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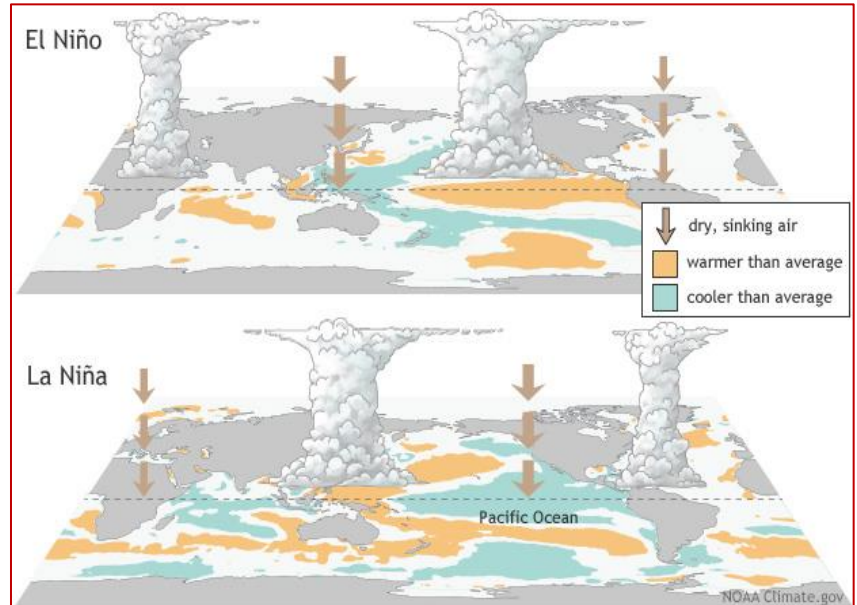
15th June 2023

Everything you need to know about El-Nino

News: Any discussion on the Indian monsoon these days invariably has references to the El Nino phenomenon.

What is El Nino?

- El Nino, as is commonly known, refers to an **abnormal warming of surface waters** in the **equatorial Pacific Ocean**. It is known to suppress monsoon rainfall.
- The opposite phase, La Nina, which is the **abnormal cooling of sea surface waters** in the same region, is known to aid rainfall over India.
- There is a third, neutral phase, as well in which the sea surface temperatures remain roughly in line with long-term averages. Together, these three phases in the Pacific Ocean are referred to as **El Nino Southern Oscillation** or ENSO.
- The playground of this entire system is the **equatorial region in the Pacific Ocean**. On the east are Ecuador and Peru in northwestern South America and on the west are the islands of Philippines and Indonesia. Between them is nearly **17,000 km of uninterrupted ocean**. This region receives the **most sunlight anywhere on earth**, a lot of which is stored as heat in the ocean.



What is the impact of El Nino on India?

- It can adversely impact the Indian monsoon leading to fluctuation in rainfall. During such years, India experiences below-average rainfall.
- As the rainfall is subdued, it leads to water scarcity and droughts in many regions of India. It impacts crop productivity.
- Negative impact on Farmer's livelihood.
- El Niño can also lead to public health issues in India. For instance, drier conditions and heat waves can increase the risk of heat-related illnesses.
- In terms of economics, a reduction in agricultural productivity may lead to an increase in food prices.
- EL-nino conditions may lead to extreme climate activities – Heatwaves, Cyclonic formations etc.

What are the impacts in other parts of the world?

- Coastal countries in South America like Peru and Ecuador can experience heavy rains and flooding.
- Australia and Southeast Asia experience similar weather patterns as India. Decreased rainfall → Drought → Impact on Agriculture → Food inflation
- East Africa may receive more rain than usual, which could lead to flooding. Southern Africa may face drier conditions, which can lead to water shortages and impacts on agriculture.

How should a country be prepared to face El Nino conditions?

