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THE HINDU

GS 2 : Polity, Governance, International Relations

1. More Than a Tweak need for Judicial Selection

In News : Recently, new judges have been appointed to the Supreme Court and long overdue vacancies have been filled up.

- SC Collegium has also made proposals to alter the existing composition of various High Courts. When these recommendations are notified new Chief Justices will be appointed to as many as eight different courts, five existing Chief Justices will swap positions with others.

Concerns

- Collegium system finds **no mention in the actual text** of the Constitution.
- Long-standing criticism about the collegium's operation remain unaddressed i.e its **opacity and a lack of independent scrutiny** of its decisions.
 - There is lack of transparency as to why five Chief Justices are now being transferred to different courts.
 - For nearly two years, despite vacancies on the Bench, the collegium made no recommendations for appointments to the Supreme Court.
- Our constitutional scheme envisages no power of administrative superintendence in the Supreme Court over the High Courts. But when transfers are made routine, when the process of appointing Chief Justices to High Courts is shrouded in secrecy, **a de facto system of oversight on High Courts** is put in place.
- The procedure to be followed by the collegium system is contained in a "Memorandum of Procedure" (MoP). However, there is no actual guidance on how judges are to be selected.
- Supreme Court struck down National Judicial Appointments Commission (NJAC), created by 99th Constitutional Amendment Act. This was done on the grounds that judicial primacy in making appointments and transfers was an essential feature of the Constitution.
 - NJAC would have been responsible for the recruitment, appointment and transfer of Judges of Higher Judiciary.
 - JNAC was to be comprised of members from the judiciary, the executive, and the lay-public.
- But when the Court struck down the NJAC in 2015, it also promised to **reform the existing system**. Six years down the line those promises have been all but forgotten.
 - A new MoP, for instance, has not moved forward.

- The considerations that must go into the procedure for selecting judges is left unexplained.
- The words “merit” and “diversity” are mentioned without any corresponding debates on what they mean.

Conclusion

At some point India must take seriously the task of reforming the existing Collegium scheme, because the status quo is ultimately corrosive of the very institutions that it seeks to protect.

2. WHO thanks India for restart of vaccine export

In News:

- World Health Organisation (WHO) chief recently thanked Indian Union Health Minister for announcing the **resumption of COVID-19 vaccine shipments to the COVAX global pool** which will help address the vaccine inequity issue.
- **COVAX is one of three pillars of the Access to COVID-19 Tools (ACT) Accelerator**, which was launched in response to the COVID pandemic.
 - ACT accelerator aims at bringing together governments, global health organisations, manufacturers, scientists, private sector, civil society and philanthropy, with the aim of providing innovative and equitable access to COVID-19 diagnostics, treatments and vaccines.

COVAX (COVID-19 Vaccines Global Access) aims to **accelerate the development and manufacturing of COVID-19 vaccines, and guarantee fair and equitable access for every country**. COVAX is co-led by the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi and WHO, with UNICEF as a key delivery partner.

How does COVAX Work?

The COVAX Facility pools participants' buying power by getting vaccine manufacturers to produce the vaccines at scale and make risky early investments in manufacturing capacity. The idea is that by pooling these resources, COVAX will ensure rapid access to new vaccines as they are developed.

COVAX Facility is the vaccine procurement platform of COVAX.

India and COVAX

India joined COVAX through its membership with GAVI. The Serum Institute of India (SII) is the chief manufacturer of the Oxford–AstraZeneca vaccine. In March 2021, India began donating or selling vaccines to countries in North Africa, Eastern

Europe, West Africa and the Middle East. India, the world's biggest producer of vaccines, was initially the main source of COVID-19 shots for the COVAX programme, but halted its exports in April 2021 after a massive second wave of COVID-19 infections, having sold or donated 66 million shots. Contribution of vaccines from India to COVAX have been affected by the surge in cases in India and the increased domestic demand for vaccines. It was also affected by a US ban on the export of raw materials earlier.

3. Role of Pakistani elements in Drug haul being examined

In News:

- **3,000 kilograms of heroin** were seized by the Indian law enforcement agencies at Gujarat's Mundra Port.
- The drugs were **shipped from Afghanistan**. The seized heroin was exported by a Kandahar-based Hassan Hussain Limited and imported by Vijayawada-based trading company via Bandar Abbas Port, Iran to Gujarat's Mundra Port.

