



# LA NIÑA 2021

## Anticipatory Action for Food Security & Livelihoods in the Pacific Islands

*La Niña conditions are likely to persist until April 2021, however the impacts may be felt beyond this timeframe. Countries of high concern include Kiribati, Tuvalu, parts of Solomon Islands and Papua New Guinea due to below-average rainfall that has persisted over the wet season, and could further be compounded by the onset of the dry season. Cyclone activity in the Western Pacific should also remain closely monitored.*

## What is La Niña?

La Niña is a recurrent global atmospheric-oceanic phenomenon associated with a decrease in sea surface temperatures in the central tropical Pacific Ocean and a sustained strengthening of the trade winds. A La Niña event develops approximately every two to seven years and lasts from six months to two years. A global La Niña event is declared after the central Pacific Ocean and the atmosphere shows signs of certain atypical conditions for a prolonged period of time, usually over a period of three months. La Niña increases the risk of heavy rainfall and flooding in some parts of the world and of drought through reduced rainfall in others. In some instances, and for some regions, the impact of La Niña also depends on its interaction with other climatic events, such as the Indian Ocean Dipole.

The impact of La Niña on agriculture and food security can be significant. The event from 2010-12 caused the Pacific island nations of Tuvalu and Tokelau to declare a state of emergency due to drought which induced severe water shortages. This drought event was the strongest on record for both nations.

The extent of La Niña's impact on agriculture and food security depends on a complex interplay of meteorological, seasonality and vulnerability factors. As a result, impact patterns of global La Niña events are variable and do not necessarily materialize during every occurrence. While the intensity of a La Niña event generally affects the severity of its global impacts, there is always potential for even a weak or moderate episode to generate serious humanitarian impacts in some regions and on the agricultural sector. This uncertainty makes it especially critical to systematically analyze weather forecasts, identify vulnerabilities and determine risks with the help of regional and national climate outlooks, and strong early warning systems.

### La Niña & the Pacific Islands

La Niña is officially underway in the Pacific, as confirmed by regional agencies such as Pacific Meteorological Desk Partnership at the Secretariat of the Pacific Regional Environment Programme (SPREP), the New Zealand National Institute of Water and Atmospheric Research and Australia's Bureau of Meteorology. The impacts of La Niña will vary from country to country, and traditionally those in the Central and Eastern Pacific may be more susceptible to droughts, while countries in the South-West Pacific will become more prone to flooding and landslides, while tropical cyclones are more likely to form further west during this time. This is due to the South Pacific Convergence Zone, a band of intense rainfall which extends across the Pacific from the equator, being pushed South-West during La Niña.



# La Niña Forecast February to April 2021

According to the Global ENSO Cell, forecasts as of February 2021 indicate a 65 percent likelihood that the current La Niña event will persist into April. The event appears to have peaked in October-November 2020 as a moderate strength event, and there is a 70 percent chance that ENSO-neutral conditions will return by April 2021. While a return to ENSO-neutral conditions by April is seen as the most likely outcome, there is still significant uncertainty and some impacts associated with La Niña may still be felt past this time. Therefore, we encourage continued careful monitoring of the climate outlook in the coming months.

The islands of the Western Central Pacific have experienced extremely dry conditions over the last few months, with September to December rainfall less than 10 percent of what would normally be expected. This trend is likely to continue through April, affecting countries including Kiribati and Tuvalu. Concerns have also been expressed for Federated States of Micronesia, Nauru and the Northern Cook Islands.

In addition, parts of Solomon Islands and Papua New Guinea have received below-average rainfall. For the Solomon's, most of the country has experienced a normal rainy season, however Western Province is experiencing unseasonal dry conditions. Northern parts of Papua New Guinea, including offshore islands, have also received below-average rainfall.

The cyclone season is ongoing until April and La Niña can increase activity in the region particularly in the West of the Pacific Islands, as we have already seen 5 cyclones in this season. The Australian Bureau of Meteorology predicted that the Western Pacific region had a 60 percent chance of seeing activity above its average of 4 tropical cyclones – this has already been exceeded.

