

Effects and humanitarian consequences of the El Niño phenomenon

in Latin America and the Caribbean 2023/2024

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Analysis of the Regional Group on Risks, Emergencies and Disasters
for Latin America and the Caribbean (REDLAC) coordinated by OCHA ROLAC

As of November 2023



Key considerations

	<p>The 2023 El Niño phenomenon is currently affecting Latin America and the Caribbean and forecast to persist until May 2024.</p>
	<p>The effects of El Niño on precipitation and temperature vary across regions causing droughts, wildfires and floods potentially disrupting the lives and livelihoods of millions of people.</p>
	<p>Possible humanitarian impacts are already becoming apparent where previous vulnerabilities are high and response capacities limited. Some at-risk countries are Bolivia, Colombia, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Peru, Suriname and Venezuela. Conditions in the Central American Dry Corridor as well as the South American Amazon, Gran Chaco and Andes regions merit close monitoring.</p>
	<p>People whose livelihoods depend on small-scale farming and fishing, children, pregnant and breastfeeding women, elderly people, people with chronic illnesses and those already experiencing food insecurity are most likely to suffer greater humanitarian effects from El Niño.</p>
	<p>Early, concerted and locally-led action is necessary to mitigate the humanitarian consequences of El Niño.</p>

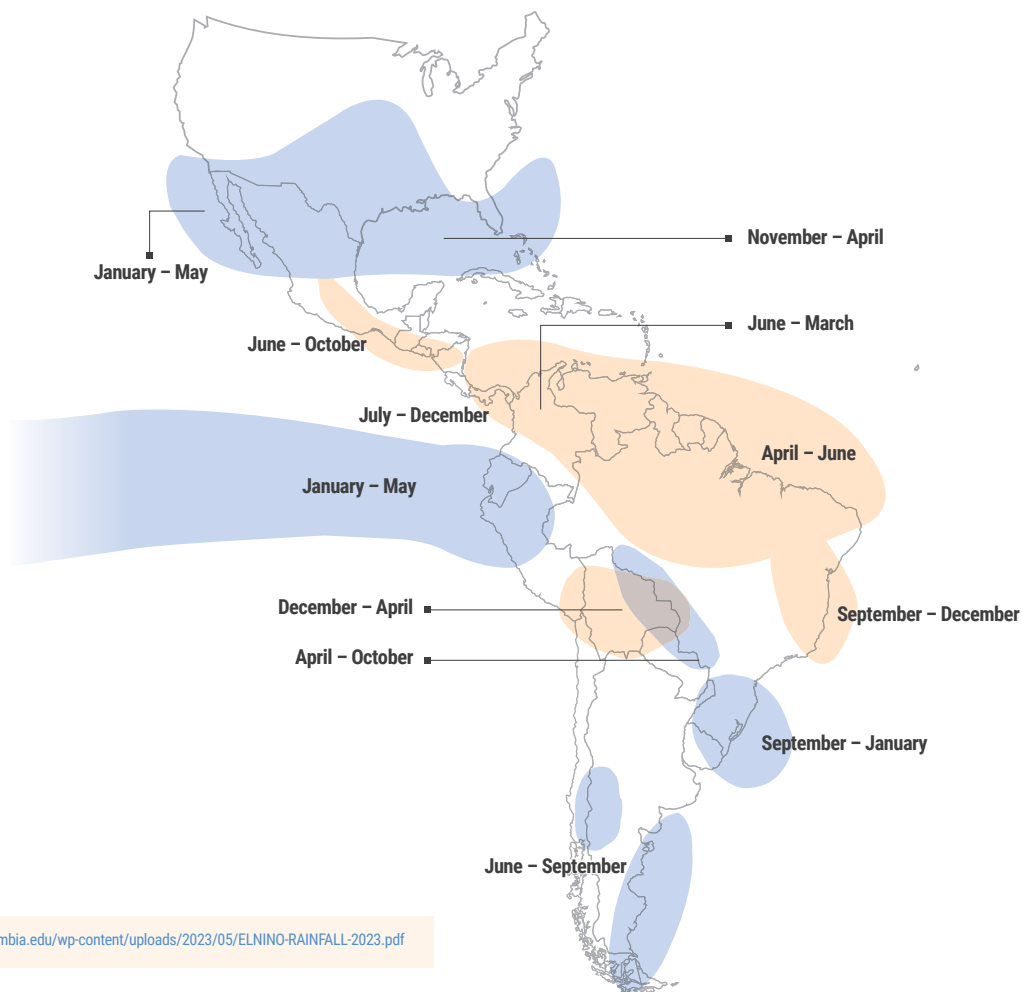
1. Situational Overview for Latin America and the Caribbean