Role of Afghanistan in drug trafficking:

- The seizure of this large haul of heroin raises **serious questions about the Taliban's promise to stop drug production and its trade using the soil of Afghanistan** given the fact that drug trafficking remains one of the biggest sources of income and funding for the Taliban.
- Notably, after the Taliban announced a ban on the production and supply of narcotics, the rate of heroin and opium almost doubled within a few days in the local and international markets.
- **Afghanistan controls 80 to 90 per cent of opium and heroin supply in the world**, according to the United Nations Office on Drugs and Crime (UNODC).

Details:

- With the Taliban's rise to power in Afghanistan, the **Indian anti-drug law enforcement agencies are suspecting a steep surge in cross-border trafficking of heroin and crystal methamphetamine**.
 - Heroin is a depressant and is manufactured from opium.
 - Methamphetamine is a stimulant that is mainly used as a recreational drug. The drug is prepared using ephedrine extracted from Ephedra plants.

This projection is based on the following recent reports.

There have been reports of an **increase in drug trafficking in the region, mostly through maritime routes**. Several seizures of Afghan-origin heroin and methamphetamine in the high seas of the region have been made in the recent past.

Security threat to India:

- The Indian investigators are still trying to find out the purpose of the import of such a huge quantity of heroin in India. **Narcotics trade has been used for decades to fund terrorist activities inside India**. On regular basis, consignments of drugs are seized at the Punjab and Jammu borders which are sent from Pakistan to fund terrorist organisations.
- A **possible role of Pakistan-based elements** is also being examined. The syndicate had roped in several local people to facilitate the smuggling.

4. Single window for businesses : Goyal

In News :

- Commerce and Industry Minister soft-launched the National Single Window System (NSWS) for investors and businesses.

National Single Window System (NSWS):

- The National Single Window System (NSWS) portal will serve as a one-stop shop **for investors for approvals and clearances**.
- NSWS will provide **end-to-end facilitation and support to investors**, facilitate clearances at the Centre and State levels, provide pre-investment advisory to new businesses, and share information related to land banks.
- The portal, as of today, hosts approvals across 18 Central Departments and nine States, and another 14 Central Departments and five States will be added by December 2021.
- By bringing transparency, accountability and responsiveness in the ecosystem, it will help **promote the ease of doing business**.

Details:

- The single window portal will become a one-stop-shop for investors for approvals and clearances.
- The system is expected to bring in transparency, accountability and responsiveness in the ecosystem and all information will be available on a single dashboard.

- An applicant Dashboard would be there to apply, track and respond to queries.
- The portal currently hosts approvals across 18 Central Departments and 9 States, and another 14 Central depts and five states will be added by December 2021.
- The NSWS provides the following services:
 - **Know Your Approval (KYA) Service:** It generates a list of approvals required by any business to commence operations. It does so by asking the investor a series of dynamic questions about their planned business activities and identifies the applicable approvals on the basis of responses provided. This service is for guidance purpose only.
 - **Common Registration Form:** To ensure a single point of submission of information and documents across Ministries and States, a unified information capturing system along with a common registration form has been introduced.
 - **State registration form:** Enables investor to have seamless single click access to respective State Single Window System.
 - **Applicant dashboard:** Provides a single online interface to apply, track and respond to the queries pertaining to approvals and registrations across ministries and States.
 - **Document repository:** An online centralized storage service for investors to enable one-time document submission and use the same across multiple approvals eliminating the need for submitting documents at multiple portals.
 - **E-Communication module:** Enables online response to queries and clarification requests related to applications by Ministries and States.

GS 3 : Economy, Science and Technology, Environment

5. Improving the economic game

In News :

The Quad (Australia, Japan, India and the U.S.) will meet in a landmark physical summit at the White House, hosted by US President Joe Biden.

Agenda:

- The agenda for the Quad has widened.
- So far, its goal was focused largely on strengthening strategic and defence pillars.

- The earlier virtual meet captured the spirit of the Quad, stressing democratic values, while pledging to strengthen cooperation on the defining challenges of the times.
- On the economic side, challenges were identified as the economic and health impacts of COVID-19, cyberspace, critical technologies, and quality infrastructure investment.
- Working groups were set up on vaccines, critical and emerging technologies, and climate action.
- It is believed that “industry” would also be brought into the present dialogue process in order to advance the desired outcomes.

