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HYDROCARBONS EXTRACTION

In News

- Recently, the geological processes, extraction methods, and environmental impact of hydrocarbon extraction seen in the news .

About 'hydrocarbon'

- The term 'hydrocarbon' is self-explanatory which means compounds of carbon and hydrogen only.
 - ♦ Over millennia, mighty geological processes in the earth's crust heated and compressed together pieces of life-forms that had been dead for a while. Eventually, this mulch of organic matter accumulated as **hydrocarbons inside rock formations**.
- **Categories:** Depending upon the types of carbon-carbon bonds present, they can be classified into three main categories –
 - ♦ **Saturated Hydrocarbons** are the important sources of energy and they contain carbon-carbon and carbon-hydrogen single bonds.
 - ♦ **Unsaturated** : They contain carbon-carbon multiple bonds – double bonds, triple bonds or both
 - ♦ Aromatic hydrocarbons: They are a special type of cyclic compounds
- **Occurrence:** The most common forms in which these hydrocarbons exist in **subterranean rock formations** are natural gas, coal, crude oil, and petroleum.
 - ♦ They are usually **found in underground reservoirs** created when a **more resistant rock type** overlays a less resistant one, in effect creating a lid that causes hydrocarbons to accumulate below it.
 - Such formations are important because otherwise, the hydrocarbons would float to the surface and dissipate.
 - ♦ Experts use the tools, methods, and techniques of the field of petroleum geology to assess these rocks, including to check for their porosity and permeability.
 - If a rock formation is highly porous, it could hold a larger quantity of hydrocarbons.
 - ♦ The primary source of hydrocarbons in this rocky underground is called **kerogen**: lumps of organic matter.
 - ♦ Kerogen can be deposited from three possible sources: as the remains of a lake

(lacustrine), of a larger marine ecosystem, or of a terrestrial ecosystem.

- Lacustrine kerogen yields waxy oils; marine kerogen, oil and gas; and terrestrial kerogen, light oils, gas, and coal.

- **Applications** : Hydrocarbons are sources of energy and are also used for the manufacture of polymers like polythene, polypropene, polystyrene etc.
 - ♦ Higher hydrocarbons are used as solvents for paints. They are also used as the starting materials for manufacture of many dyes and drugs

Extraction

- Drilling and reservoir engineers are responsible for extracting as much of the hydrocarbons .
- The first task is **to create a production well**, the principal hole through which the reservoir will be drained to the surface; its location is chosen to maximise the amount of drainage.
 - ♦ The production profile of a well can be split into three phases:
 - ♦ **Primary** : It banks on natural processes, like pressure differences between the reservoir and the well and less dense compounds floating to the top
 - ♦ **Secondary** : are concerned with inducing artificial pressure in the rock to maintain the differential (e.g. by injecting water into it or diluting the hydrocarbon mix to help it flow better).
 - ♦ **Tertiary** : focused on forcing the remainder into the well. Steam injection is a common example of such an enhanced recovery method.
- The process of recording the rock cuttings by depth and studying their properties is called **mud-logging**.
- Once the production well has been drilled, it has to be prepared to drain the hydrocarbons – a step called **completing**.

Handling of depleted well

- A well abandoned needs to be plugged so that its contents – both the hydrocarbons and the gases accumulating in the borehole – don't escape into their surroundings.

- The most exhaustive way to conclude operations at a well, whether on land or offshore, is to **decommission** it, but this process is expensive and often commercially infeasible for the proponent.
- Improperly abandoned wells are a major source of methane emissions – to go with the emissions released during the production and use of various components required to extract hydrocarbons.

Source:TH

SOIL ACIDIFICATION

Context

- A study published in the journal Science found that soil acidification may strip billions of tonnes of essential carbon and affect crop growth in India.

About the Soil Acidification

- It is a process where the **soil pH decreases over time**, primarily due to the removal of base cations (**Calcium, Magnesium, Potassium, and Sodium**) from the soil and their replacement with acid-forming Hydrogen and Aluminium ions.
 - ♦ It is accelerated by intense agricultural activity and that can affect both the surface soil and subsoil.

Causes of Soil Acidification

- **Natural Phenomena:** Soils acidify naturally through processes of soil formation. Weathering of soil minerals yields H⁺ ions, causing a decreasing pH over time.
 - ♦ Even unpolluted rain has a naturally acid pH of roughly 5.6, and therefore contributes to the process of soil acidification.
- **Anthropogenic Causes:** Soils are turning acidic due to industrial activities and intensive farming.
 - ♦ The application of high levels of ammonium-based nitrogen fertilisers to naturally acidic soils and leaching of nitrate nitrogen, originally applied as ammonium-based fertilisers, are some of the contributing factors to soil acidification.
- The **other causes** of soil acidification are long term rainfall, draining of potentially acid sulphate soils, acid deposition, excessive application of ammonium-based fertilisers, deforestation and land use practices that remove all harvested materials.