El Niño, the warm cycle of the El Niño-Southern Oscillation (ENSO), is a natural climate phenomenon linked to the periodic warming in sea-surface temperatures across the central and eastern Pacific Ocean and subsequent changes in weather patterns around the world. An El Niño episode occurs every 2-7 years and typically lasts 9-12 months, though it can persist as long as 2-3 years. A usual El Niño pattern forms during June-August and reaches peak strength between October and February of the following year.

Amid rising temperatures in the tropical Pacific, the World Meteorological Organization has declared the onset of El Niño in July 2023¹.

El Niño in Latin America & the Caribbean

Although every El Niño episode is unique, in Latin America and the Caribbean, El Niño usually brings a mix of drought, extreme temperatures, heavy rainfall and flooding. Below-normal precipitation is typical over northern South America (Colombia, Venezuela, Guyana, Suriname, Bolivia and eastern Peru) and Central America (El Salvador, Guatemala, Honduras, Nicaragua), while above-average rainfall is expected in coastal areas of South America (Ecuador, Peru, Uruguay, Paraguay, Argentina, Brazil). Some countries or areas, such as Venezuela, Colombia, Peru and parts of the Caribbean, experience both extremes of El Niño impacts, with both dry/drought conditions and increased rainfall and flooding.



Source: <https://iri.columbia.edu/wp-content/uploads/2023/05/ELNINO-RAINFALL-2023.pdf>

¹ World Meteorological Organization



TERRERO, HONDURAS

WFP, FAO, UNICEF, OCHA, the Honduran Red Cross and the German Red Cross visited the Terreros community in the southern Honduran department of Choluteca to see how ECHO-backed anticipatory actions are benefitting people ahead of El Niño's potential impact on drought in the country's Dry Corridor, forecast to last through 2024. Photo: OCHA / Marc Belanger

Significant losses from the 2015/2016 El Niño event in Latin America and the Caribbean

The 2015/2016 El Niño was one of the strongest El Niño events on record, bringing drought conditions to Central America, the Caribbean and the highland areas in South America, deepening food insecurity, irreversibly damaging agricultural production and increasing cases of vector-borne diseases, including zika. Central America faced one of the most severe droughts in the region's history, affecting more than 1.3 million people in Honduras, 1.5 million people in Guatemala and 700,000 people in El Salvador and resulting in crop losses

from 50-60 per cent in Nicaragua, El Salvador and Honduras to as high as 80 per cent in Guatemala's most affected areas².

Temperatures were elevated and rainfall was low across the entire Caribbean in 2015. Ten island nations experienced severe drought. Cuba had its most severe dry season in 115 years. Emergency water rationing occurred in St. Lucia and Puerto Rico. Antigua's one-billion-gallon reservoir behind the Potworks Dam went dry and 65 per cent of the island's farmers went out of business.

² FAO

Brazil and Colombia both experienced significant drought and forest fires, causing severe damage to crops and resulting in soaring coffee prices.