India and QUAD’s economic engagement:

- The QUAD nations are vibrant democracies and open economies. Three are developed countries and one is an emerging market (India).
- For India, each of the other three countries is a strategic partner, and bilateral and multilateral initiatives have been taken across multiple areas in different fora.
 - The Quad is in line with India’s other regional programmes such as the Indo-Pacific Oceans’ Initiative and the Supply Chain Resilience Initiative (SCRI).
 - The SCRI with India, Australia and Japan aims to address vulnerabilities in existing supply chains that were exposed during the COVID-19 pandemic.

India’s total trade with the three Quad partners was over \$108 billion in 2020-21, accounting for almost 16% of its total merchandise exports and imports.

On the investment side, the U.S. is India’s second-largest source of foreign direct investments, while Japan has a significant footprint in India’s major infrastructure projects.

While inflows from Australia amount to less than a billion dollars, it has outlined a long-term strategy for economic engagement with India.

Way Forward:

- The first piece of the economic pillar is trade and investment.
 - Joint efforts by all Quad countries can help to establish alternative manufacturing hubs and make regional supply chains more diversified. In order to advance their goals for a free, open and inclusive Indo-Pacific, the Quad members must activate business partnerships with definitive measures.
 - This will help the participant countries align their economic and strategic objectives.

The Quad could consider adding a trade ministers' interaction to its agenda.

- It can facilitate lowering trade barriers and boosting trade linkages among the partner countries as well as in the Indo-Pacific region.
- With India as a natural option for a China-Plus strategy, domestic policies to promote manufacturing and ease of doing business would help in the long-term success of trade cooperation.
- Innovative financing and public-private partnership models can enlarge the space for private industry and support public funds. Climate change is also a priority for the QUAD and a working group has been set up.
- Cooperation on multiple dimensions of the climate challenge is proposed, including finance, emissions reduction, technology and capacity-building.
- The involvement of industry to support governmental efforts would be critical.

Conclusion:

The QUAD is a formidable economic force that can deliver many gains on the identified pillars for the members as well as the region. By adding businesses to its agenda, its initiatives can be further fortified and expanded. The governments must consider a forum for private sector engagement.

6. Sea level rise is certain

The article talks about the inevitable rise in sea levels owing to climate change and its implications for the future, despite a reduction in emissions.

In News :

The Intergovernmental Panel on Climate Change (IPCC) Assessment Report from Working Group I – 'Climate Change 2021: The Physical Science Basis' provides one of the most expansive scientific reviews on the science and impacts of climate change.

- The report discusses five different shared socio-economic pathways for the future with varying levels of greenhouse gas (GHG) emissions.
- Even in the intermediate scenario, it is extremely likely that average warming will exceed 2°C near mid-century.

Sea Level Rise – A Major Concern:

- Sea level rise will continue after emissions no longer increase, because oceans respond slowly to warming.
- The centennial-scale irreversibility of sea-level rise has implications for the future even under the low emissions scenarios.

- Sea level rise occurs mainly due to the expansion of warm ocean waters, the melting of glaciers on land, and the melting of ice sheets in Greenland and Antarctica.
 - The global mean sea level (GMSL) rose by 0.2m between 1901 and 2018.

Projections based on structured expert judgments indicate that sea-level rise as high as 2.3m by 2100 cannot be ruled out. According to the UN Environment Programme Emissions Gap Report, the world is heading for a temperature rise above 3°C this century (double the Paris Agreement aspiration). And there is deep uncertainty in sea-level projections for warming above 3°C.

Understanding the risks involved from climate change and sea-level rise in the 21st and 22nd centuries is crucial.

- Close to 700 million people worldwide live along the coast.

Issues:

- Scientists rely on ice sheet models to estimate future glacier melt.
 - While these models have improved over the years, there are shortcomings in the knowledge and representation of the physical processes.
 - Ice sheets can destabilise rapidly as the water gets warm. Such changes are difficult to model and marine ice cliff instability (MICI) events are not included in the sea-level projections.
 - The models do not capture the abrupt and non-linear dynamics of changes that take place.