Extent of Soil Acidification

- **Globally:** The future global warming and soil pH changes will deplete SIC in the top 0.3 m of soil by 1.35, 3.45 and 5.83 gigatonnes of carbon (GtC) under different scenarios, where temperatures could likely reach around 1.8°C, 2.7°C and 4.4°C warming by 2100, respectively.
 - ♦ Further, every year, approximately 1.13 billion tonnes of inorganic carbon are lost from soils to inland waters.
 - ♦ It could have overlooked implications for carbon transport between the land, atmosphere, freshwater and ocean.
- **In India:** Over 30% of cultivable land is said to carry acidic soil, impacting plant growth in India, affecting about 48 million hectares (mha) out of 142 mha of arable land.
 - ♦ Acidic soils in India are widespread in the humid southwestern, northeastern and Himalayan regions.
 - ♦ The northeastern region, in particular, has recorded acidity in approximately 95% of the soils.

Impact of Soil Acidification

- Soil acidification creates an environment ripe for depletion of **soil inorganic carbon (SIC)**, which is important for soil health, ecosystem services, among others.
- Acidic soils affect crop growth and productivity by reducing the availability of plant nutrients.
 - ♦ It also predisposes plants to other biotic and abiotic stress factors.
 - ♦ Excessively acidic soils may lead to a dramatic decline in crop and pasture production because the pH of the soil changes the availability of soil nutrients.
- **In India**, soil acidification might lead to the loss of 3.3 billion tonnes of soil inorganic carbon (SIC) from the top 0.3 metres of its soil over the next 30 years.
 - ♦ It could hurt the health of soil and its ability to regulate nutrient levels, foster plant growth and store carbon.

Do you know?

- Carbon in soil can be stored in the form of **Soil Inorganic Carbon (SIC) or Soil Organic Carbon (SOC)**.

- ♦ **SIC** includes mineral forms of carbon like calcium carbonate produced by weathering parent material in soil or from the reaction of soil minerals with atmospheric carbon dioxide.
- ♦ **SOC** plays a role in nutrient cycling, is the main component of soil organic matter such as plant and animal waste, microbes and microbial byproducts.

Efforts to Improvement of Acidic Soil (Amelioration)

- **Sustainable methods** to lower soil acidity like compost and wood ash mix (rich in potassium) in acidic soil.
- **Management strategies** like achieve a high rate of crop recovery of applied nitrogen and sulphur fertilisers, and minimise leaching of nitrate-N by applying appropriate amounts of nitrogen fertiliser in a timely manner relative to crop need and with good irrigation management.
- **Liming**: It is carried out using any liming material **capable of neutralising soil acidity** and these materials are usually oxides, hydroxides and carbonates of Ca and Mg.

Government Efforts

- **Soil Health Card Scheme**: It provides farmers with information about the nutrient status of their soil, which helps them apply appropriate inputs to improve soil health and fertility.
 - ♦ It contains the status of soil with respect to 12 parameters, namely N, P, K (Macronutrients); S (Secondary nutrient); Zn, Fe, Cu, Mn, Bo (Micro - nutrients); and **pH**, Electrical Conductivity (EC), Organic Carbon (OC) (Physical parameters).
- **Paramparagat Krishi Vikas Yojana**: It promotes organic farming, which can help reduce soil acidity by improving soil organic matter.
- **Neem Coating of Urea**: The government has mandated the neem coating of urea, a chemical fertiliser.
 - ♦ It reduces the speed at which urea dissolves, thus ensuring that it is absorbed by plants and does not degrade the soil.
- **Save Soil Movement**: It focuses on five main things:
 - ♦ making the soil chemical-free;
 - ♦ saving the organisms that live in the soil;

- ♦ maintaining soil moisture;
- ♦ removing the damage happening to the soil due to less groundwater; and
- ♦ stopping the continuous erosion of soil due to the reduction of forests;

Conclusion

- Soil acidification is a significant environmental issue that needs immediate attention.
- It not only affects the health of the soil and its productivity but also has far-reaching impacts on the ecosystem and the livelihoods of the people dependent on agriculture.
- As we continue to grapple with this issue, it becomes imperative to adopt sustainable agricultural practices and effective soil management strategies to mitigate the impacts of soil acidification.

