

Today's Prelims Topics

Indian Star Tortoise

Context

Recently a study was conducted to understand the diversity and natural distribution of the tortoises through genomic sequencing of samples from various locations.

About Indian Star Tortoise

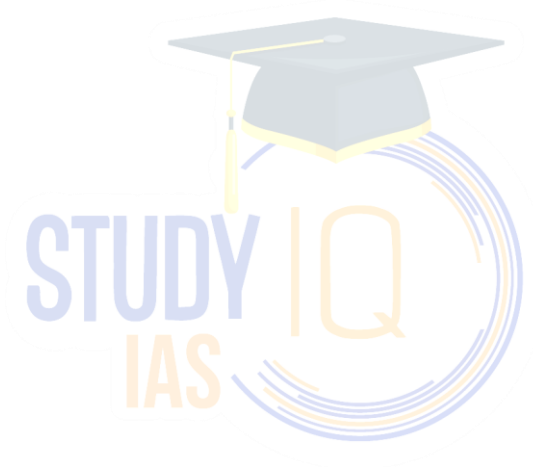


- **Characteristics:**
 - It has a medium-sized head, hooked beak and short thick legs covered with tubercles of various sizes and shapes.
 - Males have a long tail, while females have short and stubby tails.
 - It is a **diurnal animal** that is mostly active in the morning and late in the afternoon.
 - It is a **herbivore**.
- **Habitat:** It is **Native to India, Pakistan & Sri Lanka**. It resides in dry, open habitats such as scrub forests, grasslands etc.
- **Conservation Status:**
 - **IUCN:** Vulnerable
 - **WPA,1972:** Schedule I
 - **CITES:** Appendix I
- **Threats:**
 - Habitat fragmentation due to urbanization and agricultural practices
 - Loss of genetic diversity due to hybridization
 - Increasing demand as exotic pets:
 - 90% of trade occurs in the international pet market, according to the Wildlife Crime Control Bureau

- **Shell Pyramiding:** Captive-bred tortoises often develop pyramid-shaped shells (due to poor nutrition), affecting mating and reproduction.
- **Key findings of the study:**
 - It identified **2 genetically distinct groups** of Indian star tortoises: **Northwestern group:** Found in arid regions bordering Pakistan & **Southern group:** Found in peninsular India.
 - Study has also revealed that the northwestern group remains genetically stable, while the southern group has higher genetic diversity.

Source:

- [The Hindu - Study brings Indian star tortoise to evidence-based conservation](#)



Sathanur Dam

Context

Cyclone Fengal brought the highest rainfall recorded in the last 70 years to upstream areas of the **Sathanur dam**.

About Sathanur Dam

- It is one of the major dams in Tamil Nadu constructed across the **Thenpennai River also called as Pennaiyar River** in **Thandarampet taluk (Tiruvannamalai district)**.
- It was constructed in **1958**.

About Pennaiyar River

- Pennaiyar River is also known as Thenpannai.
- **Origin:** Eastern slope of Nandidurg Mountain (Chennakaseva Hills), Karnataka.
- It flows through **Karnataka and Tamil Nadu**.
- **77% drainage basin** of the river lies in Tamil Nadu.
- **Tributaries:** Markandanadhi, Kambainallur, Pambar, Vaniyar, Kallar, Valayar etc.
- Pennaiyar river is **mentioned in Sangam literature** for its lush vegetation.
- **Important temples on the river:** Penneswaraar Temple, Dakshina Tirupati, Veerateshwarar Temple.
- Pennaiyar river is disputed between Karnataka and Tamil Nadu over Karnataka's intent to construct a dam on **Markandeya River** (major tributary of Pennaiyar River).

Source:

- [The Hindu - What went wrong at Sathanur dam?](#)

Essential Services Maintenance Act

Context

Uttar Pradesh government has recently passed an order banning strikes by government employees under Essential Services Maintenance Act for **next 6 months**.