Besides, changes in ice-ocean interactions can cause extensive and rapid sea-level rise.

- This happens from the mass loss of ice shelves (ice that flows into cold oceans while attached to the land), which may disintegrate suddenly.

Therefore, using ice sheet models coupled with ocean models to create probabilistic scenarios for the future is tricky.

Vulnerability in India:

- Communities along the coast in India are vulnerable to sea-level rise and storms.
- With climate change, storms will become more intense and frequent. They will be accompanied by storm surges, heavy rain and flooding.
- Even the 0.1m to 0.2m rise expected along India in the next few decades can cause frequent coastal flooding.

Way Forward:

- The uncertainty regarding a metre or more of sea-level rise before 2100 is related to a lack of knowledge and inability to run models with the accuracy needed. Ignoring the unknowns can prove dangerous.
- Adaptation to sea-level rise must include a range of measures, along with coastal regulation, which should be stricter.
- Coastal communities should be alerted in advance and protected during severe weather events.
- Natural and other barriers should be considered in a limited manner to protect certain vulnerable areas.
- Retreat should be part of the adaptation strategies for some very low-lying areas.

7. Global air quality norms tighten by WHO

In News:

- The **World Health Organization (WHO)** has updated the **global air pollution standards** and set stricter standards.

Background:

Air pollution:

- Air pollution is a **severe health crisis**.
- Every year, exposure to air pollution is estimated to cause **7 million premature deaths** and result in the **loss of millions more healthy years of life**.
 - Long-term exposure to outdoor and household air pollution leads to stroke, heart attack, diabetes, lung cancer, chronic lung diseases and neonatal diseases.

Indian scenario:

- Major cities in India **experience annual PM2.5 and PM10 trends much higher than the WHO's air quality guidelines**.
 - In fact, in 2020, the annual average level of PM2.5 in Delhi was 98 micrograms per cubic metre, against the national standard of 40.

According to the **State of Global Air 2020**, air pollution is the largest risk factor for death among all health risks in India.

Efforts being taken in India:

- India has a dedicated **National Clean Air Programme** that aims for a **20% to 30% reduction in particulate matter concentrations by 2024 in 122 cities**, keeping **2017 as the base year** for the comparison of concentration.

- The selected 122 cities do not meet the **National Ambient Air Quality Standards (NAAQS)** when calculated from 2011 to 2015.
 - NAAQS sets limits for SO₂, NO₂, particulate matter (PM_{2.5} and PM₁₀), Ozone, Lead, Carbon Monoxide, Ammonia, Benzene, Benzo Pyrene, Arsenic, Nickel.

Details:

- The update by WHO is the **first such update since 2005**.
- Notably, the WHO's air quality norms are not legally binding on countries, but rather a general guide for what nations should set as goals.
- The WHO has tightened the upper limits for both PM_{2.5} and PM₁₀ levels.
- This update is in recognition of the emerging science that the impact of air pollution on health is much more serious than earlier envisaged.
- The move does not have an immediate effect in India as the **National Ambient Air Quality Standards (NAAQS) do not meet the WHO's existing standards**. However, the WHO update sets the stage for eventual shifts in policy towards evolving stricter national standards and it will put more pressure on the government to form policies to achieve stricter standards of air pollution.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Petition of Derecognition on Aam Aadmi Party

The Delhi High Court asked the Centre, Delhi government and Election Commission (EC) to respond to a petition regarding derecognition of the Aam Aadmi Party for organizing Ganesh Chaturthi using public money.

Major Highlights:

- Any funding to temple, mosque, religious persons/ trust, and religious function by the state government is **unconstitutional**.
- The Ganesh Puja organised by the Delhi government was unconstitutional.

Recognition as a State Party:

For any political party to be eligible for recognition as a State Party in a state, it must satisfy any of the five conditions stated below:

- Secure at least **6%** of the valid vote & win at least 2 seats in an **Assembly General Election**.
- Secure at least 6% of the valid vote & win at least 1 seat in a **Lok Sabha General Election**.
- Win at least **3%** of the seats or at least 3 seats, whichever is more, in an Assembly General Election.
- Win at least 1 out of every 25 seats from a state in a **Lok Sabha General Election**.
- Secure at least 8% of the total valid vote in an Assembly or a Lok Sabha General Election.

