



**Food and Agriculture
Organization of the
United Nations**



2018/19 El Niño

High risk countries and potential impacts on food security and agriculture

In view of the potential impact of the 2018/19 El Niño on food security and agriculture, high risk countries in Southern Africa, Horn of Africa, Asia and the Pacific and Latin America should be prioritized for further monitoring, analysis and early action.

This Advisory on the 2018/19 El Niño, issued by the Food and Agriculture Organization of the United Nations (FAO), provides a historical impact overview and latest forecasts for a better understanding of the El Niño patterns and its potential effects on the agricultural sector in the different regions globally. It also offers specific early action recommendations to promote the understanding that impacts of El Niño can be mitigated before they generate large scale food security emergencies.

What is El Niño?

El Niño is a recurrent global atmospheric-oceanic phenomenon associated with an increase in sea surface temperatures in the central tropical Pacific Ocean and a sustained weakening of the trade winds. An El Niño event develops approximately every two to seven years and lasts anywhere from 6 to 24 months.

A global El Niño event is declared after the central Pacific Ocean and the atmosphere show signs of certain atypical conditions for a prolonged period of time, usually over a period of three months. Even if an El Niño event does not fully develop, sea surface temperatures and other

large-scale climatic patterns can be put into motion, potentially driving extreme weather events in certain areas of the globe.

An El Niño event increases the risk of heavy rainfall and flooding in some parts of the world, while in others, it increases the risk of drought through reduced rainfall.

The impact of El Niño on agriculture and food security can be severe. For example, the 2015/16 El Niño – one of the strongest on record – affected over 60 million people worldwide, resulting in 23 countries appealing for international humanitarian assistance worth over USD 5 billion.

The extent of impact of El Niño on agriculture and food security depends on a complex interplay of meteorological, seasonality and vulnerability factors. As a result, impact patterns of global El Niño events are variable and do not necessarily materialize during every occurrence. While there is generally a relationship between the global impacts of El Niño/La Niña events and their intensity, there is always potential for even a weak or moderate event to generate serious impacts in some regions. To address this uncertainty, it is therefore crucial to consult regional and national early warning systems for a systematic analysis of weather forecasts, vulnerabilities and potential risks.

2018/19 El Niño forecast

The November 2018 official El Niño forecast, released by the International Research Institute (IRI) for Climate and Society of Columbia University, points to a 80 percent chance of El Niño developing through 2018/19 northern hemisphere winter, with a probability of 55–60 percent into the spring of 2019.

A high probability of an El Niño event occurring in the coming months is also confirmed by the World Meteorological Organization (WMO) and the Australian Bureau of Meteorology (BOM).

According to WMO, the intensity of the phenomenon forecasted for the upcoming months is currently uncertain, however a strong event appears unlikely.

A framework for early action to mitigate the impact of El Niño

In the immediate aftermath of the severe 2015/16 El Niño episode, the humanitarian and development community identified the need for a framework to guide the monitoring of El Niño/La Niña events and the initiation of early actions to mitigate their impacts. As a result, FAO and the Office for the Coordination of Humanitarian Affairs (OCHA), and a number of other humanitarian and development actors, developed a set of Inter-Agency Standard Operating Procedures for Early Action to El Niño/La Niña episodes.

Identifying high risk countries

When an El Niño event is at 55 percent probability, WMO, IRI, FAO, OCHA, World Food Programme (WFP), World Health Organization (WHO) and the START Network convene to carry out an initial analysis of the countries at highest risk of El Niño impact. The purpose is to indicate which countries should be prioritized for further analysis, support and early action planning. The prioritization process of high risk countries takes into account several key elements, including:

- The IRI El Niño and Rainfall map¹ was utilized to provide a list of countries that are historically impacted by El Niño and how (dry/wet conditions).
- Global and regional seasonal forecasts for the period from October 2018 to March 2019 were applied as a filter, to focus mainly on countries subject to El Niño impact and with anomalous rainfall prospects².

- Thresholds for vulnerability and lack of country coping capacity from the INFORM Index for Risk Management were used. Cut off points followed class thresholds in INFORM, namely medium values for vulnerability (3.3 and above) and lack of coping capacity (4.7 and above).
- Agricultural seasonality was analysed to determine what stage of crop growth will potentially be affected during the outlook period and potential impact.
- Expert opinion was used in particular cases when a country fell outside the determined parameters.