- Having dedicated disaster risk reduction funds can help. For example, Peru follows the practice.
- Invest more in technology that accurately predicts when such a phenomenon is likely to occur. For example, the US-based National Oceanic and Atmospheric Administration (NOAA).
- Promote climate-resilient infrastructure, and adopt sustainable agricultural practices. For example, Better irrigation facilities → Diversify Crops → Weather Based Crop insurance etc.
- Protect marine ecosystems comprehensively as they are most likely to face the adverse impacts of El Nino.

Source – The Indian Express, BBC

Everything you need to know about Tropical Cyclones

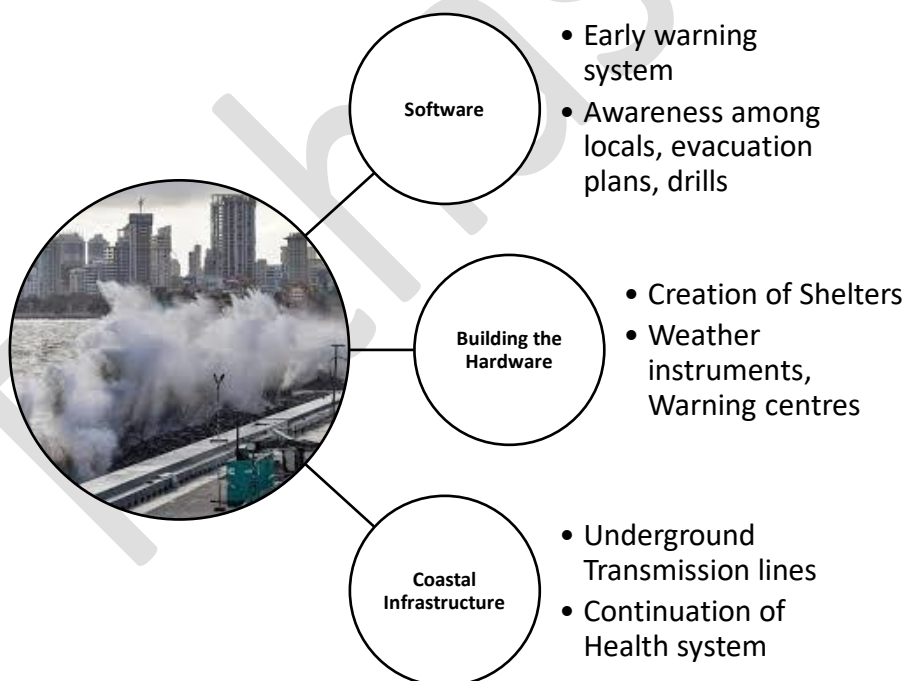
News: Cyclones in India are a common phenomenon. India has put in place standard operating procedures to deal with them and today are no longer considered as big a threat as they were in the 1990s...

What are Tropical Cyclones?

- According to **World Meteorological Organization**, A tropical cyclone is a rapidly rotating storm originating over tropical oceans from where it draws the energy to develop. It has a low-pressure centre and clouds spiralling towards the eyewall surrounding the "eye", the central part of the system where the weather is normally calm and free of clouds.
- Its diameter is typically around 200 to 500 km but can reach 1000 km.

What are the factors responsible for Tropical cyclone formation?

- **Sea surface temperatures** warmer than 26.5 °C (79.7 °F), which provide the thermal energy for the storm.
- **Low vertical wind shear**, which allows the storm to maintain its structure and intensity.
- **High humidity** in the lower to middle levels of the troposphere, which provides the moisture for cloud formation and precipitation.
- **Enough Coriolis force**, which causes the storm to rotate and create a low-pressure centre.
- A **pre-existing low-level focus or disturbance**, such as a tropical wave or a monsoon trough, which triggers the initial convergence and uplift of air.
- **Upper divergence** above the sea level system, which allows the rising air to escape and lowers the central pressure.



What is the response mechanism India has developed over the years?

- India has developed a **three-layered response mechanism** for cyclones.
- The first layer deals with the **software** — an early warning system, creation of awareness among local populations, evacuation plans and drills, training and dissemination of information.