In other areas of South America, severe rainfall caused floods. In December 2015, severe flooding across Paraguay, Uruguay, Brazil and Argentina resulted in evacuations and significant damages. In Argentina, the National Agroindustry Ministry reported that between 20 and 80 per cent of crop production was affected, leading the Government to declare an agricultural emergency. Flooded crops in northeast Brazil, coupled with drought conditions elsewhere in the country, led to a sharp reduction in agricultural output, with maize production falling by 25 per cent and total cereal production reaching the lowest level in 5 years.

Forecast: the 2023/2024 El Niño

El Niño conditions were first observed in April 2023, with a weak El Niño being declared in June following three months of increased Pacific Ocean sea-surface temperatures. By September, this had progressed to a moderate El Niño, which is anticipated to **peak between November and January, with a 75-85 per cent chance of a strong El Niño** and a 3 in 10 chance of a

“historically strong” event, rivalling 2015-2016 and 1997-1998. However, a strong El Niño does not necessarily equate to strong El Nino impacts locally³. Additionally, not all El Niño events lead to disasters. Other factors, including local weather patterns and preparedness, play a fundamental role.

El Niño typically increases hurricane activity in the eastern Pacific, heightening the risk for the western coast of Costa Rica, El Salvador, Guatemala, Honduras, Mexico and Nicaragua, and reduces the frequency and intensity of storms in the Atlantic (Caribbean and Gulf of Mexico). This year, record-warm Atlantic Sea temperatures have also been recorded, which is likely to counterbalance the usually limiting atmospheric conditions associated with El Niño. As such, forecasters from the US National Oceanic and Atmospheric Administration (NOAA) have increased the likelihood of an above normal Atlantic hurricane season from 30 per cent (issued in May) to 60 per cent as of August.

As of October 2023, the inter-agency Global ENSO analysis cell⁴ identified priority countries in Latin America and the Caribbean for potential humanitarian challenges through March 2024:

PRIORITY COUNTRIES IN LATIN AMERICA & THE CARIBBEAN AS IDENTIFIED BY THE GLOBAL ENSO ANALYSIS CELL

COUNTRY	OCTOBER – DECEMBER 2023	JANUARY – MARCH 2024
El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Peru (east), Suriname, Venezuela (north)	DRY	DRY
Colombia (north for DRY and west for WET conditions)	DRY	WET
Ecuador	WET	WET

3 National Oceanic and Atmospheric Administration – Climate Prediction Centre
4 This map is meant to provide an overview. Conditions may not apply at all times or to all regions of a country. The Global El Niño Analysis Cell - formed under the auspices of the Interagency Standing Committee and comprising participants from ACAPS, FAO, IFRC, IOM, IRI, MSF, OCHA, SCI, UNHCR, UNICEF, WFP, WHO, WMO - emphasizes that the list of countries is neither “fixed nor final” and should be verified against more detailed national forecast and understanding of vulnerability. Criteria taken into account are: a) the IRI El Niño and Rainfall map, b) seasonal forecasts, c) vulnerability and lack of coping capacity on INFORM risk index, d) agricultural seasonality and impact on crop production, e) aggravating factors in health, security and macroeconomic constraints.

Based on historical El Niño impacts, precipitation forecasts, existing vulnerabilities and the compounding effects of other weather-related impacts, including climate change, REDLAC members

have identified further countries to monitor for potential humanitarian consequences due to El Niño conditions. El Niño conditions:

FURTHER AT-RISK COUNTRIES IN LATIN AMERICA & THE CARIBBEAN AS IDENTIFIED BY REDLAC

COUNTRY	OCTOBER 2023 – MARCH 2024
Belize, Bolivia, Brazil, the Caribbean, Costa Rica, Panama	DRY
Argentina, Brazil (south), Bolivia (east), the Caribbean, Chile, Paraguay, Peru (north), Uruguay	WET

The impacts of El Niño are already being felt across the region. Since April, erratic and insufficient rainfall has led to abnormal dryness and drought across Central America, alongside sporadic wet conditions. Between April and August 2023, rainfall totals were among the lowest in 43 years northern areas of Guatemala, western El Salvador, and northwestern Nicaragua, resulting in severe drought, significant vegetation stress and dry soil conditions⁵. In Guatemala, subsistence farmers are expected to experience average yield reductions of 25 to 50 per cent⁶. Simultaneously, heavy rainfall has affected more than 4.4 million people across Guatemala during this year's rainy season (since May 2023). In El Salvador, drought conditions have so far affected 47 per cent of maize crops from the first sowing season (*primera*, typically in June), with an expected 19 per cent loss at the national level – or roughly 119 million kilos⁷.