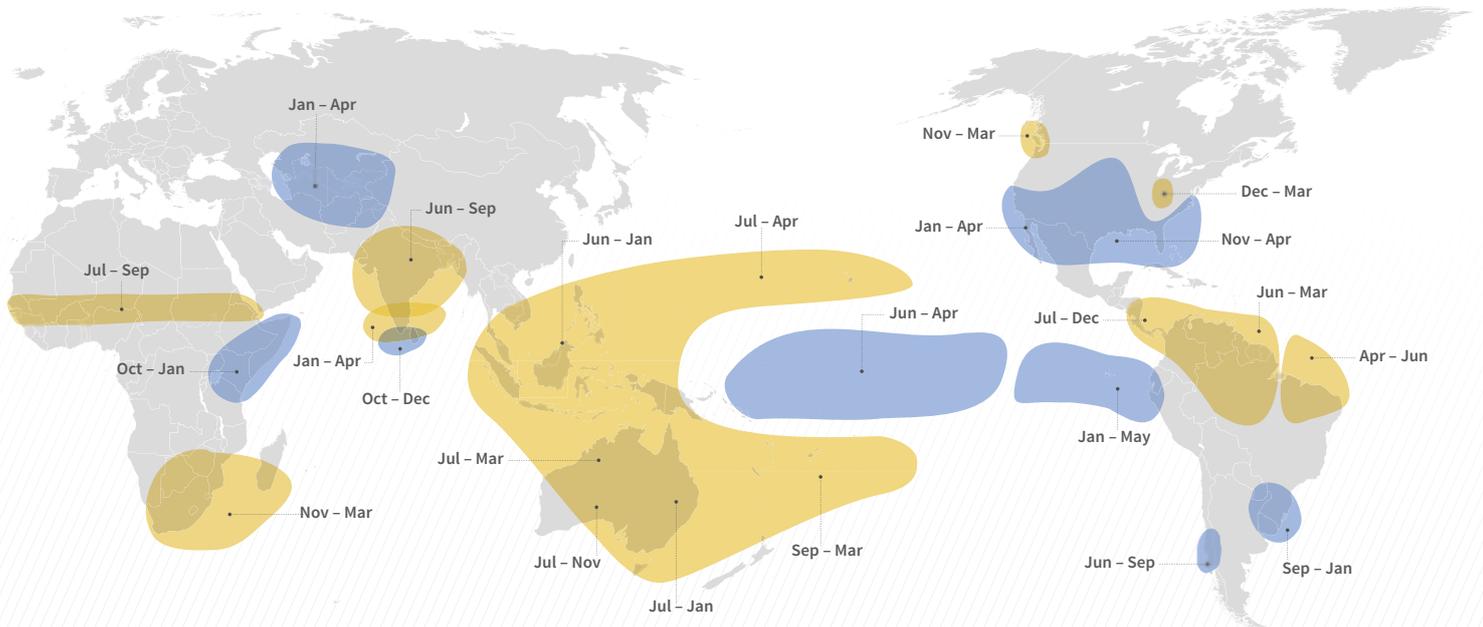
It should be noted that the list of high risk countries is neither fixed nor final. It is the result of a global analysis and should be verified against more detailed national forecasts and more nuanced understandings of risk and vulnerability at national level. In addition, meteorological forecasts used in the analysis are probabilistic. This implies a level of uncertainty, as different scenarios from those could manifest.

The countries included in the high risk list are not the only countries that need to be concerned about an El Niño event. Rather, they are those that, based on a number of factors outlined above, should be prioritized for international support in further analysis and early action. It is therefore highly recommended that the regions and countries at risk carefully monitor regional and national level forecasts in the coming weeks and months as they might shift.

1 https://iri.columbia.edu/wp-content/uploads/2016/05/ElNino_Rainfall.pdf

2 The main source used for this was the IRI Seasonal Climate Forecast. The seasonal climate outlooks produced by some Regional Climate Outlook Forums (RCOFs) and other global forecasts (e.g. ECMWF) were also taken into consideration.

