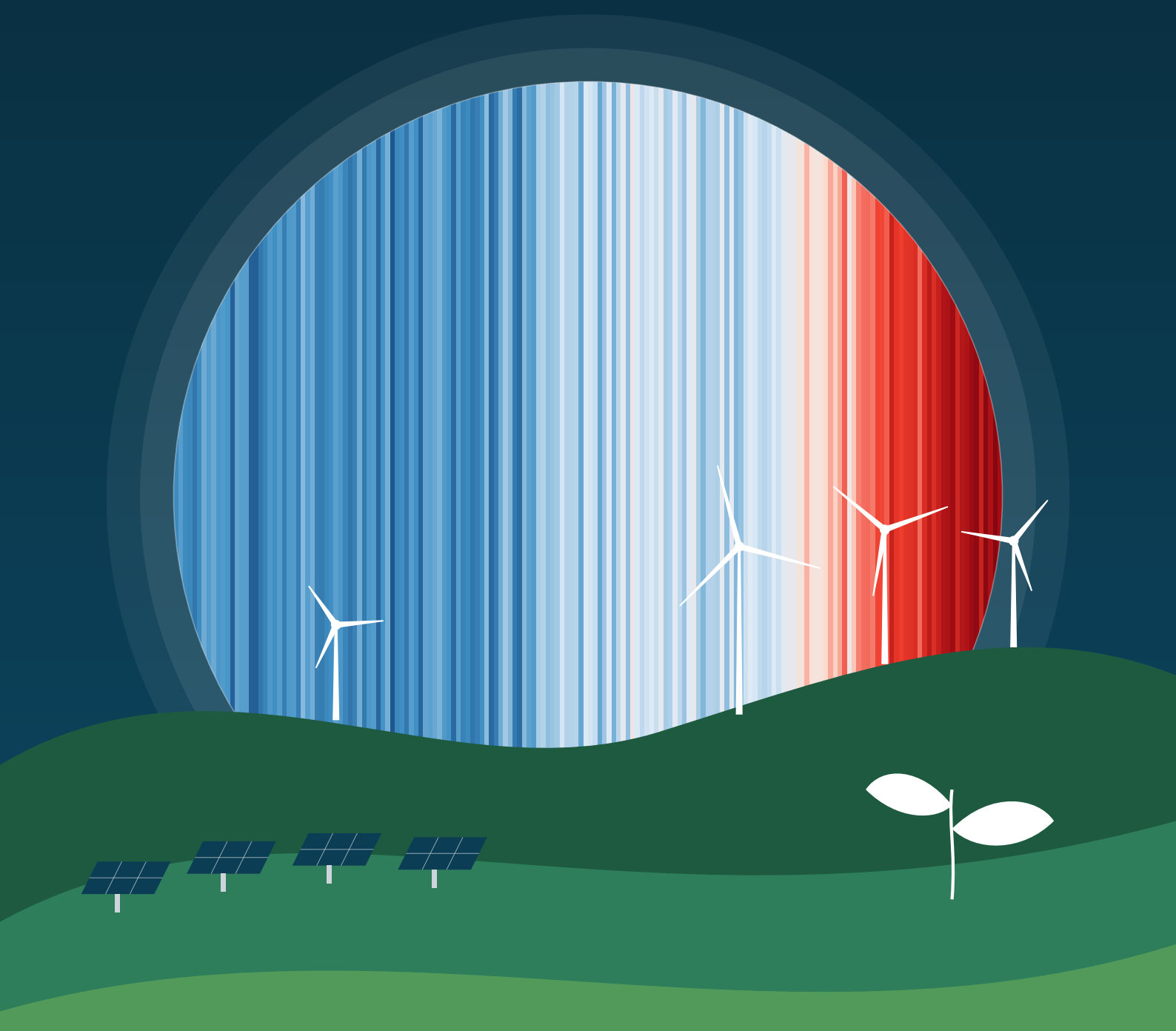


The Super El Niño Year

Climate risk at 1.5 °C and beyond

What a record-breaking El Niño means for economies, food systems and development finance on the road to COP31



Executive summary

The Pacific Ocean is delivering the strongest El Niño in the modern record. On 21 September 2026 the daily Niño 3.4 anomaly reached 3.11°C, above the previous record set in November 2015, and models expect the event to peak between November and January. Because El Niño releases ocean heat into the atmosphere with a lag, the World Meteorological Organization (WMO) now considers 2027 the most likely candidate for the hottest year ever measured.