Source: DTE

RENEWABLE ENERGY CAPACITY OF INDIA

Context:

- According to the Ministry of New & Renewable Energy (MNRE), India has added 21% higher renewable energy capacity in 2023-24 than previous year.

About the Renewable Energy Capacity in India

- India, a country with a rapidly growing economy and increasing energy demands, has made significant strides in its renewable energy sector.
 - ♦ It added 18.48 GW of renewable energy capacity in the fiscal year 2023-24, which is over 21% higher than the 15.27 GW added a year ago.
- It was **primarily driven by solar installations** (12.78 GW) and **wind energy** (2.27 GW).
- The total installed renewable energy capacity has increased from **76.37 GW in 2014 to 178.98 GW in October 2023**, marking an increase of around 2.34 times.

Leading States in Renewable Energy

- **Gujarat and Rajasthan (27 GW each)** have the largest renewable energy capacities, followed by Tamil Nadu (22 GW), Karnataka (21 GW) and Maharashtra (17 GW).
- Himachal Pradesh and Andhra Pradesh (11 GW each) have installed renewable energy capacity.

India Towards a Greener Future:

- India aims to reach a non-fossil fuel energy capacity of **500 GW by 2030** and fulfil at least half of its energy requirements via renewable energy by 2030 **at the COP26**.
 - ◆ To achieve this ambitious target, the MNRE is targeting the bidding of around 50 GW of renewable energy projects per annum.
- India's **installed non-fossil fuel capacity** has **increased 396% in the last 8.5 years** and stands at more than 190.97 GW (including large Hydro and nuclear), about 44% of the country's total capacity (as of Feb 2024).
- India's renewable energy sector has the potential to employ around one million people by 2030, and most of the new jobs would be generated by **small-scale renewable energy projects**.

Challenges Faced by the Renewable Energy Sector in India

- **Financial Health of Power Distribution Companies (DISCOMs):** The poor financial condition of power distribution companies (discoms), which are mostly owned by state governments.
 - ◆ Almost all renewable energy is purchased by such discoms, resulting in very long and unsustainable payment cycles.
- **Land Utilisation and Availability:** Issues such as lack of a proper **Land Utilisation Policy**, poorly maintained land records, land ceiling limits, and the task of obtaining permissions from local bodies act as roadblocks to the implementation of large-scale renewable energy projects.
- **Rapid Demand Growth and Chronic Supply Shortages:** India currently experiences a significant increase in energy demand driven by rapid economic growth, which necessitates a shift away from fossil fuels.
 - ◆ However, fossil fuels still dominate global energy consumption, continuing to raise GHG emission levels.

Government Efforts in India's Renewable Energy Sector

- **Permitting FDI:** India has permitted FDI up to 100% under the automatic route to attract foreign investments.

- **Waiver of Inter State Transmission System (ISTS) charges:** For inter-state sale of solar and wind power for projects, ISTS charges have been waived off.
- **Major Renewable Energy Schemes and Programmes:**
 - ◆ Scheme for Development of Solar Parks and Ultra-mega Solar Power Projects;
 - ◆ Central Public Sector Undertaking (CPSU) Scheme Phase-II;
 - ◆ Production Linked Incentive (PLI) Scheme 'National Programme on High Efficiency Solar PV Modules';
 - ◆ PM-KUSUM Scheme;
 - ◆ Rooftop Solar Programme Phase II;
 - ◆ Green Energy Corridors (GEC), and;
 - ◆ Bio-Energy Programme.
- **Increasing Awareness:** Efforts have been made by the Government to increase awareness about the use of renewable energy through introduction of various schemes and publicity through print and media.

Conclusion:

- India's record addition of renewable energy capacity in FY24 is a testament to the country's commitment to a sustainable and green future.
- As the world grapples with the challenges of climate change, India's strides in renewable energy offer a beacon of hope and a model for other countries to follow.

Source: ET

GROWTH IN AGRICULTURE AND ALLIED SECTORS**Context**

- According to NITI Aayog, The agriculture and allied sectors may register more than 6% growth in 2024-25.

About

- The year 2024-25 will be highly favorable for agriculture, mainly due to two factors.
 - ◆ One, the monsoon rainfall will be normal or above normal, as per reports by various agencies. Even in terms of regional distribution, the forecasts are encouraging.

- ◆ Two, the agriculture growth in 2023-24 was 0.67%, which means the base for 2024-25 is low.

Agriculture Sector in India

- India is one of the major players in the agriculture sector worldwide and it is the primary source of livelihood for **~55%** of India's population.
- It is the **second-largest** producer of fruit, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.
- India occupies **fifth place** globally with a total area of 2.66 million hectares in organic farming.