Historical El Niño trends

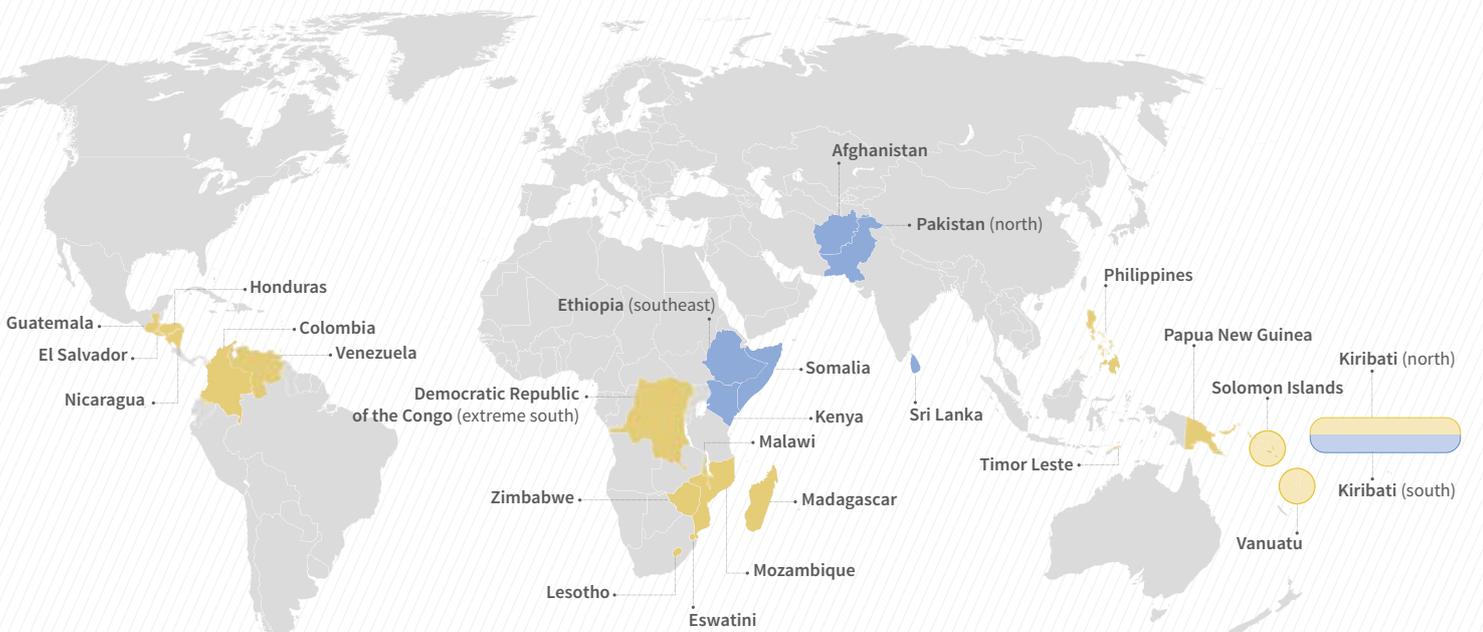


Historical impact

- Yellow box: Dry conditions
- Blue box: Wet conditions

Source: NWS/NCEP Climate Prediction Center

El Niño: high risk countries (October 2018 – April 2019)



High risk countries

- Yellow box: Dry conditions
- Blue box: Wet conditions

Source: Global ENSO Analysis Cell – IASC Reference Group for Risk, Early Warning and Preparedness



Southern Africa

High risk countries (dry conditions): Democratic Republic of the Congo (extreme south), Eswatini, Madagascar, Malawi, Mozambique, Lesotho, Zimbabwe

Historical patterns

Across most of Southern Africa, El Niño events typically result in anomalous reduction in precipitation between November and March coinciding with the main crop growing season. According to the Climate Prediction Centre³, the impact is historically felt mainly across Eswatini, Lesotho, Madagascar, Malawi and southern parts of Mozambique, and, as well as northeastern Namibia, Zimbabwe and the southern tip of Zambia.

During the previous 2015/16 El Niño event an estimated 32 million people were estimated to be food insecure, prompting the Southern Africa Development Community Council of Ministers to declare a regional drought disaster. In the last 2017/18 cropping season, most countries in Southern Africa registered reduced and/or below-average cereal harvests, due to a mid-season dry period, which acutely aggravated food insecurity conditions; however the number of people in need of assistance still remained well below the level of 2015/16.

Current weather forecast

A number of countries face mixed forecast signals in the region. This means that either the forecast changes from dry to wet within the space of the outlook period, or that different seasonal climate forecasts disagree. These mixed signals apply to **Eswatini, Lesotho, Madagascar, Malawi and Mozambique**. Overall, all seasonal climate forecasts indicate some level of dryness across the subregion over the outlook period.