This outlook argues that the 2026–27 event is more than a weather story. It is a stress test of the global economy, of food systems in the most vulnerable regions, and of a climate finance architecture that still treats adaptation as an afterthought. It arrives just as negotiators gather in Antalya for COP31, the first conference to work explicitly in a world that has begun to overshoot 1.5 °C.

3.11°C

record daily Niño 3.4 anomaly, Sep. 2026

1.71°C

central estimate for 2027 warming

49 M

more people at risk of acute hunger by 2027

12–14×

adaptation needs vs. current finance flows

Five key messages

- 1. A historic event.** NOAA gives an 83% chance that the event reaches historic strength by late 2026.
- 2. An economic shock that lasts.** Past strong El Niños cut global output by trillions of dollars, with effects persisting for five years or more.
- 3. Food security first.** The World Food Programme warns of up to 49 million additional people in acute food insecurity by the end of 2027, with Southern Africa most exposed.
- 4. A widening protection gap.** Around 60% of disaster losses in early 2026 were uninsured, and the share exceeds 85% outside North America and Europe.
- 5. Adaptation is the test for COP31.** Developing countries need US\$310–365 billion a year by 2035; international public flows stood at US\$26 billion in 2023.

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1 A record-breaking El Niño

El Niño is the warm phase of the El Niño–Southern Oscillation (ENSO), a natural cycle in which trade winds weaken and warm water spreads across the central and eastern tropical Pacific. What makes the 2026 event exceptional is both its speed and its size: since June it has run ahead of the 1997–98 and 2015–16 “super” events, which were still around 1.9 °C in early September.

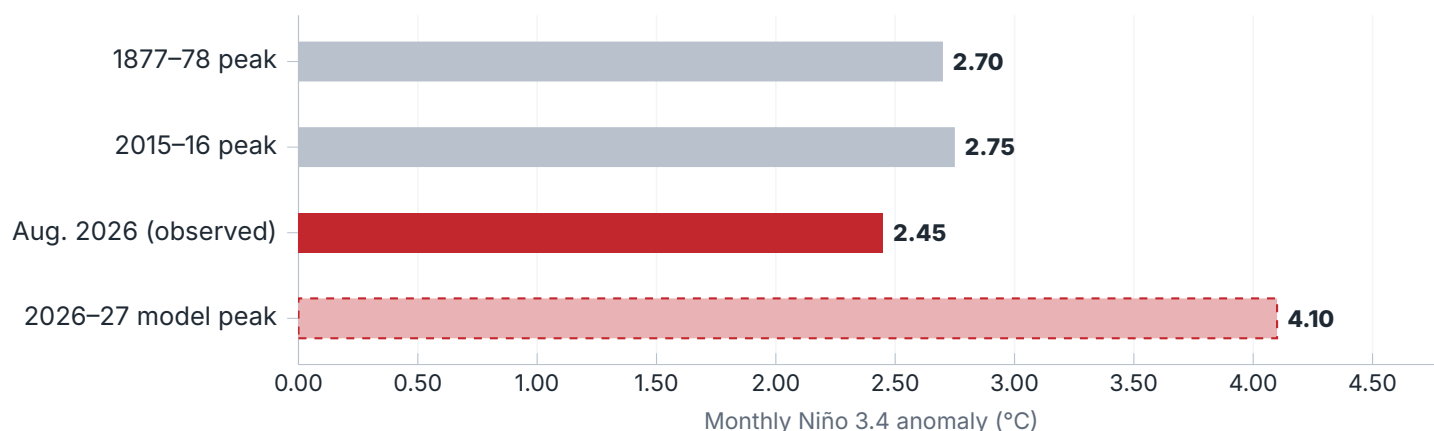


Figure 1. The 2026 event compared with the strongest monthly peaks on record. August 2026 is not the peak: models project around 4.1°C between November and January, although no forecast system has been tested on an event of this size. Source: Carbon Brief analysis (Hausfather, Sept. 2026).