Recent Trends

- **The share of agriculture in total Gross Value Added (GVA)** of the economy has declined from **35% in 1990-91 to 15% in 2022-23**, mainly due to rapid expansion in the industrial and service sector GVA.
 - ◆ In growth terms, the agriculture and allied sector has registered an average annual growth of **4%** during the last five years.
- **Fall in the Agricultural Prices:** The stagnation or fall of agricultural prices in the market was not ameliorated by equivalent rise in minimum support prices (MSP).
 - ◆ For major foodgrain crops, the MSPs rose by an average **5%** per annum between 2013-14 and 2023-24.
- **Real Income of Farmers:** The real incomes of agricultural households from cultivation fell by about **1.4%** between 2012-13 and 2018-19.
 - ◆ The fall of incomes from cultivation was not only owing to the stagnation or fall of agricultural prices, but also due to a sharp rise in the costs of inputs in agriculture, particularly fertilizers.
- **Public Investment:** The public investment in agriculture, in general as well as in specific fields like agricultural research and extension, were stubbornly stagnant, and occasionally even fell, over the past decade.
 - ◆ Consequently, capital investment in agricultural and allied sectors did not rise.
- **Rising prices:** The real prices of agriculture have been rising for several years. The **wholesale price index (WPI)** of agri-commodities is rising faster than non-agri-commodities.

Major Challenges Faced by the Agricultural Sector

- **Water scarcity & irrigation:** India's agriculture is heavily dependent on monsoon rain, making it vulnerable to droughts and inconsistent rainfall patterns.
 - ◆ Access to irrigation facilities and water management are crucial challenges, particularly in regions with limited water resources.
- **Lack of access to credit & finance:** Small and marginal farmers often face difficulties in accessing credit and financial services.
 - ◆ Limited availability of affordable credit restricts their ability to invest in modern farming equipment and quality seeds and fertilizers, hampering their productivity.
- **Small landholdings:** Average farmers are small landholders, leading to fragmented and uneconomical farming practices.
 - ◆ This makes it challenging for them to adopt modern agricultural methods and technologies, resulting in lower productivity.
- **Outdated farming practices:** A significant portion of Indian farmers still rely on traditional and outdated farming methods.
 - ◆ Limited access to information, lack of awareness about modern techniques and resistance to change hinder the adoption of advanced farming practices.
- **Market volatility & price fluctuations:** Farmers in India often face price volatility due to lack of effective market linkages, intermediaries and price information.

Developmental programmes implemented by government

- **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):** It is an income support scheme providing Rs. 6000 per year in 3 equal installments.
- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** This scheme focuses on improving water use efficiency in agriculture.
 - ◆ It includes components such as micro-irrigation, watershed development, and the promotion of efficient water management practices.
- **Pradhan Mantri Fasal BimaYojana (PMFBY):** It was launched in 2016 addressing problems of high premium rates for farmers and reduction in sum insured due to capping.

- **Per Drop More Crop:** The scheme aims to increase water use efficiency, reducing cost of inputs and increasing productivity at the farm level through Micro Irrigation technologies.
- **PM-AASHA (Pradhan Mantri Annadata Aay Sanrakshan Abhiyan):** This scheme aims to ensure that farmers get remunerative prices for their produce.
 - ♦ It comprises Price Support Scheme (PSS), Price Deficiency Payment Scheme (PDPS), and Pilot of Private Procurement & Stockist Scheme (PPPS).
- **Namo Drone Didi:** The scheme aims to provide drones to 15000 selected Women SHGs for providing rental services to farmers for agriculture purposes (application of fertilizers and pesticides).
- **Kisan Credit Card (KCC) Scheme:** The KCC scheme provides farmers with credit at subsidized interest rates, facilitating timely access to credit for agricultural and allied activities.
- **National Agriculture Market (e-NAM):** The e-NAM is an online platform that aims to create a unified national market for agricultural commodities.
 - ♦ It enables farmers to sell their produce to buyers anywhere in the country, promoting transparency and fair pricing.

Way Ahead

- Substantial increase in farmers income and transformation of agriculture require a paradigm shift in the entire approach towards the agriculture sector.
- Advancement in science led technology, enhanced role of private sector in both pre and post harvest phases, liberalized output market, active land lease market, and emphasis on efficiency will equip agriculture to address challenges.
- A well co-ordinated action and strategy between the Centre and the states is needed to ensure that agriculture marches to the next stage of development along with other sectors.