About Essential Services Maintenance Act (ESMA)

- **ESMA was enacted by the Parliament of India in 1968.**
- Its main objective is to maintain the smooth movement of those things which are essential for the normal life of the common citizens.
- It can be imposed for a **maximum period of 6 months**, but the Central Government can extend it **for any period not exceeding 6 months** if it is satisfied that in the public interest it is necessary to do so.
- It can be invoked by the central government in case of a **national-scale disruption**, such as on the railways.
- **State governments also have their own state specific ESMA** which they can invoke in case of disruptions that only affect a state or states.
 - Before enforcing, the government must alert the employees through media or newspaper notification.
- **Services that fall under ESMA:**
 - Services related to public conservation, sanitation, water supply, hospitals and national defence.
 - Any establishment involved in producing, delivering or distributing petroleum, coal, electricity, steel or fertiliser.
 - It also applies to communication and transportation services and any government initiative relating to the acquisition and distribution of food grains.

Source:

- [The Hindu - Invoking ESMA in Uttar Pradesh means protests can erupt against govt](#)

MuleHunter.AI

Context

The Reserve Bank of India has developed a new artificial intelligence (AI)-powered tool MuleHunter.AI, to address the growing issue of mule bank accounts involved in online financial fraud.

About MuleHunter.AI

- It is the Artificial Intelligence/ Machine Learning-based model.
- **Developed by:** Reserve Bank Innovation Hub (RBIH).
 - RBIH is a **wholly-owned subsidiary** of the Reserve Bank of India (RBI).
 - It was set up to promote and facilitate an environment that accelerates innovation across the financial sector.
- Advantages
 - **Identification of Mule Accounts:**
 - It focuses on identifying and tracking mule accounts, which are often used to facilitate fraudulent transactions. MuleHunter analyzes transaction patterns, and flags suspicious accounts that are being used to transfer illegally obtained funds.
 - **Real-time Monitoring:**
 - It enables real-time monitoring of transactions, allowing banks and financial institutions to detect and respond to suspicious activities promptly.
 - **Data Analytics:**
 - MuleHunter uses advanced data analytics and machine learning algorithms to assess large volumes of transaction data. This helps in recognizing trends and patterns associated with fraudulent activities, making it easier to preemptively shut down potential scams.
 - **Collaboration Among different institutions:**
 - It encourages collaboration among banks, payment service providers and law enforcement agencies and helps to create a strong defense against **digital fraud**.

What is a mule bank account?

- Mule accounts are bank accounts misused by criminals for illegal activities, such as laundering illicit funds.
- Accounts are purchased from individuals, often from **lower-income groups** or with **low technical literacy**.
- The term “money mule” refers to innocent account holders exploited for such activities.
- When such incidents are reported, the money mule becomes the target of police investigations, because it is their accounts that are involved, while the actual criminals remain undetectable.

Source:

- [Indian Express - RBI leveraging AI to crack down on mule bank accounts](#)

Anti Drone Units

Context

The Union Home Minister and Minister has announced that India will soon establish a **comprehensive anti-drone unit** to protect the nation against drone-related threats.

Development of Anti-Drone Technology - Laser-Equipped Anti-Drone Gun Mount System

- It is developed through a "whole government approach" involving border forces, the Ministry of Defence, DRDO and research departments.
- It has resulted in **55% interception of drone intrusions** along the Punjab International Border, a marked improvement **from 3% earlier**.
- **Need of Anti-Drone Measures:**
 - The threat of drone-based intrusions is increasing and is expected to pose greater challenges in the future.
 - Drones are being used for smuggling weapons, narcotics, and counterfeit currency across borders.

Dronaam

- India's defense capabilities have been significantly enhanced with the deployment of the Dronaam counter-drone system.
- It is developed by **Bharat Electronics Limited (BEL)** in collaboration with **Gurutvaa Systems Pvt Ltd**.
- This system is designed to detect, track, and neutralize rogue drones, which have become a growing threat, particularly along India's borders.

Key Features of Dronaam:

- **Detection:** Equipped with radar that can identify drones from several kilometers away.
- **Tracking:** Utilizes electro-optical and infrared sensors for real-time monitoring of drone activity.
- **Neutralization:** Employs RF (radio frequency) jammers to disrupt drones' communication and GPS, effectively rendering them non-operational.