## Potential impacts of La Niña on food security & agriculture

The impact of La Niña varies across the Pacific Islands, where wet and dry weather conditions can coexist. Across the Pacific, sowing, growing and harvesting of key crops occurs on a rotational basis annually and the fisheries sector is dominant.

According to the Global ENSO Cell and local actors in the Pacific region (Food and Agriculture Organization of the United Nations (FAO), World Food Programme (WFP) and SPREP) **Kiribati, Tuvalu, Solomon Islands, and Papua New Guinea are considered high-risk**. This is due to their sizable agricultural sectors and reliance on subsistence agriculture which are likely to be impacted by the below-average rainfall which is currently being observed. This combined with these countries also entering into their dry seasons from April onwards, could further compound the situation. However, it is also highly recommended that all Pacific Islands watch and monitor the progress of La Niña and local forecasts to understand how the event can impact their area, particularly at a localized level.







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Poor rainfall or drought conditions can contribute to the depletion of domestic water supplies or the saltwater intrusion of water wells, with negative effects on aquaculture production and backyard agriculture. Kiribati and Tuvalu, in particular, almost exclusively survive on captured rainfall for household needs, supplemented occasionally by a limited desalinated supply. Without immediate rain, storages can deplete rapidly and some islands can only store enough fresh water for two weeks. As a result of limited water supply, household vegetable and fruit production can be compromised. Such conditions can reduce fruit set and stunt annual crops such as breadfruit and pandanus trees - which are a staple food in Kiribati and Tuvalu. While root crops, such as taro, yams, cassava and kumara, are known to better withstand dry periods, close monitoring is required for swamp taro varieties. But, if a serious drought develops it can impact all crop production and can create a shortage of planting materials for the onset of the next rainy season. During drought, the impact of plant and animal pests and diseases can also intensify due to water stress and the elimination of natural stresses.

Further, countries positioned in the Western Pacific should continue monitoring cyclone activity. These countries, namely Solomon Islands, Vanuatu and Fiji, can bear the brunt of the cyclone season during La Niña events where heavy rainfall and strong winds can damage crops and agricultural infrastructure.

Local food security is also affected by the impact of COVID-19, which delayed exports, decimated the tourism industry and reduced remittances - an important source of income for many households in the Pacific Islands.

## What is Anticipatory Action?

**Anticipatory Action – also known as Early Warning Early Action or Forecast-based Financing – is an approach that links early warning and risk analysis to actions that can protect people and their assets before a hazard strikes.**

Acting early before a disaster has happened or reached its peak is critical: it can save lives and protect livelihoods from the immediate shocks as well as protecting longer term development gains by increasing the resilience of local communities over time.

FAO's empirical studies have shown that early livelihood interventions are an effective way of curbing the deterioration of food security and are cost effective, with a return of up to USD 7 avoided losses and added benefits for every USD 1 invested. By ensuring key productive assets are safeguarded against shocks, it can reduce human suffering and enables people to avoid negative coping strategies, recover more rapidly and build resilience against future shocks.



# Anticipatory Action for La Niña 2021

Below provides a short menu of anticipatory actions for the food security and livelihood sector that can be implemented to mitigate the impact of both above and below-average rainfall in the Pacific Island region.