From the Pacific to the planet

El Niño adds roughly 0.1 to 0.2 °C to global temperature, with a delay of several months. A strong event peaking in winter 2026–27 therefore weighs most heavily on 2027. Carbon Brief’s statistical projection puts 2027 at about 1.71°C above pre-industrial levels, with a wide range of 1.49 to 1.93 °C, which would beat the 2024 record by a clear margin.

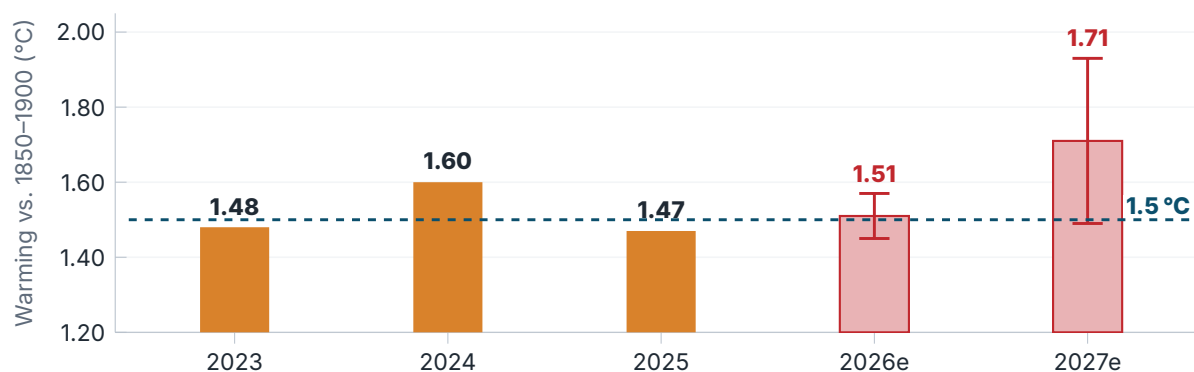


Figure 2. Annual global temperature. 2023–2025: Copernicus ERA5 observations. 2026e and 2027e: Carbon Brief projections (July 2026) with 90% ranges. The two sources use different methods and are shown for orientation only.

The WMO’s latest decadal forecast reinforces the picture: an 86% chance that at least one year between 2026 and 2030 beats 2024, and a 91% chance that at least one year exceeds 1.5 °C.

2 Why El Niño is an economic shock

For decades, El Niño was treated as a temporary disruption: a bad harvest here, a flood there, followed by a quick rebound. Recent research overturns that view. Using country-level data since 1960, Callahan and Mankin (*Science*, 2023) find that strong El Niño events depress economic growth for at least five years, and in some cases for up to 14 years.

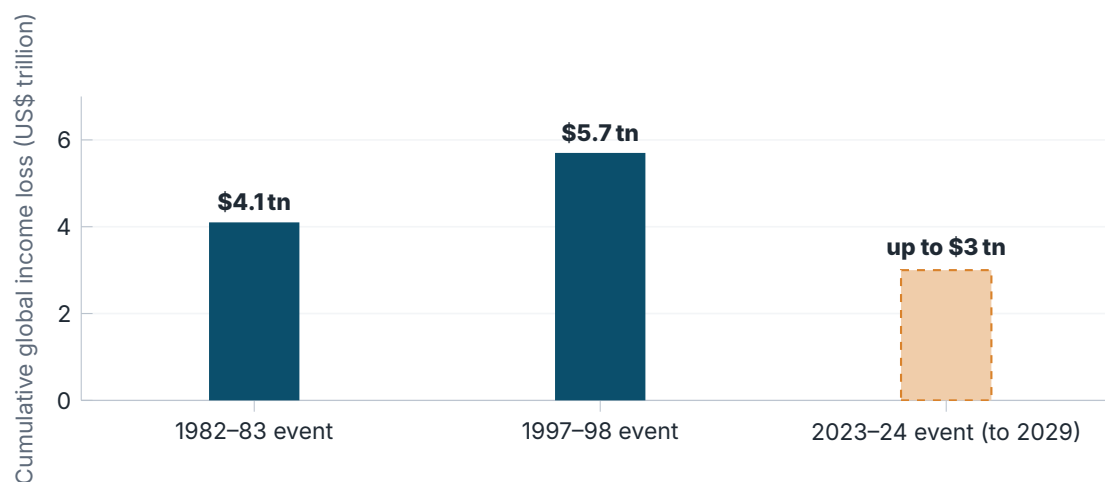


Figure 3. Estimated global income losses in the five years following major El Niño events. The 2023-24 figure is a projection. Source: Callahan and Mankin (2023).