Source:

- [Indian Express - India to form anti-drone unit for safe border:](#)

Oilfields Amendment Bill, 2024

Context

The Rajya Sabha recently passed the Oilfields (Regulation and Development) Amendment Bill, 2024, via a voice vote.

About Oilfields Amendment Bill, 2024

- The Oilfields Bill amends the Oilfields (Regulation and Development) Act of 1948, which originally governed both oil and mineral operations.
- The amendment aims to delineate the regulation of petroleum from mining activities and boost domestic production and reduce reliance on imports.

Key Amendments

- **Expanding Definition of Mineral Oil:**
 - In the present act, petroleum and natural gas are the only two that have been defined as mineral oil.
 - The amendment expands the definition to include any naturally occurring **hydrocarbon, coal bed methane, and shale gas/oil**.
 - It also clarifies that the definition will not include "coal, lignite and helium occurring in association with petroleum or coal or shale."
- **Introducing Petroleum Lease:**
 - The Bill introduces "petroleum leases" as a replacement for "mining leases." These leases cover activities like prospecting, exploration, development, production and disposal of mineral oils.
- **Expanding Centre's Regulatory Powers:**
 - The Act gives power to the Centre to make rules on matters such as the grant of leases, deciding the terms and conditions of the lease, conservation and development of mineral oils, methods for producing oil, etc.
 - It further expands the Centre's power by allowing it to make rules for leases to reduce greenhouse gas emissions, sharing of oil production and processing units, merger of leases and resolving disputes on leases.

Concerns

- **Impact on State Rights:** Opposition parties are arguing that reframing the Act's focus from mining leases to petroleum leases could diminish state powers to tax and collect royalties from petroleum activities.
- **Environmental Risks:** The push for private sector involvement raises questions about environmental safeguards and reduced accountability.

Source:

- [Indian Express - The New Oilfields Bill](#)

New Phase of Syrian Conflict

Context

Syrian rebels swiftly toppled President Bashar al-Assad's 24-year regime, forcing the 59-year-old leader to flee to Moscow, where he was granted asylum.

Key Rebel Groups & Players in the Current Offensive

Syrian War

- The conflict began in **2011 during the Arab Spring**, with protests against **President Bashar al-Assad's rule**.
- Over time, the war evolved into a multi-faceted conflict involving domestic opposition groups, foreign powers and extremist organizations.
- **Other Reasons:**
 - **Authoritarian Rule:** Decades of oppressive governance under the Assad family created widespread resentment among the population.
 - **Economic Hardship:** High unemployment, corruption, and economic inequality fueled public dissatisfaction.
 - **Sectarian Divide:** Syria's Sunni majority resented the dominance of the Alawite minority, to which Assad belongs.
 - **Internal Fragmentation:** The conflict fragmented into multiple factions, including the Assad regime, opposition groups, Kurdish forces, and extremist organizations like ISIS.