Source: TH

INDIA CALLED FOR UNSC REFORMS

Context

- India reiterated its stance on the **urgent need for genuine reform of the UN Security Council.**

About

- During the **6th round of the intergovernmental negotiations** of UNSC, India favoured expansion of UN Security Council membership in both the **permanent and non permanent categories.**
- Total of **113 member states out of 122** supported expansion in both of the existing categories specified in the charter.
 - ♦ This means that **more than 90 percent** were in favour of expansion in both categories of membership specified in the charter.

About the UNSC

- The United Nations Security Council (UNSC) is **one of the principal organs** of the United Nations, responsible for **maintaining international peace and security.**
- It was established in **1945** as part of the UN Charter and is composed of **15 member states**, including **five permanent members** with veto power—China, France, Russia, the United Kingdom, and the United States—and **ten non-permanent members** elected for **two-year terms** by the General Assembly.
 - It is headquartered in **New York City.**

Need for the Reforms in the UNSC

- **Under-Representation:** The current composition of the Security Council has **under-representation and un-representation of key regions.**
 - ♦ It fails to represent the diversity of today's world, with emerging powers like India, Brazil, and South Africa, as well as regions like Africa, being underrepresented or not represented at all.
- **Inability to Adress Conflicts:** The current composition of the council has an **inability to address critical conflicts** and maintain international peace and security.
- **Changes in World Order:** The world has undergone **a sea change since 1945** and the **new realities need to be reflected** in the permanent membership.
 - ♦ Any proposal that does not address the issue of representation of the Global South, including Africa, Asia and Latin America, in the permanent category does a grave **injustice to the aspirations of developing countries for equality.**

- **Veto Power:** Currently, **only the five permanent members** hold veto powers and through its use have stalled action in the Council to address global challenges and conflicts such as in Ukraine and Gaza.
 - ♦ The remaining 10 nations in the Council are elected to sit as non-permanent members for two-year terms and **do not have veto powers.**
- **Legitimacy:** The disproportionate power held by the five permanent members, particularly their veto power, **can lead to a perception of unfairness and lack of legitimacy.**
- **Transparency and Accountability:** Critics argue that the UNSC operates with a lack of transparency and accountability, with decisions often made behind closed doors and without sufficient consultation with other UN member states.

Limitations in Introducing the Reforms in UNSC

- **Veto Power of Permanent Members:** Any reforms to the composition or working methods of the UNSC require the approval of the five permanent members.
 - ♦ These countries have divergent interests and are reluctant to support changes that could diminish their influence within the Council.
- **Regional Dynamics:** Regional rivalries and geopolitical tensions complicate efforts to reform the Council.
- **Complexity of the Reform Process:** Amending the UN Charter to enact reforms requires a lengthy and complex process involving ratification by a significant number of member states, making it difficult to enact substantive reforms.
- **Chinese Opposition:** China being a permanent member blocks the growth of India becoming a Permanent Member.

Way Ahead

- It is important that both the **permanent and non-permanent membership** be representative of the world as it is today, not the world as it existed in the wake of the Second World War.
- Reforms in the UNSC are essential for maintaining its relevance, legitimacy, and effectiveness in addressing the complex security challenges faced by the international community.

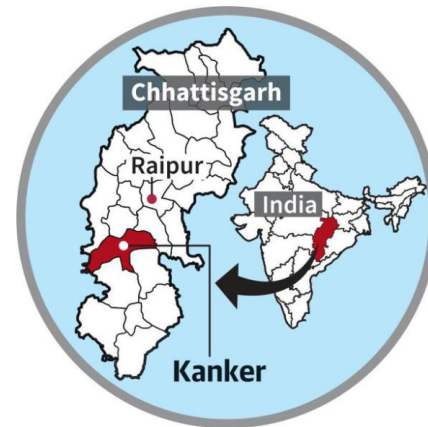
- However, achieving consensus on such reforms among the UN's member states remains a challenging and ongoing process.

Source: ET

NAXALISM IN INDIA

Context

- At **least 29 Maoists** were killed in an operation by security forces along the **Kanker-Narayanpur border in Chhattisgarh's Bastar.**