The burden is highly unequal. In Peru and Indonesia, GDP was more than 10% below its counterfactual path in the years after the 1982-83 and 1997-98 events, against about 3% in the United States. Under continued warming, the same study estimates cumulative losses over the 21st century at up to US\$84 trillion. A stronger event than 1997-98, as the 2026 one is shaping up to be, places these estimates firmly in the realm of current risk.

How the shock spreads

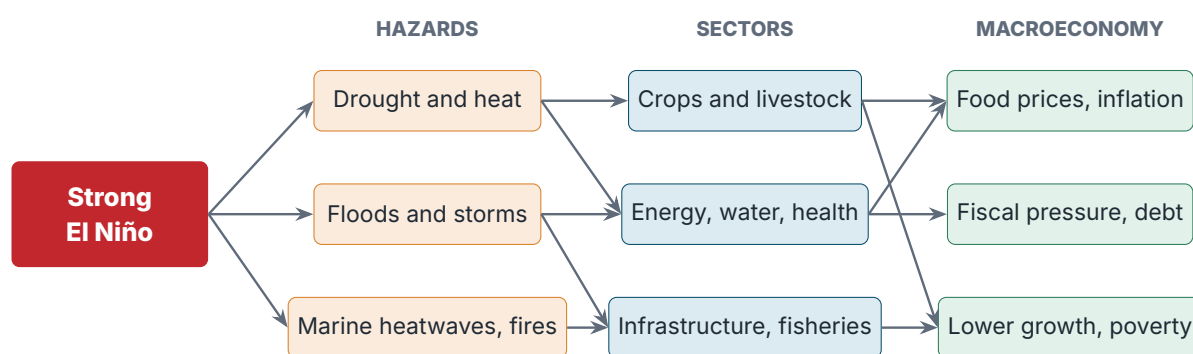


Figure 4. Main transmission channels from an El Niño event to the macroeconomy (author's synthesis).

Why the effect persists

Lost harvests deplete savings and seed stocks, damaged infrastructure takes years to rebuild, and governments divert budgets from investment to emergency relief. In low-income economies with thin fiscal buffers, a single season can therefore shift the growth path for half a decade.

3 A global map of regional risks

El Niño does not warm everywhere equally. By shifting the atmospheric circulation over the Pacific, it redistributes rainfall across the tropics: some regions dry out while others flood, often within the same season. The table below summarizes the main risks flagged for 2026–27 by forecasters and humanitarian agencies, together with signals already observed.

Table 1. Regional risk outlook for the 2026–27 El Niño

Region	Main hazard	Expected impacts and early signals
Southern Africa	DROUGHT	Below-average rains forecast for October–April. Maize, the staple crop, is highly drought-sensitive; WFP projects a near 75% rise in acute food insecurity.
South Asia	DROUGHT	India’s monsoon was 13% below average by late August, on course for its weakest season since 2009. Risks for rice, pulses, cotton and food inflation.
Southeast Asia	FIRE / HEAT	Drier conditions raise fire risk; Indonesian fire emissions in 2026 are on track to match a record for this century. Pressure on palm oil and rice.
Australia	DROUGHT	El Niño typically brings drier, hotter conditions in the east, raising bushfire and crop risks.
Horn of Africa	FLOODS	The October–December rains may be above normal in the eastern Horn, bringing floods, crop losses and displacement.
Sahel, West and Central Africa	DRY SPELLS	Reduced rainfall in the June–September growing season can cut harvests and strain food supplies.
Western South America	FLOODS	Coastal Peru and Ecuador face heavy rainfall and warmer seas, hitting fisheries and infrastructure.
Southern United States	WET WINTER	Wetter, stormier winter conditions are favored, while the Atlantic hurricane season tends to be suppressed.
Global oceans	MARINE HEAT	Renewed marine heatwaves threaten coral reefs already past a tipping point (see Section 6).