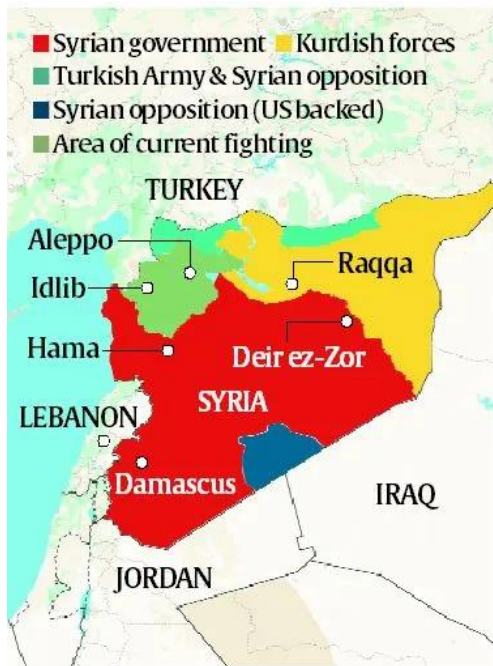
- **Hayat Tahrir al-Shaam (HTS):**
 - **Origin:** Began as Jabhat al-Nusra, al-Qaeda's branch in Syria, later renamed Jabhat Fateh al-Shaam in 2016, and evolved into HTS in 2017.
 - **Leadership:** Led by Abu Mohammad al-Jolani.
 - HTS is designated a terrorist group by the US, Russia, and Turkey.
- **Syrian Democratic Forces (SDF):**
 - **Composition:** Kurdish militias.
 - **Area under control:** Administers northeastern Syria autonomously.
 - **Former US Support:** Heavily supported during the Trump administration before the abrupt withdrawal of US forces.
- **Syrian National Army (SNA):**
 - **Origin:** Emerged from the Free Syrian Army in 2011.
 - Supported by Turkey and opposes both Assad and the SDF.
 - **Role:** Jointly conducting operations with HTS under the "Military Operations Command" established in 2019.
- **Assad's regime:** Controls most of Syria, with support from **Russia, Iran and Hezbollah**.
- **Turkey:** Historically backs Syrian rebels and controls trade and access in Idlib. It has controlled northern Syria since 2016.

YEARS OF BLOODSHED AND DIVISION

The sudden collapse of Bashar al-Assad's rule over Syria marks the culmination of a nearly 14-year-old civil war that killed hundreds of thousands displaced half the population and drew in outside powers. This is how it unfolded:

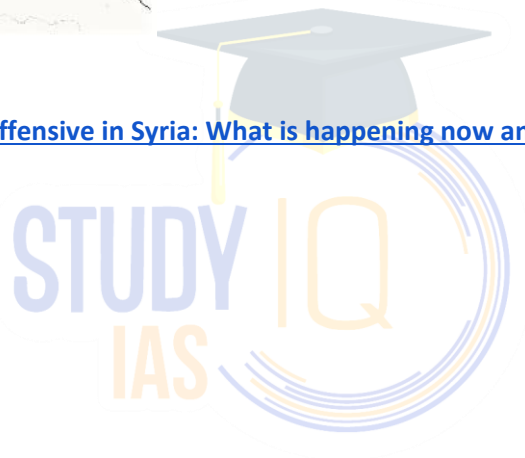


Important locations of Syria



Source:

- [Indian Express - Rebel offensive in Syria: What is happening now and why?](#)



Editorial Summary

Economic Growth Vs. Emission: India

Context

According to India's Economic Survey (2023-24), the country has decoupled its economic growth from greenhouse gas (GHG) emissions.

What is Decoupling?

- It refers to the disassociation between economic growth and environmental degradation.
- **Types of Decoupling:**
 - **Absolute Decoupling:**
 - Economic growth occurs while emissions decrease.
 - This is the ideal scenario, achieving growth without increasing environmental harm.
 - **Relative Decoupling:**
 - Both GDP and emissions grow, but GDP grows at a faster rate.
 - This represents progress but acknowledges that emissions continue to rise.
- **Significance of Decoupling:** Allows nations to raise living standards and alleviate energy poverty without worsening climate change.
- Historically, economic growth has often been linked to increased environmental degradation.
- This growth is seen as a significant contributor to greenhouse gas (GHG) emissions.
- In recent times, the urgent need to reduce emissions while maintaining economic growth has become a global priority.

Has India Really Decoupled Its Economic Growth From GHG Emissions?