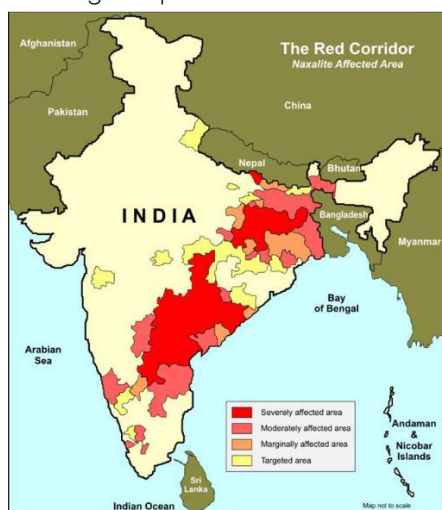
Naxalism Problem

- **Naxalism or Left Wing Extremism (LWE)** is one of the major challenges to India's internal security.
- Naxal affected areas in India are known as the **'Red Corridor'**.
- **Reason for Naxalism:** Naxalites seek to overthrow the State through violent means.
 - ♦ They openly proclaim lack of faith in the democratic means of ballot and adhere to the violence as a means of achieving their ends.
- **Initial Stage:** The Naxal movement started with the **tribal-peasant uprising against landlords in Naxalbari village** of Darjiling district, West Bengal in **1967**.
 - ♦ The uprising was led by leaders such as **Charu Majumdar, Kanu Sanyal and Jangal Santhal.**
- **Communist Party of India (Maoist):** In **2004**, two main naxal groups, namely the **Maoist Communist Centre of India (MCCI)** and **People's War** merged to form the **CPI (Maoist) party**.
 - ♦ Eventually, by **2008** most of the other Naxal groups were merged into CPI (Maoist) which emerged as the **umbrella of Naxalite outfits.**

- ♦ The CPI (Maoist) and all its front organization formations have been included in the list of **banned terrorist organizations** under the **Unlawful Activities (Prevention) Act, 1967**.

Presence of Maoists in India

- The States of **Chhattisgarh, Jharkhand, Orissa and Bihar** are considered **severely affected**.
- The States of **West Bengal, Maharashtra and Andhra Pradesh** are considered **partially affected**. The States of UP and MP are considered slightly affected.
- The CPI(Maoist) are making forays into Southern States of **Kerala, Karnataka and Tamil Nadu** and planning to link up the Western Ghats to the Eastern Ghats through these states.
- They are attempting incursions into **Assam and Arunachal Pradesh**, which has serious long-term strategic implications.



Causes of Naxalism

- **Marginalisation:** Naxalites do not belong to any particular religion, or community, but largely are Dalits, Adivasis and other marginalised sections of society.
 - ♦ They are led by people totally indoctrinated by the teachings of Mao. The basic issues are land reforms and economic development. The ideological dimension is provided by Maoism.
- **Support Base of Naxalites:** Naxalite movement has its support among the landless, share-croppers, agricultural labour, Harijans and tribals.
 - ♦ As long as these people are exploited and social justice continues to be thwarted, this support base of the Naxalites will continue.

- **Forest Management and Livelihood of Tribals:** For tribals, forest, land, and water mean their livelihood. They have been deprived of these under various acts and orders which increased the resentment against the authorities.
- **Lack of Development:** Absence of developmental activities and virtual absence of health care, drinking water, roads, electricity and educational facilities in areas where Naxalism has taken roots.

How Naxalites Possess a Challenge for Country?

- **Vulnerability to External Threats:** The Maoist movement highlights India's interior weaknesses, which makes India also vulnerable to external threats.
 - ♦ The CPI (Maoist) have close fraternal ties with many North-East insurgent groups.
 - ♦ Most of these outfits have linkages with external forces hostile to India.
 - ♦ The CPI (Maoist) have also frequently expressed their solidarity with the J&K terrorist groups.
- **Impediments to Economic Development:** The Maoists concentrate on the poor and marginalized regions of India, the more economic development (which is imperative to improving those regions conditions) will be hampered. Internal order and stability are necessary for a nation's economic development.
- **Additional Expenses on Internal Security:** The Naxalite activities are using up scarce resources on defence and internal security when it should be spent on areas such as social development.
- **Adverse Impact on Governance:** In the areas under Maoist domination, the absence of governance, which is created by their violent methods in the first place.
 - ♦ The service delivery systems are extinguished through killing, kidnap, intimidation and extortion.

Government of India's Approach

- **Deployment of the Central Armed Police Forces (CAPFs):** Battalions of the CAPFs/Naga Battalions (BNs) are deployed for assisting the State Police in the LWE affected States.
- **Security Related Expenditure (SRE) Scheme:** Funds are provided for meeting the recurring expenditure relating to insurance, training and operational needs of the security forces, rehabilitation of Left Wing Extremist cadres who surrender, and publicity material to create awareness against violence.