- The second layer involves **building the hardware** — creation of shelters where people and cattle can be shifted, setting up of weather instruments and warning centres for better forecasts, and construction of embankments, connecting roads and bridges.
- The last layer is about making **coastal infrastructure resilient to cyclones**. This would require taking critical infrastructure like power transmission lines or water supply lines underground, ensuring that railway networks and airports do not get inundated and continue to function, and health systems do not get disrupted.
- While significant efforts have been made on the first two layers, few things remain to be done on the last one.

Source – The Indian Express, WMO

One Nation One Anganwadi Programme

News: More than **57,000 migrant workers** have registered for the special ‘one nation one Anganwadi programme’, to avail the benefits of schemes, especially for children and mothers which is important for inclusive development and welfare society.

What is the One Nation One Anganwadi Programme?

- Under the ‘**One Nation One Anganwadi Programme**’, people even if relocate to another State, can avail of the benefits given to children under six years and pregnant women and lactating mothers by the government.
- Under the programme each migrant worker who had registered in their original state could go to the nearest Anganwadi in their current place of residence and avail of the schemes and services offered. This can become possible with the coordination of the Centre and the State governments using the ‘**Poshan Tracker App**’ on mobile phones.
- An age-appropriate take-home ration is also being designed for children up to six years of age and a proposal has been sent for the same to the finance ministry.

What is the Poshan Tracker App?

- The Poshan Tracker management application provides a **360-degree view of the activities of the Anganwadi Centre** (child care centres), service deliveries of Anganwadi Workers and complete beneficiary management for pregnant women, lactating mothers and children under six. It also digitizes and automates physical registers used by workers to help improve the quality of their work.

Advantages of the Programme:

- To provide **affordable and accessible healthcare facilities**
- Anganwadi workers have the advantage over the physicians living in the same rural area, which gives them insight into the state of health in the locality and assists in identifying the cause of problems and in countering them.
- **One-third** of the world’s stunted children live in India. This is the highest number in the world. Anganwadis are integral for the **success of the ICDS programme** that caters to the **nutrition, health and pre-education needs of children till six years of age** as well as the health and nutrition of women and adolescent girls.
- Anganwadi workers are India’s primary tool against the menace of child malnourishment, infant mortality, lack of child education, community health problems and in curbing preventable diseases.

Source – NewsonAir



India's geologic history

News: A recent study has revealed that India hosts remarkably well-preserved volcanic and sedimentary rocks as old as 3.5 billion years, and has similar geologic history to parts of South Africa and Australia.

Background:

- These rocks are found in the **Daitari greenstone belt** within the Singhbhum Craton in east India.
- Cratons are pieces of ancient continents that formed several billions of years ago. Their study provides a window into how processes within and on the surface of Earth operated in the past.

Key Findings and their Importance:

- The presence of silicic rocks rich in silica indicated explosive sub-marine to sub-aerial volcanic settings. Furthermore, the researchers determined that sub-marine turbidity current deposits, comprising sedimentary rocks, were formed after the volcanic vent drowned.
- By studying these ancient greenstones, researchers gain insights into various volcanic processes and uncover well-preserved minor sedimentary rocks that formed under sub-marine conditions.
- The well-preserved greenstones serve as time capsules, providing clues about habitable environments on Earth during its early stages and aiding in the comprehension of the planet's evolution.
- It provides evidence for various theories of plate tectonics.

Ind-US Co-operation in Agriculture

News: A brief history of the US's role in independent India's agricultural development is useful in the context of the Indian PM's upcoming visit to the US.

What is the role of the USA in Agri development in India?

India's first Agri university

- The UP Agricultural University (later renamed B. Pant University of Agriculture & Technology) was inaugurated in 1960. It is based on the US land-grant model – which integrated teaching, research and extension.
- Since then, 7 more universities received the US Agency for International Development's assistance for the training of faculty and the provision of equipment and books.