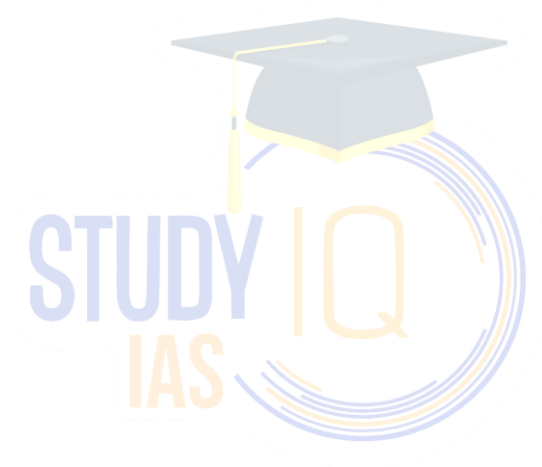
- **Economic Survey (2023-24):**
 - **GDP Growth Rate:** 7% CAGR
 - **GHG Emissions Growth Rate:** 4% CAGR
 - However, the survey does not specify whether this represents absolute or relative decoupling.
- **Analysis of Decoupling (Sector-Wise and Economy-Wide):**
 - Using decoupling indicators from **OECD (2002)**, the status of decoupling in India was examined:
 - Since the **1990s** (post-trade liberalization), India has experienced steady economic growth.
 - **Economy-Wide Decoupling:**
 - **GDP Growth Since 1990:** Six-fold increase
 - **GHG Emissions Growth Since 1990:** Tripled
 - This indicates **relative decoupling**.
 - **Sector-Wise Decoupling:**
 - Major contributors to GHG emissions are **agriculture** and **manufacturing** sectors.
 - Decoupling in these sectors is assessed by comparing the growth of **Gross Value Added (GVA)** to the growth of emissions.

Challenges and Future Goals

- India has not yet peaked its emissions, so emissions are expected to rise with economic growth.
- Achieving **absolute decoupling** is a long-term challenge but essential for meeting climate commitments.

- **Efforts Required:** Policies promoting:
 - **Renewable Energy**
 - **Emission Mitigation**
 - **Sustainable Development**

Source: [The Hindu: The issue of India's economic growth versus emissions](#)



Essay: The place of charity in an unequal society

Introduction

In an increasingly unequal world, the role and effectiveness of charity are subjects of critical scrutiny. The act of giving away wealth to those in need is undoubtedly commendable, but it also raises fundamental questions about the **structures that create and perpetuate inequality**. Philanthropy, while alleviating immediate suffering, does not always address the systemic causes of poverty and wealth concentration. As **Thomas Piketty** argues, true solutions lie not in private charity but in **policy-driven redistribution** and equalization of opportunities.

The Paradox of Charity

Billionaires like **Warren Buffet** have pledged to give away most of their wealth to charitable causes. Buffet's recent transfer of **\$870 million** to foundations managed by his children, contributing to a lifetime donation of **\$52 billion**, showcases his commitment to philanthropy. He believes that wealth should be used to **"equalize opportunities"** for those less fortunate. In his own words, "The luck that favored certain individuals and helped them get rich should be extended after one's death to help those less fortunate."

While this perspective reflects noble intentions, it exposes a fundamental paradox: the same systems that create billionaires also generate the conditions requiring charity. **"Inequality is not a question of luck, but of specific policy institutions determined by society."** Wealth accumulation on such a large scale is not solely due to individual effort or diligence but often results from **deregulation, monopolies, and policy choices** that favor the few over the many.

Luck Egalitarianism and Systemic Inequality

Buffet's philosophy resonates with the concept of **"luck egalitarianism,"** which posits that no individual should suffer due to circumstances beyond their control. As **Branko Milanovic** observes, where one is born significantly impacts their wealth potential. Buffet acknowledges his fortune was influenced by being born as a **white male in a prosperous country**. His commitment to charity reflects an effort to **"ensure his wealth can be used to boost the opportunities of those less fortunate."**

However, charity addresses **symptoms** rather than **causes**. The rise of billionaires like **Bill Gates** and **Jeff Bezos** can be traced to monopolistic practices and the failure of policies to ensure fair competition. Their immense wealth is not merely a result of luck but of systems that favor corporate giants over workers, leading to stagnant wages and poor working conditions. This discrepancy raises the question: **Does charity undo the harm caused by wealth concentration, or does it merely soften its impact?**

Charity vs. Justice

Justice and **charity** are two sides of the same coin, but they operate differently. Charity relies on the **conscience of the wealthy**, while justice requires **systemic fairness**. The philosopher **St. Augustine** aptly said, *"Charity is no substitute for justice withheld."* While charity can provide temporary relief, it does not ensure structural changes to reduce inequality. **Warren Buffet** himself acknowledges the limits of wealth accumulation across generations, stating that allowing such concentration of wealth is **"a problem for society."**

Justice, on the other hand, aims to create a level playing field through **policy interventions**. As **Piketty** argues, a fair society needs **"taxation and redistribution backed by the State"** to equalize opportunities. This approach ensures that society does not depend on the generosity of a few individuals but builds a system where wealth is more evenly distributed.