Recognition as a National Party:

For any political party to be eligible for recognition as a National Party, it must satisfy any of the three conditions given below:

- Secure at least **6%** of the valid vote in an **Assembly** or a Lok Sabha General Election in any four or more states and won at least **4 seats** in a Lok Sabha General Election from any State or States.
- Win at least 2% of the total Lok Sabha seats in a Lok Sabha General Election and these seats must be won from at least 3 states
- The party is recognized as a State Party in at least **four states**.

Advantages:

- A party recognized as a state party gets a **reserved symbol** within the state.
- All the candidates contesting from that party will get the same symbol throughout the state.
- **For National Parties**, the reserved symbol can be used **across the country** by its contesting candidates.
- **Subsidized land** for party offices
- **Free air time** on Doordarshan & All India Radio.
- Supply of **electoral roll copies** free of cost during elections.

Key Facts:

National Parties of India:

1. Bahujan Samaj Party (BSP)
2. Bharatiya Janata Party (BJP)
3. Communist Party of India (CPI)
4. Communist Party of India (Marxist) (CPM)

5. Indian National Congress (INC)
6. Nationalist Congress Party (NCP)
7. All India Trinamool Congress (AITC)
8. National People's Party (NPP)

2. Why the SAARC meeting was cancelled

A meeting of foreign ministers from the South Asian Association for Regional Cooperation (SAARC) countries, which was set to be held in New York has been cancelled.

About SAARC

- The South Asian Association for Regional Cooperation (SAARC) is the regional intergovernmental organization and geopolitical union of states in South Asia.
- Its member states are Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.
- The SAARC comprises 3% of the world's area, 21% of the world's population and 4.21% (US\$3.67 trillion) of the global economy, as of 2019.
- The SAARC was founded in Dhaka on 8 December 1985. Its secretariat is based in Kathmandu, Nepal.
- The organization promotes development of economic and regional integration. It launched the South Asian Free Trade Area in 2006.
- The SAARC maintains permanent diplomatic relations at the United Nations as an observer and has developed links with multilateral entities, including the European Union.

Formation of SAARC

- After the USSR invaded Afghanistan in 1979, the security situation in South Asia rapidly deteriorated. In response, the foreign ministers of the initial seven members met in Colombo in 1981.
- At the meeting, Bangladesh proposed forming a regional association that would meet to discuss matters such as security and trade.
- While most of the countries present were in favour of the proposal, India and Pakistan were sceptical.
- Eventually, both countries relented and in 1983 in Dhaka, joined the other five nations in signing the Declaration.

What has SAARC done so far

- Despite its lofty ambitions, SAARC has not become a regional association in the mould of the European Union or the African Union.

- Its member states are plagued by internal divisions, most notably the conflict between India and Pakistan.
- This in turn has hampered its ability to form comprehensive trade agreements or to meaningfully collaborate on areas such as security, energy and infrastructure.
- The 18th and last SAARC summit was held in 2014 with Pakistan scheduled to host the 19th summit in 2016.
- Many nations pulled out of the summit, citing fears of regional insecurity caused by Pakistan and a lack of a conducive environment for the talks.

Limited success to count

- Despite these setbacks, SAARC has achieved a modicum of success.
- It has provided a platform for representatives from member countries to meet and discuss important issues, something that may have been challenging through bilateral discussions.
- India and Pakistan for example would struggle to publicly justify a meeting when tensions between the two are particularly high, but representatives from both countries could come together under the banner of SAARC. ★
- The bloc has also made some headway in signing agreements related to climate change, food security and combatting the Covid-19 crisis.
- It has the potential to do far more but that is contingent upon cooperation on key issues between member states.

Why was the recent meet cancelled?

Ans. Pakistan's insistence to include the Taliban

- The member states are unable to agree upon the participation of Afghanistan, with Pakistan and India in particular at loggerheads over the issue.
- After Pakistan objected to the participation of any official from the previous Ghani administration, SAARC members reportedly agreed to keep an "empty chair" as a symbolic representation of Afghanistan.
- However, Islamabad later insisted that the Taliban be allowed to send its representative to the summit, a notion that all of the other member states rejected.
- After no consensus could be formed, Nepal, the 'host' of the summit, officially cancelled the meeting.