Potential impact on agriculture and food security

- Demands for agricultural labour – a key source of income for rural households during the lean season between November and March – may decline, as a result of reduced planted areas.
- If El Niño-type conditions persist through the entire 2018/19 cropping season, there is a high risk of a second consecutive annual decrease in the cereal harvest, which is likely to worsen the food security situation. The situation will be particularly precarious for vulnerable farming households who are the most susceptible to the negative impacts of dry conditions.
- Within the region, fall armyworm presents an additional risk. The pest could contribute to lower crop production, particularly of maize, and the impact could be exacerbated in the case of drought. According to FAO's fall armyworm food insecurity risk map, areas where the risk of food insecurity due to fall armyworm are the highest in Southern Africa include central and southern Angola, the Democratic Republic of the Congo, Madagascar and areas of Mozambique. Other areas at considerable risk include southern Malawi and central Zambia.
- El Niño-induced dry conditions could decrease water levels in dams and water tables, raising concerns over water availability for communities. Livestock production would also be impacted by reduced water levels which will lead to limited water points and pasture, degradation of existing pastures, as well as increased outbreak of transboundary animal diseases.
- Currently the number of people who are facing severe food insecurity is high in several countries – and any additional adverse impacts on agricultural production in 2018 could lead to significant deterioration. In particular, in Zimbabwe over 2.4 million people are estimated to face Crisis or worse (Phase 3 of the Integrated Food Security Phase Classification or higher) levels of food insecurity during the peak hunger period of January–March 2019, up from 522 000 between May–June 2018. In addition, the country is currently traversing a complex economic crisis amidst a collapse of the national currency, which is likely to further impact livelihoods.

³ National Weather Service / National Centers for Environmental Prediction of the United States of America

Recommended early actions

The following is an indicative list of early actions that may be considered to mitigate the impact of El Niño on agriculture and food production in high risk countries in Southern Africa. However, the selection of early actions should be specific to each country's context and consider the likely impact of the event on agricultural livelihoods and food security.

Assessment

- Scope likely impacts of El Niño along agricultural value chains.
- Assess strategic food reserves.
- Assess livestock value chains for potential intervention options such as support to livestock markets and commercialisation.

Crops

- Improve access of vulnerable farmers to quality seeds through cash-based interventions or the distribution of drought tolerant seeds and/or seed fairs, in areas affected by erratic rains. Seed interventions should focus on off-season crops (e.g. vegetables).
- Improve access to water and water management of vulnerable farmers through the distribution of

rainwater harvesting equipment, water pumps, and micro-irrigation equipment for off-season crop production (e.g. vegetables).

- Conduct trainings on good practices in agricultural water management, targeting vulnerable farmer households in areas affected by erratic rains.

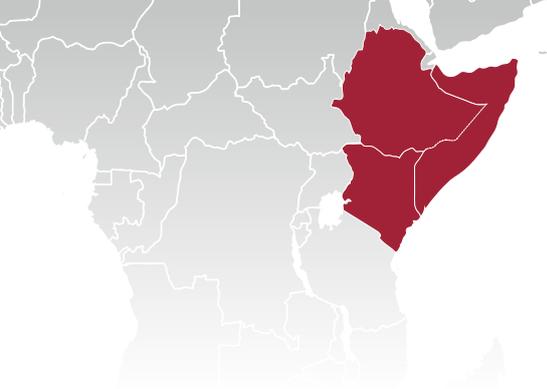
Livestock

- Reinforce animal health surveillance awareness campaigns and collaborate with the health sector regarding zoonotic diseases.
- Conduct deworming and vaccination campaigns to prevent the spread of livestock diseases, in areas affected by erratic rains.
- Support livelihood diversification activities among vulnerable households in potentially affected areas, including the establishment of backyard poultry production.
- Improve access of vulnerable livestock keepers to animal feed in areas where fodder/pasture is scarce, through cash-based interventions or direct distribution.
- Consider promoting commercial destocking among the vulnerable livestock keepers in areas affected by erratic rains.

Southern Africa seasonal calendar



Source: FAO Global Information and Early Warning System (GIEWS)



Horn of Africa

High risk countries: Ethiopia (southeast), Kenya, Somalia

Historical patterns

An El Niño event region is historically associated with above-average rains in the Horn of Africa. The region has benefitted from exceptionally abundant rains between March and June 2018, which has resulted in improved crop and livestock production in most areas. These favourable conditions have supported the ongoing recovery from the severe drought which affected the subregion between mid-2016 and late 2017, which resulted in reduced harvests and significant livestock losses. However, rains also resulted in severe floods which affected more than 1.4 million people, instigating population displacements, localized crop and livestock losses, damage to infrastructure, and an upsurge of vector and water borne diseases.

El Niño events are not the most important climate mode affecting the Horn of Africa, but they often coincide with positive Indian Ocean Dipoles⁴ – which are associated with above-average rains, and have a much larger impact on rainfall patterns in the region.

Current weather forecast

- The weather forecast for the region is mixed, with more recent information pointing to lower precipitation than previously expected.
- According to the August 2018 Greater Horn of Africa Climate Outlook Forum, above-average precipitations

⁴ The Indian Ocean Dipole represents a difference between sea surface temperatures of the tropical western and eastern Indian Ocean. The phenomenon has three phases: neutral, positive and negative. Events usually start around May–June, peak between August–October and then rapidly decline when the monsoon arrives in the southern hemisphere around the end of spring. BOM (2018)

were expected over much of the equatorial sectors of the greater Horn of Africa during the October–December 2018 short rainy season. IRI also forecasted a 40–50 percent probability of above-average rainfall over much of southern Somalia, Kenya and southeastern Ethiopia in the period between November 2018 and January 2019.