Policy Choices and Their Consequences

The explosion of wealth inequality since the **1980s** can be linked to **neo-liberal policies, deregulation, and 'trickle-down' economics** promoted by leaders like **Ronald Reagan** and **Margaret Thatcher**. In India, economic liberalization led to faster growth but also **"dramatically increased inequality and skewed the distribution of opportunities."** These policies have contributed to a world where the richest few own as much wealth as the bottom half of the population.

Charity, while helpful, does not address these systemic issues. Instead, societies need policies that promote:

- **Higher Minimum Wages**
- **Progressive Taxation**
- **Antitrust Regulations to Prevent Monopolies**
- **Strengthening Labor Rights and Unions**

Such measures ensure that wealth creation benefits a broader segment of society rather than concentrating in the hands of a few.

The Need for Systemic Reform

Relying on billionaire philanthropy to address inequality is a fragile solution. True progress requires moving beyond charity and addressing the **root causes** of inequality through **justice-driven reforms**. The words of **Warren Buffet** offer a thoughtful reminder: *"While it is not wrong to amass and accumulate wealth during one's lifetime, allowing it to build across generations is a problem for society."* Societies must ensure that opportunities are **equitable** and that wealth is not just redistributed after it is amassed but is generated and shared fairly from the outset.

Conclusion

In an unequal society, charity plays a vital role in alleviating immediate suffering, but it is not a substitute for systemic justice. **Justice** ensures fairness, while **charity** fills the gaps left by injustice. As societies strive for **sustainable development and equal opportunities**, the focus should be on creating policies that **prevent wealth concentration** and promote **shared prosperity**. Only then can we achieve a society where charity is needed less because justice is served more.

Source: [The Hindu: The place of charity in an unequal society](#)

RBI want a hedge against dollar reliance, but not push for de-dollarisation

Context

- The Reserve Bank of India (RBI) Governor said that India is not pursuing “de-dollarisation”, and that recent measures promoting transactions in domestic currencies are intended to de-risk Indian trade.
- The clarification came days after US President-elect Donald Trump threatened “100 per cent tariffs” against BRICS countries if they sought to reduce reliance on the US dollar in international trade.

More in News

- RBI decisions such as allowing **Vostro accounts and entering local currency trade agreements** are **aimed at diversifying risk rather than reducing dependence on the dollar**.
- The Reserve Bank of India (RBI) has been buying more gold and moving its gold reserves back to India from abroad.
 - This move is partly due to growing global uncertainties, especially after the Ukraine war, and is also a response to fears of facing secondary sanctions.

- **Vostro Accounts:** A Vostro account is an account held by a foreign bank with a domestic bank in the domestic bank’s currency.
 - **E.g.**, a Russian bank holding an account in an Indian bank denominated in rupees would be a Vostro account. This allows for trade settlements in **local currencies** (e.g., rupees and rubles) rather than having to rely on the U.S. dollar.
- **Local Currency Trade Agreements:** These agreements allow two countries to trade using their own currencies instead of using the dollar as an intermediary.
 - **E.g.**, if India enters a trade agreement with the UAE, transactions could be settled in **rupees and dirhams** directly.

Why is India not supporting de-dollarization?

- The growing use of the Chinese yuan as an alternative to the US dollar.
 - India has chosen not to use the yuan for buying Russian oil, even though Russia is increasingly accepting the yuan due to Western sanctions.
- India is concerned about becoming too reliant on the US dollar, prompting it to take precautionary steps.

Fact

- After the West froze \$300 billion of Russian foreign reserves, the yuan became the most traded currency in Russia last year.