Why did countries object?

Ans. Taliban is not a legitimate govt

- The Taliban has not been recognised as the official government of Afghanistan by any SAARC countries barring Pakistan.
- Several top Taliban leaders are blacklisted by the US and/or designated as international terrorists.

- Senior leaders who are not blacklisted are known for supporting terrorist activities or affiliating with terrorist organisations.
- Allowing Taliban to represent Afghanistan in SAARC would legitimise the group and serve as a formal recognition of their right to govern.
- Apart from Pakistan, which has close ties to the Taliban, particularly its violent subgroup, the Haqqani Network, none of the other SAARC members recognise the Taliban.

Why nations should not recognize the Taliban?

- PM Modi has referred to the Taliban as a non-inclusive government, warning other nations to think before accepting the regime in Afghanistan.
- SAARC members are deeply aware of the threat of spillover terrorism from Afghanistan under the Taliban regime, with Bangladesh in particular, concerned with the effect it may have on extremism.
- Developments in Afghanistan could lead to uncontrolled flow of drugs, illegal weapons and human trafficking.

Conclusion

- With Pakistan headfast in its support for the Taliban and the rest of SAARC weary to acknowledge the group, any future summit is unlikely until the issue has been resolved.

3. Armed Forces Flag Day Fund

Raksha Mantri has appealed to the general public to generously **contribute to the Armed Forces Flag Day Fund (AFFDF)**, which is used in rehabilitation and welfare of dependents of brave soldiers who were killed in action or disabled.

About Armed Forces Flag Day Fund (AFFDF):

- The Fund is **administered by Kendriya Sainik Board (KSB)** Secretariat under the aegis of its Management Committee and Executive Committee.
- Managing Committee is headed by Raksha Mantri at the Centre and Governor / Lt Governor of the State.
- Executive Committee is headed by Secretary, Ex-Servicemen Welfare (ESW).
- Out of the income earned on the AFFDF corpus, **7.5 per cent is ploughed back into the corpus** and balance is used to fund the welfare and rehabilitation schemes for Ex-Servicemen (ESM)/dependents.
- AFFDF is formed by amalgamation of the following:
 - Amalgamated Special Fund for war bereaved, war disabled and other ESM/serving personnel
 - Armed Forces Flag Day Fund

- St.Dunstan's (India) and Kendriya Sainik Board Fund
- Indian Gorkha Ex-Servicemen's Welfare Fund.
- Some of the important welfare schemes funded out of AFFDF are as under:
- Raksha Mantri's Ex-servicemen Welfare Fund (RMEWF)
- Financial Assistance for Serious Diseases
- Paraplegic Rehabilitation Centres (PRCs)
- War Memorial Hostels (WMHs)

Armed Forces Flag Day:

- Since 1949, **7th December** is observed as the Armed Forces Flag Day throughout the country to honor the martyrs and the men in uniform who valiantly fought on our borders to safeguard the country's honor.
- On this day, Army, Navy and Air Force personnel who sacrificed their lives for the cause of the nation are remembered by observing **two-minute silence at 11:00 hours as a mark of respect.**

GS 3 : Economy, Science and Technology, Environment

4. Wastewater Treatment in India

Sewage treatment plants (STPs) in India are able to treat a little more than a third of the sewage generated per day, according to the latest report of the Central Pollution Control Board (CPCB).

Wastewater

Wastewater is used water from any combination of domestic, industrial, commercial or agricultural activities, surface runoff/ stormwater, and any sewer inflow or sewer infiltration.

In everyday usage, wastewater is commonly a synonym for:

- **Sewage** also called domestic wastewater or municipal wastewater which is wastewater that is produced by a community of people.
- **Industrial wastewater**, water-borne waste generated from a variety of industrial processes, such as manufacturing operations, mineral extraction, power generation, or water and wastewater treatment.
- **Cooling water**, released with potential thermal pollution after use to condense steam or reduce machinery temperatures by conduction or evaporation
- **Leachate**, precipitation containing pollutants dissolved while percolating through ores, raw materials, products, or solid waste

- **Return flow**, carrying suspended soil, pesticide residues, or dissolved minerals and nutrients from irrigated cropland
- **Surface runoff**, the flow of water occurring on the ground surface when excess rainwater, stormwater, meltwater, or other sources, can no longer sufficiently rapidly infiltrate in the soil.
- **Urban runoff**, including water used for outdoor cleaning activity and landscape irrigation in densely populated areas created by urbanization
- **Agricultural wastewater**, generated from confined animal operations

Wastewater in India

- India generated 72,368 MLD (million litres per day) whereas the installed capacity of STPs was 31,841 MLD (43.9 per cent), according to the report.