- **Review and Monitoring Mechanisms:** A number of review and monitoring mechanisms have been put in place by the Government and the Ministry of Home Affairs monitors the situation on a regular basis at various levels.
- **Strengthening the Intelligence Gathering Mechanism:** Several steps have been taken to strengthen and upgrade the capabilities of intelligence agencies at the Central and State levels.
 - ♦ These include intelligence sharing through Multi-Agency Centre (MAC) at the Central and State levels, and Multi Agency Centre (SMAC) at the subsidiary level on a 24x7 basis.
- **Better Inter-state Coordination:** The area of operation of the Maoist cadres is not confined to one single State. It is often spread over two or more States.
 - ♦ To improve inter-state coordination the government conducts frequent meetings and interactions between the official machinery of the bordering districts of Left Wing Extremism affected States across the country.
- **Tackling the challenge of Improvised Explosive Devices (IEDs):** IED is the most potent weapon in the hands of Maoists.
 - ♦ The Union Home Ministry has formulated a Standard Operating Procedure (SOP) on 'Issues related to Explosives/IEDs/Landmines in naxal affected areas' and the same has been circulated to the stakeholders for compliance.
- **Strengthening of air support:** State Governments and the CAPFs have been provided with enhanced air support in terms of UAVs and helicopters for anti-naxal operations, including evacuation of casualties/injured persons.

Way Ahead

- There is a widely accepted view that the Naxal problem can be tackled successfully through a **combination of development and security related interventions.**
- The problem is not to be viewed entirely as a law and order issue. Often, innocent tribals who live in the interior forest regions fall prey to Naxal intimidation.
- Re-establishing control over Naxalite affected areas, their development, and enabling the marginalized people living there to lead a secure, dignified and better quality of life is vital.

- It is note-worthy that due to the measures initiated by the Government, LWE violence has significantly declined in the last few years.

Source: TH

NEWS IN SHORT

JIADHAL RIVER

Context

- Excessive rainfall, caused by changing climate, has triggered unprecedented shifts in the course of the Jiadhal river.

About

- **The Jiadhal River** is a northern sub-tributary of the Brahmaputra River in the Indian state of Assam.
- The river originates from the hills of **Arunachal Pradesh.**
- The Jiadhal river flows through the Dhemaji district of Assam and takes the name of **Kumotiya River** from Gogamukh.
- The river finally joins **Subansiri river**, a major tributary of Brahmaputra River.
- Jiadhal River is known as '**Sorrow of Dhemaji**' for the heavy damage caused by annual flood and erosion.

Source: DTE

LAKE KARIBA

Context

- Water levels at Lake Kariba have dropped to just 13.52% of its capacity because of the latest El Niño drought.

About

- **Lake Kariba** is the world's **largest artificial lake** and reservoir **by volume.**
- **Location:** It was formed by damming the **Zambezi River** in the Kariba Gorge in central Africa.
 - ♦ It lies 1,300 kilometers upstream from the Indian Ocean, along the border between **Zambia and Zimbabwe.**
- **Islands:** The lake has several islands, including Maaze Island, Chete Island, Sekula, Sampa Karuma, Fothergill, Spurwing, Bed Island etc.

Source: Phys.org

THIRUVALLUVAR

In News

- Establishment of Thiruvalluvar Cultural Centres globally proposed in a political manifesto.

About Thiruvalluvar



- Thiruvalluvar was a celebrated Tamil poet and scholar .
 - He is a venerated figure in Tamil culture.
- The historicity of Thiruvalluvar is uncertain.
- The period during which he lived is debated, as is his religious affiliation. Some accounts place him in the 3rd or 4th century CE; others date him to around 500 years later, in the 8th or 9th century.
- He has been identified as both a Hindu and a Jain sage, while Dravidian groups consider him as a saint with no religious identifiers except his Dravidian roots.
- Works :** He is best known as the author of 'Tirukkural', a collection of couplets on matters like ethics, politics, economics and love.
 - Tirukkural is considered one of the greatest works in Tamil literature.
 - He has influenced a wide range of scholars through the years in disciplines like ethics, politics, economics, philosophy and spirituality.

Source:HT

MENINGITIS

Context

- Nigeria** has become the **first country in the world** to introduce a **new, highly effective vaccine against meningitis**.

About

- Meningitis is a dangerous **inflammation of the membranes** surrounding the **brain and spinal cord**.

- It can be caused by **viruses, bacteria, fungi, or parasites** and can lead to serious complications, including **brain damage, hearing loss and learning disabilities**.
- Bacterial meningitis, specifically caused by the **meningococcus bacteria**, is a particular concern in Africa.
 - A region of **26 countries known as the "African meningitis belt"** stretches across the continent, including Nigeria.
- The vaccine, called **Men5CV**, is recommended by the World Health Organization (WHO) and offers protection against five strains of the meningococcus bacteria in a single shot.

