

El Nino: India's Prime Economic Risk in Recent Times

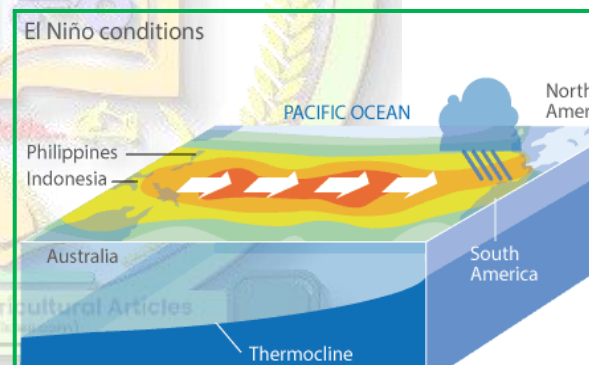
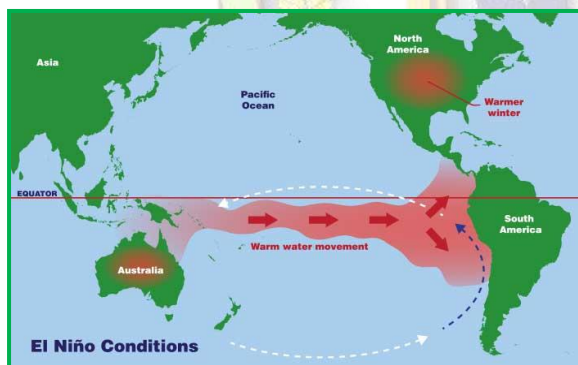
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El Nino (Spanish for 'the Christ Child') refers to a warming of the ocean surface or above-average sea surface temperatures, in the central and eastern tropical Pacific Ocean and this warming can last for several months to a few years. During an El Nino event, there is a weakening or even a reversal of the trade winds along the equator, which disrupts the normal pattern. Normally, strong trade winds blow westward across the tropical Pacific, the region of the Pacific Ocean located between the Tropic of Cancer and the Tropic of Capricorn. These winds push warm surface water toward the western Pacific, where it borders Asia and Australia. The westward movement of warmer waters causes cooler waters to rise up toward the surface on the coasts of Ecuador, Peru, and Chile. This process is known as upwelling. This weakening of the trade winds allows warm surface waters to move eastward, accumulating in the central and eastern Pacific. As a result, the *thermocline* (the boundary between warm surface waters and cooler waters below) becomes sloped, with the warm water layer becoming deeper in the eastern Pacific. The warm water heats the overlying air, causing it to rise and create an area of low atmospheric pressure, disrupting the normal atmospheric circulation patterns.



During El Nino years, the trade winds across the Pacific weaken, reducing their ability to push moisture-laden air towards the Indian subcontinent. As a result, the monsoon winds over the Indian Ocean and the Arabian Sea weaken leading to a decrease in the overall strength of the monsoon and as a result the regions that typically receive abundant rainfall during the monsoon season may experience below-average rainfall, while regions that usually receive less rainfall may receive more. This spatial redistribution of rainfall can have significant implications for agriculture, water resources, and ecosystems. Moreover, El Nino events can delay the onset of the monsoon season in India. Similarly, El Nino can lead to an early withdrawal of the monsoon, shortening the overall duration of the rainy season.

This year India headed for driest August in over 100 years and as a result summer crops at risks. It's clear that El Nino is now emerging as a major economic as well political risk in India, ahead of national elections scheduled in April-May 2024. The effects of the abnormal warming of the central and eastern equatorial Pacific Ocean waters towards Ecuador and Peru-generally known to suppress rain in India are already beginning to be felt. August so far has seen the country as a whole register 30.7% below-normal rainfall. As a result, the overall 4.2% surplus during the first two months of the southwest monsoon season (June to September) has turned into a cumulative 10% deficit as of August 31st and putting this month as the driest ever August by IMD even surpassing that of 1965 and 1920. In July, The Oceanic Nino Index (ONI) which measures the average sea surface temperature deviation from the normal in the east-central equatorial Pacific region touched 1°C. This was twice the El-Nino threshold of 0.5°C. The US National Oceanic And atmospheric Administration has predicted a 66% probability of the ONI exceeding 1.5 °C during Oct-Dec and a 75% chance of it remaining above 1 °C in Jan-Mar, 2024. El Nino is, thus, projected to not only persist, but strengthen through the 2023-24 winter. That, in a worst-case scenario, could lead to an intensification of the current dry conditions in September when the southwest monsoon season ends and beyond. It would also mean subpar rainfall during the Northeast monsoon (Oct-Dec) and winter (Jan-Feb) seasons.

The southwest monsoon rain is crucial for not just the *kharif* season crops, mostly sown in June-July and harvested over Oct-Nov. It is required to fill up dam reservoirs and recharge groundwater tables that, in turn, provide water for the crops cultivated during the rabi (winter-spring) season.

The dry weather in August can affect yields of the already planted crops now in vegetative growth stage. But farmers may still be able to salvage these with one more shower or even the available moisture. The real issue would be not with the *kharif*, but the upcoming *rabi* season crops that are largely dependent on water in the underground aquifers and reservoirs. That's where El-Nino impact might be most felt.

For policymakers, food inflation isn't much of concern so long as it is transitory or limited to, say, tomatoes or vegetables suffering temporary supply disruptions and likely to self-correct with the new crop's arrivals. The problem is when inflation becomes persistent and broad-based. Last year, public wheat stocks fell to their lowest since 2008, but there was enough of rice to keep the overall cereals inflation in check. The scenario is different today, when there's pressure on both rice and wheat stocks, besides El Nino whose effects are still unfolding and so it is a matter of concerned.