In Bolivia, extreme temperatures and drought conditions are already affecting around 410,000 households or approximately 1.4 million people corresponding to almost a ninth part of the total population⁸. In August, the country recorded its highest temperature of 45 degrees Celsius.

Potosí, one of the most affected regions, has reduced water flow by a third, restricting water for both human consumption and agricultural use. The extreme drought is attributed to a combination of climate change and the triggering conditions of El Niño.

Below normal and dry conditions are forecast to persist across northern and central South America, particularly between November and January 2024.

The Global ENSO Analysis Cell identifies northern Colombia, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, eastern Peru, Suriname and northern Venezuela as high priority for humanitarian challenges due to El Niño-induced dry conditions and drought.

Over the coming months, above average rainfall is forecast for parts of the Caribbean, northern South America and the Atlantic coast of southern South America. The Global ENSO Analysis Cell has identified western Colombia and Ecuador as high priority for potential humanitarian challenges due to wet conditions brought on by El Niño. In Ecuador, the Government has declared an Orange Alert in areas that are less than 1,500m above sea-level, 143

⁵ Global Agricultural Monitoring

⁶ FEWS NET, NOAA, US AID

⁷ El Salvador Ministry of Agriculture and Livestock, as of August 2023.

⁸ Bolivia Humanitarian Country Team, Technical report on El Niño issued October 2023.

cantons across 17 provinces, due to the impending impact of El Niño conditions. The Government of Ecuador is accessing multilateral financing credits and loans amounting to \$500 million for preparedness and response efforts within the country⁹. Other at-risk countries to be monitored due to El Niño-induced wet conditions include the Caribbean islands, Argentina, Brazil, Chile, Paraguay, Peru and Uruguay. In Peru, a 60-day state of emergency was extended at the end

of September to respond to the impacts of El Niño over 18 of the country's 25 regions of the country. Peru's government authorities anticipate 1.4 million people, particularly those living in coastal areas, to be potentially impacted by excessive rains, 1.5 million people by landslides and 1 million people by drought in parts of the interior of the country between January and March 2024.



PIURA, PERU

El Niño-related flooding in early 2023 affected more than 839,700 people.

Photo: OCHA / Marcel Velásquez

⁹ Ecuador President Guillermo Lasso

2. Anticipated humanitarian consequences and people most at-risk

El Niño conditions, like deficit of or excessive rains, are expected to exacerbate existing challenges, deepening social inequalities and disproportionately affecting the region's most vulnerable populations.

In Latin America and the Caribbean, over 38 million people are already in need of humanitarian assistance in 2023, as reflected in the coordinated humanitarian response plans issued by OCHA, UNHCR and IOM in Colombia, El Salvador, Haití, Honduras, Guatemala, Venezuela and multiple countries affected by the migrant and refugee crisis¹⁰. El Niño-induced conditions and extreme weather events may significantly exacerbate the existing humanitarian needs.