Source: DTE

ADVANCE PRICING AGREEMENTS

Context

- The Central Board of Direct Taxes (CBDT) has entered into a record 125 **Advance Pricing Agreements (APAs) in FY 2023-24 with Indian taxpayers**.

About

- This marks the **highest ever APA signings** in any financial year since the **launch of the APA programme in 2012**.
- During FY 2023-24 CBDT also signed the **maximum number of Bilateral APAs in any financial year till date**.
 - The BAPAs were signed as a consequence of entering into **Mutual Agreements with India's treaty partners namely Australia, Canada, Denmark, Japan, Singapore, the UK and the US**.
- An advance pricing agreement (APA) is a **formal arrangement between a tax authority and a multinational enterprise (MNE)** in which the parties jointly agree on the **MNE's transfer pricing methodology**, estimated taxable income, and tax payments for a **fixed period**, thus reducing the likelihood of an **income tax dispute**.
- The APA program addresses actual or potential disputes and provides tax certainty to MNCs by **allowing them to negotiate how profit margins for India operations will be calculated**.

Source: PIB

SOVEREIGN GREEN BONDS

Context

- Recently, the Reserve Bank of India (RBI) allowed investments in the country's Sovereign Green Bonds (SGB) by Foreign Institutional Investors (FIIs).

Sovereign Green Bonds (SGB)

- These are a **kind of government debt** that specifically funds projects attempting to **accelerate India's transition to a low carbon economy**.
- These bonds are specifically earmarked for funding **green projects, assets, and expenditures** that contribute to environmental sustainability and climate objectives.

Why has RBI allowed FIIs to invest in its Green Bonds?

- Attracting Foreign Investments:** By allowing FIIs to invest in green bonds, India attracts foreign capital into its green projects.
 - FIIs are investors such as insurance companies, pension funds and nation-states' sovereign wealth funds.
- Widening the Pool of Capital:** Allowing FIIs to invest in India's green projects expands the sources of funding available for the country's ambitious climate goals, including **achieving net zero emissions by 2070** and increasing the share of non-fossil fuel-based energy sources to 50%.
- Meeting Climate Commitments:** India pledged at **COP26** to reduce India's carbon emission by 45% and increase the share of renewable energy in the country's energy mix.
- Diversification of Investments:** FIIs are looking to diversify their portfolios and seek opportunities in green investments due to regulatory support, particularly in developed countries.
 - India's Sovereign Green Bonds Framework (2022)**, addresses **concerns about greenwashing** by providing a credible framework for green investments.

Source: TH

IMPORTED INFLATION

Context

- The **Asian Development Bank (ADB)** recently warned that India could face **imported inflation** as the rupee could depreciate amid the **rise in interest rates in the West**.

Imported Inflation

- It refers to the **rise in the prices of goods and services** in a country, caused by an increase in the price or the cost of imports into the country.
- It is believed that a rise in input costs pushes producers to raise the price they charge from their local customers.

Causes

- Depreciation of a Currency:** When a country's currency depreciates, people in the country will have to shell out more of their local currency to purchase the necessary foreign currency required to buy any foreign goods or services.
 - It effectively means that they will be paying more for anything that they import.
- Rise in International Crude Oil Prices:** It is due to a fall in oil output. It is expected to cause prices to rise across an economy which imports oil to produce goods and services.

Impact

- Imported inflation can lead to higher prices for goods and services, which can reduce purchasing power and lead to a decrease in consumer spending.
- It can slow down economic growth and lead to economic instability.

Source: TH

CHAGAS DISEASE

In News

- 14th April is marked as the World Chagas Disease Day.

About Chagas Disease

- It is named after **Carlos Chagas**, a **Brazilian physician** and researcher who on 14 April 1909 diagnosed the disease in a person for the first time.
- It is an **infectious disease** caused by a protozoan parasite (**Trypanosoma cruzi**).
- Affected Areas and Distribution:** It is found mainly in endemic areas of 21 continental Latin American countries where transmission is largely related to the vector presence.
- Transmission:** In Latin America, *T. cruzi* parasites are mainly transmitted by contact with faeces/urine of infected blood-sucking triatomine bugs.

- **Treatment:** Chagas disease can be treated with benznidazole or nifurtimox.
- **Control and prevention :** The large reservoir of T. cruzi parasites in wild animals throughout the Americas means that the infection cannot be eradicated.
- Instead, the public health targets are elimination of the transmission to humans, early health-care access and life-long follow up of the infected people.

Source: TOI