## Forecast monitoring & information management

- All countries in the Pacific Island Region are encouraged to seek more information and closely monitor the latest developments of La Niña from their local Meteorological Services, Weather Offices and/or National Disaster Management Offices. FAO and World Food Programme (WFP), along with other agencies such as United Nations Operational Satellite Applications Programme (UNOSAT), can also offer information on crop development, potential spread of pests and diseases, alongside rainfall and temperature forecasts using satellite imagery.
- Connect communities with early warning information (i.e. fishers are aware of cyclone or heavy rain developments or farmers are aware of below-average rainfall and its potential impact on their crops) and ensure the updates are socially inclusive (language is simple, clear and culturally appropriate while ensuring the update reaches and is easily understood by vulnerable households).
- As COVID-19 coincides with this latest La Niña event, ensure all actions adhere to the latest World Health Organization protocols to safeguard beneficiaries and those supporting the delivery of anticipatory actions.
- WFP's mobile Vulnerability Analysis and Mapping (mVAM) can further boost Pacific Island countries monitoring capacities via mobile technology to remotely observe household food security, nutrition and market-related trends in real-time. mVAM is currently active in Fiji, Samoa, Tonga, Vanuatu, Kiribati, and will deploy to the Solomon Islands, Tuvalu, and Republic of Marshall Islands. The information from mVAM should be monitored closely, particularly in areas that are likely to experience drier-than-normal conditions, as it can be a proxy indicator to showcase the gradual impact of drought on a country. This data could be communicated to community leaders and vulnerable households, including those headed by women or with persons with a disability, to plan to mitigate the potential impacts of these events.
- Pacific Island countries that are likely to experience above-average rainfall or cyclone activity are encouraged to build their capacities in the 72-hour Assessment Approach. This tool supported by WFP helps to develop vulnerability and spatial analysis for sudden-onset disasters and provides rapid information to enable decision-making on who needs assistance and where. At present, Fiji, Samoa, Tonga, Vanuatu, and Solomon Islands have received 72 hour assessment training, which focuses on data preparedness, assessment, geographic information systems, data management and related protocols. Other countries interested are encouraged to reach out to WFP.

## Below-average rainfall

Slow-onset disasters, such as drought, a longer lead time is available to implement anticipatory actions. However, this is often only a month or two maximum, therefore anticipatory actions should be implemented quickly to ensure they generate the best results.

- If data is available, monitor local market prices, water levels (rivers, dams or wells) or food security data to keep track of the evolving situation.
- Encourage the use of water-saving irrigation materials and where possible repair existing systems. Particularly for wells that run the risk of salinization when water levels run low.
- Provide drought-tolerant early maturing crop varieties and/or salt tolerant crops particularly for atolls, artificial and low-lying islands (such as taro, cassava and kumara).
- Encourage mulching, soil preservation techniques, intercropping, mixed cropping, raised beds for vegetables/nursery seeds (especially for atolls and artificial islands).
- Seaweed fertilizing techniques for coral reef islands, artificial islands and high raised atolls.
- For aquaculture, destock excess harvest and employ processing techniques such as smoking to extend shelf-life. In addition, procure lids or nets that can support water conservation for the remaining stock.
- For subsistence farmers, harvest early vegetables/fruits and employ food processing techniques to extend the shelf-life (i.e. solar dryers, smoking or jarring).
- Distribute pest control support to subsistence farmers, particularly for Giant African Snail, Coconut Beetle and the Slippery Cabbage Flea Beetle.





### Above-average rainfall

Sudden-onset events, such as cyclones, have a very short lead time of maximum a few days. Therefore it is critical to plan anticipatory actions in advance, and ideally pre-position items in high risk areas so they can be rapidly delivered before the hazard strikes.

- Distribute waterproof silos for the safe storage of crops, seeds, gardening and fishing tools, as well as food rations for communities potentially affected by wetter-than-normal conditions and who live in flood-or-cyclone prone areas. When possible, the silos should be paired with a spade to encourage families to bury the silos to keep safe.
- For coastal areas, encourage households to stock-take and assess if repairs are needed on their fresh-water sources ensuring they are safeguarded from salination. Establish evacuation routes and centers for livestock and provide veterinary support to deter the spread of diseases at these sites.
- Identify safe havens to store fishing gear, agriculture tools or the harvest of vegetables/fruits. Identify drydocks to host boats – alternatively provide spades to support the burying of small wooden canoes to safeguard them from strong cyclone winds or being washed away by flood waters.
- Preposition sandbags at high risk areas to protect households and subsistence gardens from salination from sea water surges.
- Provide cash top-up (via government social protection system, if possible) to support the rapid reinforcement of structures or trees (such as coconut or banana), evacuate livestock or allow families to cover their immediate needs ahead of the cyclone.
- Distribute nets/lids to aquaculture farmers to safeguard their stocks, while also heightening or strengthening embankment structures or building channels to divert rising waters.



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