Green Revolution

- The US aided India's Green Revolution by supplying seeds with a high output when administered with more inputs (nutrients and water).
- By 1968, India had transformed from a ship-to-mouth shortage economy to a country that shut down schools and cinema theatres to store surplus food.

Why does the US help India?

- The Cold War geopolitics and great-power rivalry of those times resulted in competition to extend help to those goods that were viewed as “global public goods”. India's strategy of “non-alignment” paid off then, just as “multi-alignment” is today.
- Today, the Indian market can provide significant new investment opportunities in cold chain transportation logistics and frozen foods distribution.

What efforts are being made with other countries?

- **India and Israel** are implementing the “INDO-ISRAEL Agricultural Project Centres of Excellence” and “INDO-ISRAEL Villages of Excellence”.
- **India and Vietnam** agreed to strengthen their specific cooperation to develop a hi-tech agricultural relation in association with environmental protection.
- An **India-ASEAN Working Group on Agriculture** has been formed, as agriculture is a critical sector for the economy of India as well as the ASEAN Member States.

Way Forward

- India's ambitious targets of Doubling farmer's income, reducing fertilizer use, restoring degraded land and others call for extra efforts and collaborations with Foreign countries.

Facts for Prelims

Default Loss Guarantee

News: The Reserve Bank of India (RBI) has allowed default loss guarantee (DLG), a safety-net arrangement among banks, non-banking finance companies, and lending service providers (LSPs, popularly known as fintech players) in the digital lending space.

Background:

- DLG is also known as First Loss Default Guarantee (FLDG). The RBI nod for compensating banks in case of default is expected to boost fintech activity in the financial sector. (Entry of small and medium fintech companies)

What is FLDG?

- It is an arrangement whereby a third party such as a financial technology (fintech) player (LSP) compensates lenders if the borrower defaults.
- For all practical purposes, credit risk is borne by the LSP without having to maintain any regulatory capital.

What were RBI's concerns earlier?

- RBI had expressed reservations about the FLDG arrangement because it felt that the model could pose a systemic risk.
- The RBI guidelines (2022) on digital lending did not provide clarity on the FLDG structure.

What are the new guidelines?

- The RBI permitted FLDG arrangements between banks and fintech or between two REs.
- The LSP-providing DLG must be incorporated as a company under the Companies Act, 2013.
- Banks and NBFCs should ensure that the total amount of DLG cover on any outstanding portfolio does not exceed 5% of the amount of that loan portfolio.

JATAN

News: The 3D digitisation of museums (under the Center's control) would be done using the JATAN virtual museum builder software through 3D scanning.

About:

- JATAN is a digital collection management system for Indian museums designed and developed by Human Centres Design and Computing Group, Centre for Development of Smart Computing, Pune.
- It can create 3D virtual galleries and provide public access through web, mobile or touchscreen kiosks.

Places in News

Chite Lui River

News: The Chite Lui River in Mizoram holds significant cultural and sentimental value for the people of the hilly northeastern state. But, it faces pollution and degradation due to unplanned activities.

About:

- The Chite Lui River is situated in an alluvial valley at an altitude of around 1,000 metres, the river originates from the **Bawngkawn range** in north Aizawl and flows for approximately 20 km before joining the **River Tuirial**.
- The rapid growth of Aizawl City has led to unplanned construction activities on the banks and even on the river bed of the Chite Lui River. Many houses, shops, garages, eateries and other establishments have encroached upon the river's space and reduced its width and depth.

Other rivers in Mizoram:

- **Chhintuipui**, the largest river in Mizoram, originates in Myanmar and flows through Lawngtlai and Saiha districts before entering the Bay of Bengal.
- Khawthlangtuipui, Tlawng, **Tuirial**, and **Tuivawl**.
- Mat, Tuichang, and **Tuipui**, which flow through the southern part of Mizoram.
- Tiak, Tuichawng, Teirei, Tuirini, and **Serlui**, are some of the other perennial rivers of Mizoram.