- More recent data from the Australian Bureau of Meteorology has shown that the Indian Ocean Dipole, which was previously positive, has recently returned to neutral conditions. When an El Niño event occurs with a neutral Indian Ocean Dipole, average to only slightly above-average rainfall typically occurs. Additionally, rainfall as of the first week of November has been below average and short-term forecasts, and average rainfall is likely for the remainder of the season. Finally, according to a joint Food Security Outlook Report by the Famine Early Warning Systems Network (FEWSNET) and the Food Security and Nutrition Analysis Unit (FSNAU), *Deyr* seasonal rainfall is expected to be below average in Somalia.
- A risk of seasonal floods – which often do occur across the region even with average rainfall – cannot be dismissed in areas where average rainfall will occur. Floods are likely to result in localized, short-term increases of humanitarian needs due to displacements and livelihood losses.

Potential impact on agriculture and food security

- In areas where the October–December 2018 precipitations are projected to be average, region-wide improvements in crop and livestock production resulting from the March-to-June 2018 abundant long rains could be reinforced. This will further support the ongoing recovery of the agriculture sectors from the 2016/17 drought. In southeastern Ethiopia, Somalia and Kenya, exceptionally abundant rains have resulted in a substantial, albeit partial, drought recovery. This, coupled with continued delivery of humanitarian assistance, has resulted in a significant improvement of the food security situation in 2018, despite localized flood induced livelihood damages. However, humanitarian needs remain substantial, especially in Somalia and southeastern Ethiopia, as multiple, consecutive favourable rainy seasons are needed for a complete recovery from

the heavy livestock losses sustained by agro-pastoralist households in previous years.

- In **Somalia**, the food security situation has steadily improved since early 2018. The 2018 *Gu* rains, the most abundant in nearly two decades, resulted in a favourable outcome of the cropping season despite some flood induced crop losses in riverine areas. That said, should below average rainfall occur, this could slow the recovery process.
- In arid and semi-arid lands of **Kenya**, covering about 80 percent of the country's landmass, the food security situation has substantially improved in 2018, as a result of exceptionally high rainfall volumes received during the March–May 2018 rains. Although animal body conditions have fully recovered from the impact of the 2016/17 drought and are currently above-average, herd sizes are still more than 30 percent below-average. The October–December 2018 short rains could continue supporting the drought recovery in northern pastoral areas, where most of the country's food insecure people are located.
- The March–June 2018 *Gu/Genna* rains triggered flash floods in several areas of southeastern **Ethiopia**, which displaced about 170 000 people, but resulted in significant improvements of pasture and water availability for livestock. However, herd sizes are still well below-average, limiting improvements in household food availability. Should adequate October–December 2018 *Deyr/Hageya* rains occur, they would further support the drought recovery. Furthermore, with camel births and milking expected to begin with the upcoming rainy season, the availability of camel milk should contribute to the improvement of the food security situation.

Recommended early actions

The following is an indicative list of early actions that may be considered to prevent and mitigate the impact of El Niño on agriculture and food security in high-risk countries in the Horn of Africa. However, the selection of early actions should be specific to each country context and consider the likely impact of the event on agricultural livelihoods and food security.

Assessment

- Scope likely impacts of El Niño along agricultural value chains.
- Closely monitor and assess potential outbreaks of crop pests.

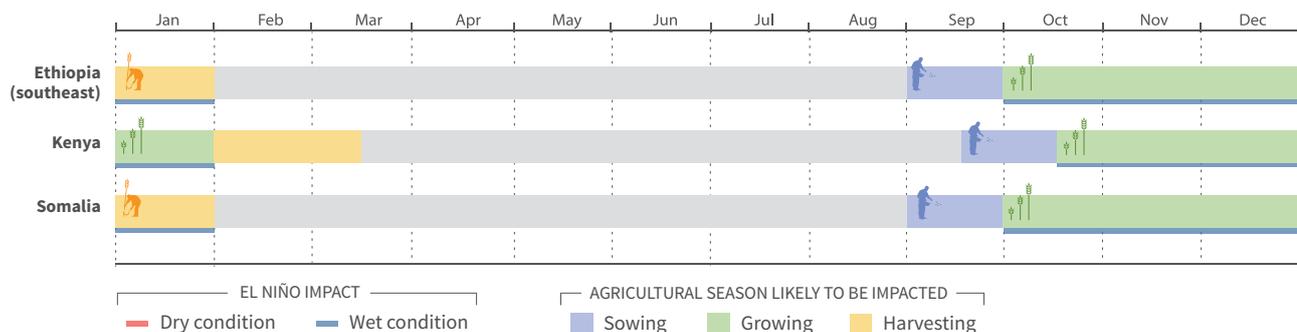
Crops

- Sensitize vulnerable farmers on the most suitable crop harvesting time and good practices for crop storage in flood-prone areas, in accordance with forecasts, in order to reduce post-harvest losses.
- In case the risk of flooding increases, provide cash based interventions coupled with training on good agricultural practices.