Reading the table

These are probabilistic tendencies, not certainties. NOAA itself stresses that typical El Niño impacts are “more likely” with an event of this size but “not guaranteed”. The value of the outlook lies in triggering preparation early, when it costs least.

A compound-risk year

What makes 2026–27 especially dangerous is the combination of three factors: a record El Niño, a baseline global temperature already close to 1.5 °C, and many vulnerable economies still recovering from the 2023–24 event and from high debt service costs. The same physical shock therefore lands on systems with less capacity to absorb it than a decade ago.

4 Food security on the front line

Agriculture is the most direct channel through which El Niño hits people. In August 2026 the World Food Programme (WFP) estimated an 81% chance that a very strong El Niño develops during the 2026–27 season, potentially the strongest since 1950, and warned that up to 49 million additional people could face acute food insecurity by the end of 2027.

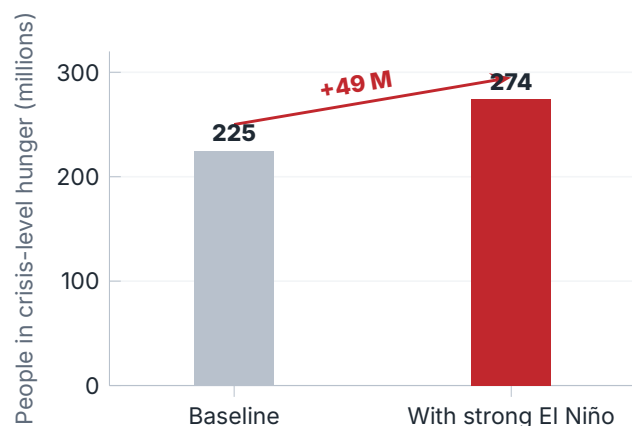


Figure 5. Projected acute food insecurity in 45 vulnerable countries. Source: WFP (Aug. 2026).

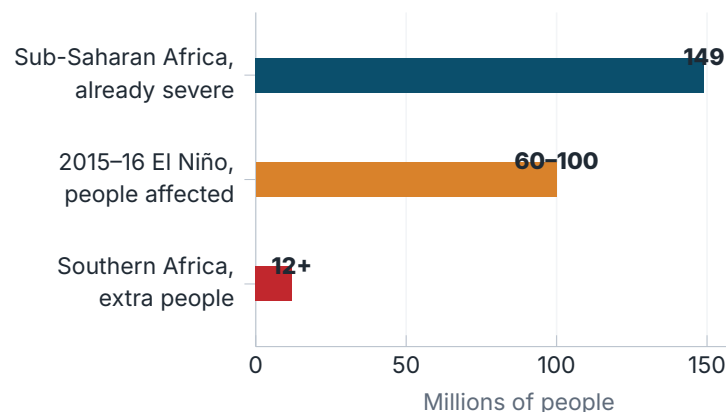


Figure 6. Scale of the challenge. Sources: WFP; FAO, Global Report on Food Crises 2026.

Southern Africa: the epicentre

The Food and Agriculture Organization (FAO) forecasts below-average rainfall across Southern Africa for October–April, the core of the maize season. The WFP projects a near 75% increase in acute food insecurity in the region, pushing more than 12 million additional people into hunger. Good harvests earlier in 2026 offer a temporary buffer, but a prolonged dry season would erode rural incomes, livestock and market stability.

Acting before the disaster

The most important lesson from 2015–16, when 60 to 100 million people were affected, is that response came late. This time agencies are moving earlier:

- FAO and WFP launched a joint **US\$202 million anticipatory action appeal** to protect about 8.8 million people in 22 countries, 12 of them in Africa.
- Planned measures include early-warning systems, emergency cash transfers, drought-tolerant and flood-resistant seeds, livestock support and water storage.
- The WFP is scaling up anticipatory assistance in 18 countries.

Why anticipation pays

Early action is consistently cheaper than emergency relief: a household that receives cash or seeds before the drought does not need to sell its livestock or pull children from school. The challenge is that current appeals cover only a small fraction of the population at risk.