Global Trends in Gold Purchases

- **Record Purchases by Central Banks:** Central banks bought **1,136 tonnes of gold in 2022** (highest annual demand on record) and **1,037 tonnes in 2023**.
 - The **World Gold Council** reported 60 tonnes of net gold purchases in October 2024:
 - RBI added **27 tonnes**.
 - Turkey and Poland added **17 tonnes** and **8 tonnes**, respectively.
- **China's Leadership in Gold Purchases:** The **People's Bank of China** has been the largest buyer of gold in the past two years.

- China's gold buying supports sanctions-hit Russia and aligns with its trade war with the US.
- **Impact of Increased Gold Holdings:** Central banks reduce the need for US dollar reserves, freeing capital for growth projects.
 - The **IMF's Currency Composition of Official Foreign Exchange Reserves (COFER) data** shows a gradual decline in the dollar's share in global reserves, with gains in the yuan accounting for **a quarter of the dollar's decline**.

Challenges of Dollar Dominance in India's Neighborhood

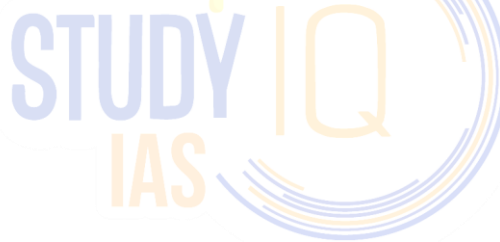
- **Regional Economic Strain:** Countries like **Sri Lanka, Bangladesh, Nepal, and Pakistan** experienced sharp declines in dollar reserves following the Ukraine war, causing trade disruptions and social unrest.
- **India's Dollar Concerns:** Surging oil prices and the dollar's high value have raised costs for India.
 - Although India has robust dollar reserves, it aims to reduce reliance through domestic currency trade.

India's Push for Domestic Currency Trade

Initiatives:

- **Trade in Domestic Currencies:** India is encouraging trade with Russia and the UAE in local currencies to reduce dependence on the US dollar.
- **Internationalization of the Rupee:** A potential boost could come if oil exporters begin accepting rupee payments.

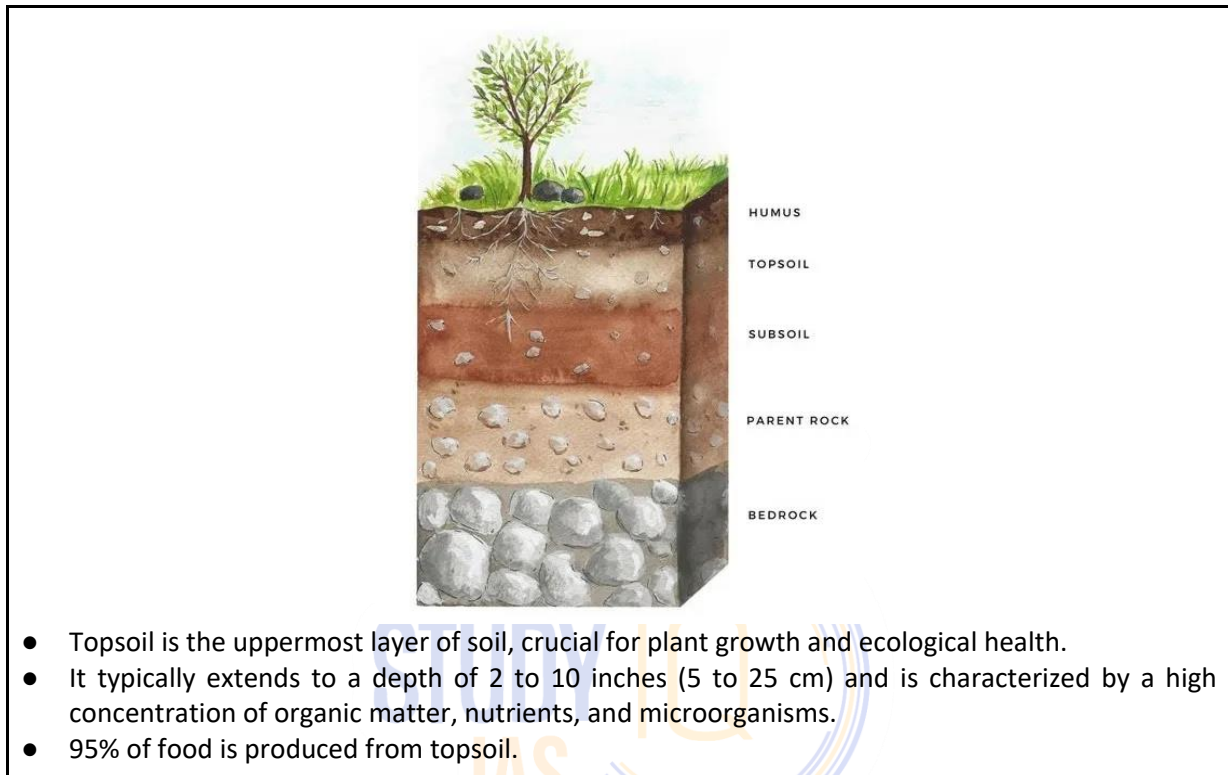
Source: [Indian Express: Why RBI Hedge Against Dollar Reliance, but no push for de-dollarisation](#)