Livestock

- Enhance coordination with all stakeholders in both veterinary and public health sectors.
- Support community sensitization on good livestock practices during floods and to prevent the spread of vector-borne diseases (i.e. early detection and reporting) in the subregion.
- Sensitize livestock keepers on the need to start harvesting fodder and on good practices for fodder storage and preservation in case of floods.
- In case the risk of flooding increases, distribute veterinary inputs to control and respond to flood-related and vector-borne diseases.

Horn of Africa seasonal calendar



Source: FAO Global Information and Early Warning System (GIEWS)



Asia and Pacific

High risk countries: Afghanistan, Pacific Islands (Kiribati, Solomon Islands, Vanuatu), Pakistan, Papua New Guinea, the Philippines, Sri Lanka, Timor-Leste

Historical patterns

Typically, El Niño leads to drier than average conditions across the Philippines, Papua New Guinea, Timor-Leste and the Pacific Islands. In the northern Pacific, El Niño events are usually associated with above-average rainfall. In Pakistan, previous El Niño events were associated with abnormal weather patterns, both in the form of floods and/or droughts. In Sri Lanka, El Niño is historically associated with both below average (southwest) and above average (north) shifts in rainfall. In Afghanistan El Niño is normally associated with above average snowfall/rainfall.

Current weather forecast

According to IRI, below normal rainfall is forecasted between October–December 2018 in northwestern and southwestern Papua New Guinea, Vanuatu, south of the Solomon Islands, Micronesia, Indonesia, the Philippines and Timor-Leste. Similarly, dry conditions are forecast in the coming months in Sri Lanka. Above normal rainfall is expected over the north of the Solomon Islands, northern Pakistan and most of Afghanistan.

Potential impact on agriculture and food security

- In **Afghanistan**, El Niño is historically associated with above-average snowfall/rainfall between January–April. This could benefit the winter grains season in Afghanistan after a harsh drought in 2017. However, heavy snowfall/rain and could potentially provoke flooding, and increased risk of landslides washing away seeds, destroying standing crops/stocks and increasing livestock mortality.
- The impact of El Niño is varied across the **Pacific region**, where dry and wet conditions can manifest. Overall, the Melanesian island group – **Solomon Islands** and **Vanuatu** – are known to be the most vulnerable, alongside
- In **Timor-Leste**, El Niño will coincide with planting and growing period of the 2019 main paddy and maize crops, and dry conditions could compromise both crop growth and yield output. In addition, reduced water availability and pasture may negatively impact the livestock sector. The central highland, eastern and southwestern parts of the country are the most-likely to be affected.
- In **Papua New Guinea**, seasonality patterns mirror the Pacific Islands, where key crops are produced on a rotational basis. Historically, the area has been impacted by both drought and frosts (particularly in the highlands) during El Niño. These events especially

Micronesia, where **Kiribati** is historically affected. In the Pacific, the sowing, growing and harvesting of key crops occurs on a rotational basis throughout the year. In dry conditions, water can become scarce and household vegetable/fruit production compromised. However, root crops, such as taro, are known to better withstand dry periods. With wet conditions, flooding and heavy rainfall could damage infrastructure and pollute water sources. Salination of fresh drinking water is an issue during both dry and wet periods.

- In northern parts of **Pakistan**, increased snow melting, together with above-average winter precipitation may cause severe flooding. By contrast, the central and southern parts of the country may experience drought conditions. In 2018, prolonged periods of below-average rains resulted in severe drought conditions in southeastern and southwestern parts of Sindh province and western and southwestern areas of Balochistan province. Such conditions caused crop failures and livestock losses.
- In past El Niño episodes, excessive rains over northern **Sri Lanka** led to severe localized flooding during the December-February northeast monsoon season. By contrast, drier than normal conditions are likely in southwestern parts of the country. According to IRI, there is an increased probability of below-average rains in most of the country through April 2019, which may negatively affect the 2019 main Maha season, as well as early stages of the secondary Yala season.
- In the **Philippines**, there are current signals that upcoming dry conditions could potentially negatively affect yields of the 2018 main season paddy crops that will be harvested until December. In addition, planting and early development of secondary crops in early 2019 may be impacted. Reduced water availability and pasture may negatively impact the livestock sector.

affect subsistence farming, on which 80 percent of the country relies on for their main livelihood.

