Subdued Northeast Monsoon

Why in News

Rainfall over the southern peninsular region has been deficient so far, indicating that the northeast monsoon has remained subdued this year.

Key Points

- **Pattern of Rainfall in India:** India receives rainfall during **two seasons:**
    - About **75% of the country's annual rainfall** is received from the **Southwest monsoon** between **June and September.**
    - The **Northeast monsoon** occurs during **October to December,** and is a **comparatively small-scale monsoon,** which is confined to the **Southern peninsula.** It is called the **winter monsoon.**
- **Northeast Monsoon and Rainfall:**
    - After the **complete withdrawal of the Southwest monsoon** from the country takes place by **mid-October,** the **wind pattern rapidly changes** from the **south-westerly to the north-easterly direction.**
    - The period after the Southwest monsoon season, from October to December, is the **peak time for cyclonic activity in the North Indian Ocean region** covering the Arabian Sea and the Bay of Bengal.
        - The winds associated with the formation of low pressure systems, depressions, or cyclones **influence this monsoon,** and therefore, the rainfall.
- **Regions associated with Northeast Monsoon:**
    - The rainfall associated with the Northeast monsoon is important for **Tamil Nadu, Puducherry, Karaikal, Yanam, coastal Andhra Pradesh, Kerala, north interior Karnataka, Mahe and Lakshadweep.**
    - Tamil Nadu records about **48% of its annual rainfall** during these months, making it the key factor for **undertaking agricultural activities and reservoir management** in the state.
    - Some South Asian countries such as **Maldives, Sri Lanka and Myanmar,** too, record rainfall during October to December.
- **Reasons for deficient rainfall this Northeast monsoon:**
    - **Prevailing La Niña conditions in the Pacific Ocean:**
        - La Niña conditions **enhance the rainfall associated with the Southwest monsoon,** but has a **negative impact** on rainfall associated with the **Northeast monsoon.**
        - La Niña (Spanish for 'little girl') refers to the **large-scale cooling of the ocean surface temperatures in the central and eastern equatorial Pacific Ocean,** coupled with changes in the tropical atmospheric circulation, namely winds, pressure and rainfall.
        - It usually **has the opposite impacts on weather and climate as** El Niño, which

is the warm phase of the so-called **El Niño Southern Oscillation (ENSO).**

- **El Niño** (Spanish for 'little boy') is the **abnormal surface warming observed along the eastern and central regions of the Pacific Ocean** (region between Peru and Papua New Guinea).
- La Nina and El Nino are **large-scale ocean phenomena** which influence the global weather winds, temperature and rainfall.
- They have the **ability to trigger extreme weather events** like droughts, floods, hot and cold conditions, globally.
- Each cycle can last anywhere **between 9 to 12 months, at times extendable to 18 months** and re-occur after **every three to five years.**

◦ **Inter Tropical Convective Zone (ITCZ):**

- The current position of the ITCZ has also contributed to the poor rainfall during the ongoing monsoon season.
- The ITCZ is **a low-pressure belt,** whose northward and southward movements along the equator determine the precipitation in the tropics.
- Currently, the **ITCZ is located to the north of its normal position.**

Other Important Atmospheric Circulation

- **Madden-Julian Oscillation (MJO)**: The MJO can be defined as an eastward moving 'pulse' of clouds, rainfall, winds and pressure near the equator that typically recurs every 30 to 60 days.

Source: IE