World Soil Day: India's Soil Health

Context

- December 5, 2024, marked the **10th World Soil Day**, themed “*Caring for Soils – Measure, Monitor, and Manage.*”
- This theme emphasizes the critical importance of healthy soils, which take nature approximately 1,000 years to create just 2-3 cm of topsoil.



- Topsoil is the uppermost layer of soil, crucial for plant growth and ecological health.
- It typically extends to a depth of 2 to 10 inches (5 to 25 cm) and is characterized by a high concentration of organic matter, nutrients, and microorganisms.
- 95% of food is produced from topsoil.

State of Indian Soils

- Less than **5% of soils** are sufficient in nitrogen (N).
- **40%** of soils are sufficient in phosphate (P), and **32%** in potash (K).
- Only **20%** of soils have adequate organic carbon.
- Soils suffer from **micronutrient deficiencies** (sulphur, iron, zinc, boron), ranging from moderate to severe.

Facts

- India has become a net exporter of agricultural produce.
- From 2020-21 to 2022-23, India exported approximately 85 million tonnes of cereals while providing free cereals to over 813 million people during the COVID-19 pandemic.
- India is currently the largest exporter of rice globally, a success partially attributed to the fertiliser industry's efforts in ensuring timely distribution of essential nutrients.

Challenges in Soils, Fertiliser Industry, and Agriculture

- There is a reported slack of at least 30%, with some areas experiencing up to 50% inefficiency in nutrient application.

- The fertiliser subsidy amounted to ₹1.88 lakh crore, representing nearly 4% of the Union budget for the last fiscal year.
- Urea prices are heavily subsidized and controlled by the government at approximately \$70/tonne, making it the cheapest globally.
- The current subsidy policy has led to an imbalance in nutrient usage:
 - In Punjab, farmers use 61% more nitrogen, but apply 89% less potash and 8% less phosphate than recommended doses.
 - Similar patterns are observed in Telangana and other states.
- This imbalance results in high nitrogen usage leading to lush greenery but not necessarily increased grain yields due to insufficient phosphorus and potassium.

Proposed Reforms in the Fertiliser Sector

- **Deregulation and Direct Income Transfers:** Deregulate fertiliser prices to promote innovation and efficiency, like in the cement and diesel industries.
 - Provide **digital coupons** to farmers for purchasing fertilisers.
- **Balanced Fertiliser Use:** Align fertiliser usage with recommendations (N, P, K balance).
 - Promote **micronutrient application** for optimal productivity and farmer profitability.
- **Preparations for Reform:** Triangulate data from **fertiliser sales, soil health cards (SHC), PM-KISAN, land records, crops grown, bank accounts, and mobile numbers.**
 - Communicate benefits to farmers, ensuring they understand that reforms will enhance profits, soil health, and national agricultural sustainability.

Source: [Indian Express: All is not well with soil](#)