Recommended early actions

The following is an indicative list of early actions that may be considered to prevent and mitigate the impact of El Niño on agriculture and food security in high risk countries in Asia and the Pacific. However, the selection of early actions should be specific to each country context and consider the likely impact of the event on agricultural livelihoods and food security.

Early actions for above-average rainfall

Assessment

- Scope likely impacts of El Niño along agricultural value chains.

Crops

- Promote pre-harvesting of staple crops.
- Preserve and safely store seeds and seedlings.
- Transport agricultural equipment to safe havens or crop silos upon early warning.

Livestock

- Support community sensitization on good livestock practices during floods.
- Evacuate livestock and poultry to pre-identified evacuation sites upon early warning.

Fisheries and aquaculture

- Store fishing gear to safe havens upon early warning.

Cash and vouchers

- Implement cash transfers programmes (via social protection systems) alongside a messaging system of good practices on how to protect livelihoods in case of floods.

Early actions for below-average rainfall

Assessment

- Scope likely impacts of El Niño along agricultural value chains.

Crops

- Encourage the use of water saving irrigation materials. Where possible, repair existing water management systems.
- Strengthen community-based water management techniques.
- Encourage the planting of drought tolerant crops such as taro, kumara and cassava.
- Provide drought-tolerant, early maturing crop varieties (depending on location and farming systems).

Livestock

- Improve access of vulnerable livestock keepers to animal feed in areas where fodder is scarce, through cash-based interventions or direct distribution.
- Consider promoting commercial destocking among vulnerable livestock keepers in areas affected by erratic rains.

Fisheries and aquaculture

- Enhance preparedness and risk management/ prevention including through stocking excess of harvest.

Asia and Pacific seasonal calendar



Source: FAO Global Information and Early Warning System (GIEWS)



Latin America

High risk countries: Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Venezuela

Historical patterns

According to the Climate Prediction Centre, El Niño is typically associated with below-average rainfall in Central America. The event is typically associated with dry conditions over the northern part of the South American continent, including Venezuela and Colombia.

Current weather forecast

IRI forecasts below normal rainfall over the period from November 2018 to January 2019 in: southern Nicaragua, the Pacific coast of Nicaragua and El Salvador, part of the Atlantic coast of Honduras, northern Guatemala, the north and west of Colombia and large areas of Venezuela. Over the period from January to March 2019, areas of eastern Nicaragua, Guatemala and Honduras are forecast to be affected by dry conditions, as well as the Colombian and Venezuelan coast. Northwestern Colombia and vast portions of Venezuela are forecasted to experience above average rainfall over the same period.

Potential impact on agriculture and food security

- Central America, particularly the Dry Corridor (**El Salvador, Guatemala, Honduras and Nicaragua**), have experienced longer and more pronounced than average dry conditions – the so-called *Canícula* – between June and mid-August 2018. This has damaged the *primera* season, with planting starting in the middle of April and harvest ending in July-early August. The *Canícula* is estimated to have affected 2.1 million people, with a production decrease ranging from 20 percent to a total loss of crops, depending on the area.

- El Niño in **Central America** could affect production in the 2018 *postrera* season, planting of which started in August and harvesting begins in December (November in case of Nicaragua). This would exacerbate existing vulnerabilities resulting from previous dry conditions. Dry spells in the summer have affected areas in eastern El Salvador, eastern and coastal regions of Guatemala, the Gulf of Fonseca region of Honduras and, to a lesser extent, the north of Nicaragua. Since mid-August, the region has received considerable rainfall but some degree of soil moisture deficits remain in northwestern and central Guatemala, Honduras and northern Nicaragua. These areas are most likely to face an unfavourable *postrera* season.
- If dry conditions persist through the beginning of 2019, next year's lean season – which typically peaks in March and April – could be more pronounced and begin earlier than usual.
- If it continues into 2019, El Niño could also negatively affect the 2019 *primera* season, whose planting usually starts in the middle of April. The *primera* – which is the main season for maize – is the most important season in the majority of countries in the region. Producers in the Dry Corridor are largely subsistence farmers, and therefore are the most vulnerable in terms of food security.
- In **Nicaragua**, dry conditions had a reduced impact on crop production. However, some losses were reported in the departments of Madriz and Chinandega. In addition, the country is experiencing widespread political unrest since April 2018. Due to low exports, limited tourism, lack of employment and foreign investment, the average household income has decreased significantly. The impact of continuing dry conditions on agriculture could contribute to a deteriorating food security crisis over the coming months. The region is experiencing increased migration flows, including because of political instability in Nicaragua. Persisting political instability, coupled with dry conditions in the region, could exacerbate these regional migration flows over the coming months.
- The main rice seasons in **Venezuela** start in October 2018, and could potentially be affected by El Niño conditions. A prolonged El Niño event could also affect the 2019 main season for maize and the secondary for rice, which begin in May and April, respectively.