5 Insurance and the protection gap

For insurers, the first half of 2026 looked deceptively calm. Munich Re estimated insured natural-catastrophe losses at US\$44 billion, well below the US\$80 billion of the first half of 2025 and below the five-year average of US\$66 billion. Yet total economic losses reached nearly US\$112 billion, meaning that roughly 60% of the damage was not insured.

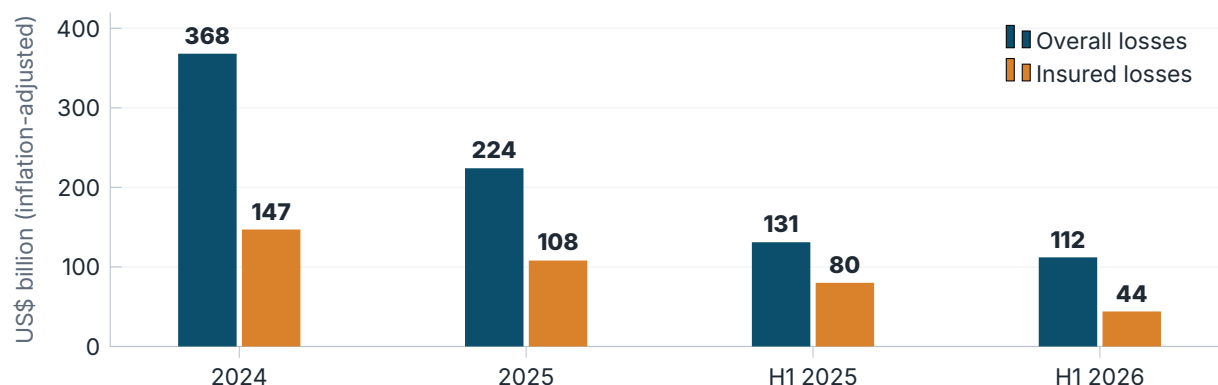


Figure 7. Natural-catastrophe losses, full years and first halves. Source: Munich Re (Jan. and Jul. 2026).

The calm is partly an ENSO effect. During La Niña and neutral phases, Atlantic hurricanes and US convective storms tend to dominate insured losses; El Niño shifts the risk toward droughts, fires and floods in regions where insurance penetration is low. Munich Re's chief climate scientist has described the combination of record warmth and a possible "Super El Niño" as "a dangerous mix".

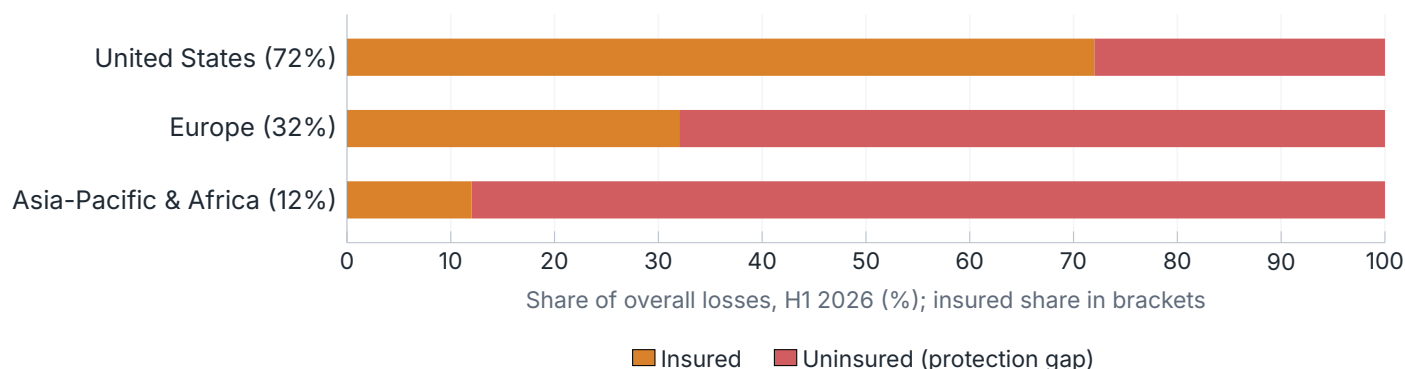


Figure 8. Insured share of losses by region, first half of 2026 (approximate, author's calculation from Munich Re regional totals: US \$34 bn of \$47 bn; Europe \$7 bn of \$22 bn; Asia-Pacific and Africa about \$1 bn of \$8.7 bn).