- In Central and northern South America, particularly throughout the Dry Corridor and areas of Colombia and Venezuela, erratic rainfall and drought during the primera planting season has already resulted in significant yield reductions. Continued dry conditions threaten the upcoming 2023 postrera planting season, potentially affecting staple food production and adding increased pressure to already high food prices. Crisis (IPC Phase 3) outcomes are projected to spread by spring 2024 in the Dry Corridor and northern Honduras, where subsistence farmers are expected to lose up to 25 percent of their crops this year and water availability for humans and livestock is declining¹¹.
- WFP estimates that the food security of as many as 5 million people will be potentially affected by El Niño in the region: 1.6 million people in Central America and 3.4 million in South America.
- In other areas of the region, such as Argentina, Brazil and Bolivia, El Niño-induced rainfall deficit is amplifying the existing effects of climate change and deforestation, resulting in significant disruptions to livelihoods through deepening drought, record-breaking temperatures and widespread forest fires.
- Drought will continue to reduce water quality and availability across the region, including in large parts of Central America and northern South America. In areas where access to safe drinking water and sanitation is already low, populations will be especially vulnerable to the effects of El Niño as they struggle to cope with poor crop yields, loss of livestock and damaged crops and infrastructure.
- Cases of acute malnutrition are likely to increase in areas of drought, where overall nutritional intake will decrease and instances of diarrhea and diarrhea-related diseases will increase. The poorest and most vulnerable households face a higher risk of suffering from multiple micro-nutrient deficits, contributing to higher prevalence of underweight and stunting among children under five. Additionally, poor nutrition will likely impact the school performance of students and their motivation to attend school, with a consequent lack of a safe and protective environment for children, amplifying their risk of exposure to violence and protection concerns.
- Many areas in the region are likely to face an increase in health needs. Dry conditions, high temperatures and subsequent water storage

¹⁰ OCHA, RMRP

¹¹ FEWS NET, US AID

favor mosquito breeding, increasing the risk of arboviruses such as dengue, chikungunya and zika. Water contamination and declining hygiene during droughts also increase the probability of severe waterborne diseases, such as cholera. Dengue cases have already been surging dramatically across the region, with a record 3.5 million cases recorded so far this year. The risk for malnutrition and diarrheal diseases also increases.

- El Niño-induced extreme weather events have the potential to disrupt livelihoods, exacerbating existing drivers of migration and forcing already vulnerable families to leave their homes. This will lead to an increase in the number of people in shelters, further straining already stretched response capacities and increasing the likelihood of protection concerns and spread of communicable diseases due to overcrowding and poor conditions.

Excessively dry or wet conditions, and associated natural hazards (droughts, wildfires, heatwaves, floods, disease outbreaks), are expected to significantly affect at-risk population groups, including indigenous people, migrants, refugees and internally displaced populations, women, children, elderly, people with disabilities or chronic illnesses, rural communities and subsistence farmers.

Rural populations and small-scale farmers, who are among the most food-insecure populations, are already suffering the immediate impact of losses in agriculture, minimizing their crop yields and adversely impacting their livelihoods and the availability of food and water.

Indigenous peoples, who represent around 43 million people, are among the poorest in the region, which could potentially limit their capacity to cope with adverse weather events. According to the World Bank, 43 per

cent of the indigenous population in Latin America is affected by poverty which is almost twice the proportion of non-indigenous groups. A staggering 24 per cent of indigenous people live in extreme poverty, which is almost three times higher than the share of non-indigenous people living in extreme poverty¹².

It is expected that the condition of children, pregnant women, nursing mothers and female-headed households in the most vulnerable areas may deteriorate. Children are especially at risk of reduced nutritional intake and increased malnutrition, with an anticipated 400,000 to 500,000 children in need in the Dry Corridor (Nicaragua, Honduras, El Salvador and Guatemala) alone. This comes amid an already growing food crisis in Central America, with at least 762,314 people across El Salvador, Guatemala, Honduras and Nicaragua facing potential emergency food insecurity (IPC 4)¹³.

El Niño conditions may have significant impacts on protection. Excessively dry or wet conditions and/or extreme weather events increase the risk of loss of land, documentation and income, heightening insecurity and encouraging negative coping mechanisms. In these instances, the risk of violence and exploitation, including gender-based and sexual violence, increases.