Dry conditions could compound the already severe economic crisis in the country, where the collapse in economic activity, hyperinflation and increasing deterioration in the provision of public goods have resulted in a dramatic increase in food insecurity. Further damage to agriculture could contribute to the ongoing outflow of Venezuelan migrants in the region.

- In **Colombia**, rice production in 2018 is estimated at record high. As a result, only severe dry conditions over the major producing Casanare, Tolima and Meta departments would result in significant agricultural losses.

Recommended early actions

The following is an indicative list of early actions that may be considered to prevent and mitigate the impact of El Niño on agriculture and food security in high risk countries in Latin America. However, the selection of early actions should be specific to each country context and consider the likely impact of the event on agricultural livelihoods and food security.

Assessment

- Scope likely impacts of El Niño along agricultural value chains.

Crops

- Promote crop diversification and good agro-ecological practices to improve resilience.

- Promote the appropriate management and use of irrigation water.
- Provide technical assistance on the management and maintenance of water reservoirs, and on rainwater harvesting.
- Build capacity on good practices for seed storage.
- Establish community seed banks of adapted and drought-resistant varieties.
- Support the establishment of vegetable gardens for household consumption.
- Establish irrigation systems for the production of grains and vegetables.
- Distribute rainwater harvesting equipment for backyard gardening.
- Strengthen strategic food reserves at the national and local levels.

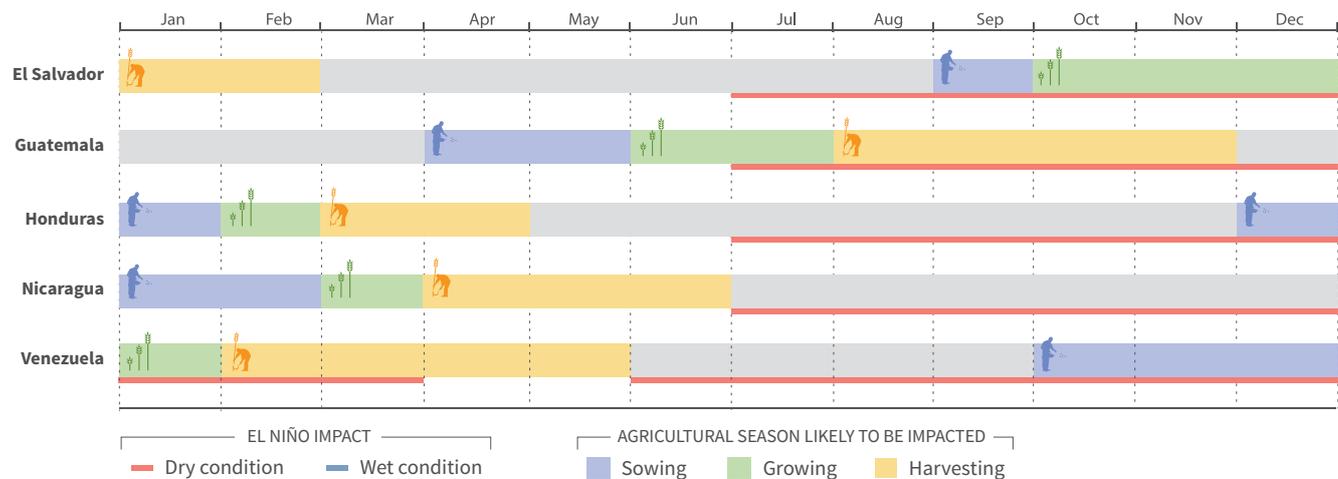
Livestock

- Strengthen capacities in the prophylaxis of large and small livestock.
- Build capacity on good practices for fodder storage.
- Promote the breeding and raising of small stock for livelihood diversification.
- Carry out animal prophylaxis and veterinary campaigns targeting vulnerable livestock raisers.
- Support the establishment of fodder banks to ensure fodder availability in case of drought.

Fisheries and aquaculture

- Support the breeding of fish in community and family reservoirs.

Asia and Pacific seasonal calendar



Source: FAO Global Information and Early Warning System (GIEWS)



This Advisory on 2018/19 El Niño was jointly produced by
FAO's Global Information and Early Warning System (GIEWS) and
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For more information

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