The development dimension

The protection gap is widest exactly where El Niño will strike hardest. Without insurance, losses fall on households, farmers and public budgets, which is why the gap is a development issue as much as a financial one. Parametric insurance, regional risk pools and catastrophe bonds can close part of it, but only if premiums are affordable and payouts arrive quickly.

6 Living beyond 1.5 °C

A single year above 1.5 °C does not mean the Paris Agreement goal is lost, since that goal refers to long-term averages. But the signal is now unmistakable. According to Copernicus, the three-year period 2023–2025 was the first to average more than 1.5 °C, and long-term warming already stands at about 1.4 °C. At the current pace, the 1.5 °C threshold could be reached on a lasting basis by the end of this decade, more than ten years earlier than expected when the agreement was signed.

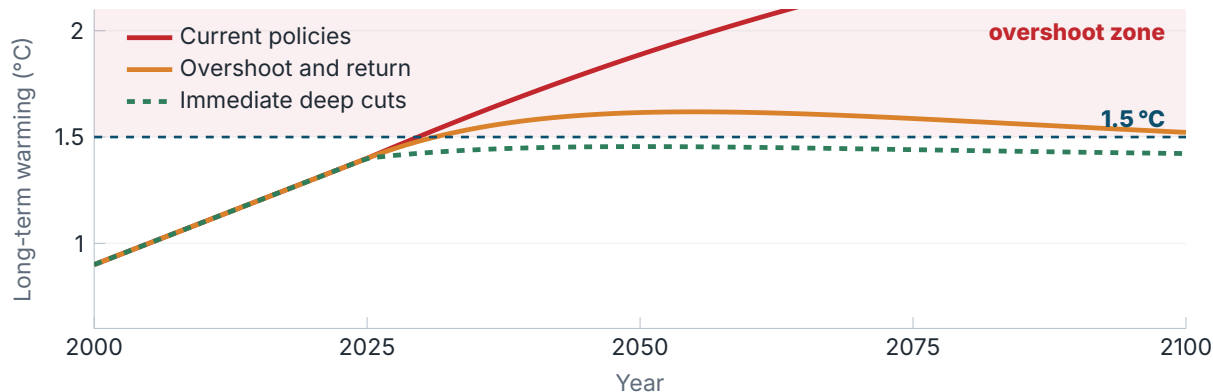


Figure 9. Overshoot explained: three stylized warming pathways. Illustrative curves, not model output.

The first tipping point has been crossed

In October 2025, the *Global Tipping Points Report* concluded that warm-water coral reefs have passed their thermal tipping point. The fourth global bleaching event, which began in January 2023, has affected more than 84% of the world's coral reefs. Maintaining reefs at a meaningful scale would require bringing warming back to around 1 °C. A record El Niño adds a new wave of marine heat to ecosystems that have not recovered.

Why tipping points matter for development

Coral reefs protect coastlines from storm surges, sustain fisheries and support tourism. Their decline is a loss of natural capital that directly weakens the resilience of coastal and island economies, many of which are among the least able to finance adaptation.

Overshoot enters the negotiating text

At COP30 in Belém, for the first time, a COP decision acknowledged the possibility of overshoot, stating that “both the extent and duration of an overshoot need to be limited”. The language marks a shift: climate policy is moving from preventing 1.5 °C to managing life beyond it, which places adaptation and resilience at the center of the agenda.

7 Sustainable development and the road to COP31

The 2026–27 El Niño highlights a structural imbalance in climate finance. Mitigation attracts most of the money; adaptation, which protects development gains in the countries most exposed, receives a small share. The *UNEP Adaptation Gap Report 2025* quantifies the gap.