Elderly people, people with disabilities or chronic illnesses and people experiencing food/water insecurity are amongst those most at risk of experiencing health complications from extreme temperature shocks, such as heatwaves and subsequent forest fires.

¹² World Bank

¹³ FEWS NET

3. Response and recommendations for further action

Many Latin American and Caribbean governments, including Bolivia, Colombia, Ecuador, Honduras and Peru, among others, have declared states of emergency and/or activated protocols and coordination mechanisms to confront the negative El Niño effects and prevent subsequent humanitarian needs. This is often done in close collaboration and with support of the international community organized through the respective Humanitarian Country Team / Humanitarian Network or United Nations Country Team.

REDLAC partners are already implementing anticipatory actions, raising awareness and mobilizing resources to help mitigate the El Niño impact on the most vulnerable population groups, complementing government measures. Response activities of humanitarian partners include, but are not limited to, providing school meals for children; agricultural inputs; food and cash assistance; training in WASH, nutrition, CCCM and site planning; health/nutrition surveillance; prepositioning/stockpiling of nutritional supplies, shelter and non-food items, and WASH items for water treatment and storage. International funding mechanisms, such as IFRC's Disaster Relief Emergency Fund, the UN Central Emergency Response Fund and the Start Fund have already launched anticipatory action or early response funding initiatives.

General Recommendations¹⁴

Data and analysis

- Continue close monitoring of regional, national and sub-national level forecasts, taking into account the differentiated and multifaceted El Niño effects and forecasts for each location and time.

- Analyse country-specific impact patterns and lessons learned of past ENSO events as well as any available forecasts: Which regions of a country are most likely to be affected when and how? Who are the most vulnerable populations and sectors?
- Conduct a vulnerability and impact analysis in priority countries as required, taking stock on existing vulnerability and capacity information, such as data collected for the Humanitarian Needs Overview.
- Prepare and use disaggregated data to improve targeting and inclusion of people most at-risk.

Anticipatory, preparedness and response actions

- Provide support to early warning systems and activate anticipatory actions based on forecasted hazards and pre-agreed triggers in order to mitigate or reduce the impact on the lives and livelihoods of the most vulnerable people before they are affected.
- Mobilize resources for underfunded Humanitarian Response Plans and other coordinated response plans.
- Prepare or review Contingency Plans and activate preparedness protocols, including definition of triggers and possible delivery of relief items.
- Invest in climate-resilient actions, including soil management, water resource management and the delivery of resilient seeds, among others, to reduce the risk of suffering due to extreme weather events.

¹⁴ General recommendations for relevant actors. For more recommendations and sector-specific actions please refer to the [IASC Standard Operating Procedures Early Action to El Niño/La Niña Episodes](#) and anticipatory action documents from [FAQ](#), [PAHO](#) and [WHO](#). REDLAC members have also published numerous country-specific preparedness and anticipatory action documents.

- Update comprehensive mapping of actors and strengthen local, humanitarian and private-sector capacity to implement anticipatory actions and ensure coordinated response.
- Monitor and replenish stockpiled/prepositioned items where needed to ensure readiness to respond.
- Consider using cash assistance as a versatile and effective modality when planning preparedness and response activities. Be ready to implement programs that link to Social Protection services already in place.
- Strengthen coordination mechanisms and avoid the duplication of coordination and response efforts.
- Coordinate preparedness, anticipatory and response actions across sectors and organizations at national

and local levels. Establish a multi-stakeholder coordination platform in priority countries if one does not exist.

Communications

- Enhance capacities for Risk Communication using multi-hazard early warning mechanisms, such as Early Warnings for All (EW4ALL)¹⁵ that is being piloted in Antigua, Barbados, Barbuda, Ecuador, Guatemala, Guyana, and Haiti.
- Agree on common messages at national and local level to facilitate local authorities' and local producers' decision-making.
- Deliver context-specific, timely and adequate communication for communities.



¹⁵ EW4ALL