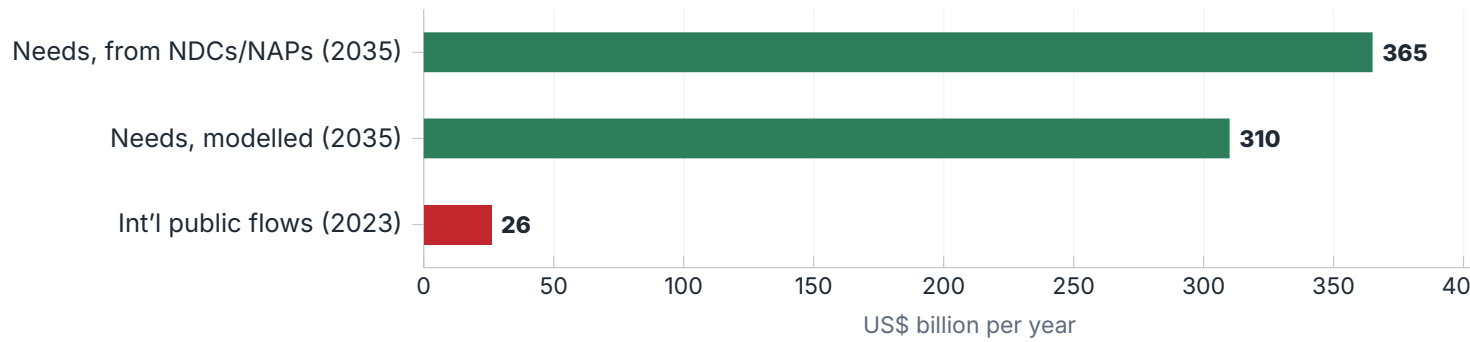


Figure 10. Adaptation finance needs of developing countries versus international public flows. Source: UNEP, *Adaptation Gap Report 2025*.

Needs are 12 to 14 times larger than current flows, and those flows fell from US\$28 billion to US\$26 billion in 2023. The Glasgow pledge to double adaptation finance by 2025 is likely to be missed. At COP30, countries agreed to triple adaptation finance by 2035 and adopted 59 indicators to track the Global Goal on Adaptation, but the tripling target has no clear baseline.

COP31 at a glance

Dates and venue	9–20 November 2026, Antalya, Türkiye; World Leaders’ Summit on 11–12 November
Presidency	Türkiye hosts and presides (Murat Kurum); Australia’s Chris Bowen chairs the formal negotiations
Pacific dimension	Pre-COP held in Fiji (5–8 October) and a leaders’ event in Tuvalu on island vulnerability
Key files	Implementation of national climate plans, adaptation finance and indicators, loss and damage, just transition, finance work programme

What to watch in Antalya

- **A credible adaptation finance path:** a baseline and interim milestones for the tripling goal, with a larger share in grants for the most vulnerable.
- **Operational indicators:** turning the 59 adaptation indicators into a tracking system countries can actually report against.
- **Loss and damage:** capitalization and fast disbursement rules for the fund, tested in real time by El Niño impacts.
- **Early warning for all:** financing for forecasting and anticipatory action, the most cost-effective protection against seasonal shocks.
- **Closing the ambition gap:** stronger national plans to limit the depth and duration of the overshoot.

8 Recommendations

1. Act on forecasts, not on disasters

Link seasonal forecasts to pre-agreed triggers and pre-arranged finance, so that cash, seeds and water reach communities before the shock peaks.

2. Treat El Niño as a macro risk

Finance ministries and central banks should integrate ENSO scenarios into budget planning, inflation outlooks and debt sustainability analyses.

3. Close the protection gap

Scale up parametric insurance, regional risk pools and climate-resilient debt clauses that pause repayments after a disaster.

4. Invest in resilient agriculture

Expand drought-tolerant seeds, efficient irrigation, water storage and climate information services for smallholders.

5. Protect natural capital

Integrate reefs, mangroves, forests and watersheds into development planning as natural infrastructure.

6. Make COP31 an adaptation COP

Agree a measurable path for adaptation finance and connect it to national development strategies.

Conclusion

The 2026–27 Super El Niño is a preview of the risk landscape of a world above 1.5 °C: stronger shocks, landing on more fragile systems, with costs that persist for years. It is also an opportunity, because this time the warning came months in advance. Whether that warning turns into protected harvests, insured households and resilient public finances will depend on decisions taken now, in national budgets and in Antalya.

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- Cover: stylized warming-stripes motif (illustrative) over a renewable-energy landscape. Figures reflect sources available on 12 October 2026; forecasts are probabilistic and subject to revision.