Treatment facilities available

- Of this installed capacity, developed and operationalized capacity was 26,869 MLD (84 per cent).
- Of the total operationalised capacity, 20,235 MLD (75 per cent) was the actual utilised capacity.
- In other words, out of total 72,368 MLD sewage generated every day, only 20,235 MLD is treated.

Skewed distribution

- Five states and Union Territories (UT) – Maharashtra, Gujarat, Uttar Pradesh, Delhi and Karnataka – account for 60 per cent of the total installed treatment capacity of the country.
- These, along with five other states and UTs – Madhya Pradesh, Haryana, Punjab, Tamil Nadu and Rajasthan – alone constitute 86 per cent of the total installed capacity.
- Arunachal Pradesh, Andaman & Nicobar Islands, Lakshadweep, Manipur, Meghalaya and Nagaland have not installed sewage treatment plants.
- There are states like Bihar which do have a small installed capacity of STPs. But on the operational front, they score a zero.
- Chandigarh ranks first in terms of total sewage generated to what is actually treated. It generates 188 MLD of sewage and has an operational capacity to treat 271 MLD.

Major issue: Reuse of sewage

- The reuse of treated sewage is an issue which hasn't assumed much importance in the policy planning of many state governments.

- Treated sewage water can be reused for horticulture, irrigation, washing activities (road, vehicles and trains), fire-fighting, industrial cooling, toilet flushing and gardening.
- The proportion of the reuse of treated sewage is maximum in Haryana (80 per cent) followed by Puducherry (55 per cent), Delhi (50 per cent), Chandigarh (35 per cent), Tamil Nadu (25 per cent), Madhya Pradesh (20 per cent) and Andhra Pradesh (5 per cent).

5. Global CO₂ emissions from wildfires highest since 2003

Carbon dioxide emissions from wildfires in the months of July and August have touched a new high since 2003 in September 2021.

Major Highlights:

- As per Copernicus Atmosphere Monitoring Service (CAMS), the **cumulative CO₂ emissions** from **violent forest fires** in these two months was **2643.4** megatons.
 - In **July** 2021, over half of the 1258.8 megatons of CO₂ was attributed to fires in North America and Siberia.
 - In **August** 2021, 1384.6 megatons of CO₂ were released into the atmosphere by wildfires.
- Wildfires are common during the **boreal fire season** (of the Northern Hemisphere) that lasts from May to October every year.
 - But the **number of fires**, their intensity, region covered and persistence were unusually high in 2021.
- **States in India** also recorded some of their **biggest wildfires** since 2020.
 - Odisha recorded **51,968 forest fires** from November 2020 to June 2021 – the state's highest.
- The **Mediterranean basin** emerged as the wildfire hotspot. The countries in the region experienced dry conditions and heatwaves in 2021.
- **Intense wildfires in Siberia** in 2021 corresponds with **increased temperatures** and decreased soil moisture in the region.
- In **Sakha Region** in north-eastern Russia, daily fire intensities surged and emissions doubled since 2020.
- **Large-scale destruction** and **pollution** were observed in the western regions of North America, Canada, Pacific Northwest and California throughout July and August.

Copernicus Atmosphere Monitoring Service (CAMS):

- CAMS is a service implemented by the **European Centre** for Medium-Range Weather Forecasts, launched in November 11, 2014.

- CAMS, is part of the **Copernicus Programme**, and **tracks air pollution**, solar energy, greenhouse gases and climate globally, providing continuous data and information on atmospheric composition.
- It analyses data from its **Global Fire Assimilation System** collected using fire radiative power measurements from **MODIS** satellite by National Aeronautics and Space Administration.
 - The service uses these calculations to make estimates of **daily global emissions from fires**.

Copernicus Programme:

- Copernicus is the **Earth observation programme** of the **European Union** in partnership with European Space Agency.
- It **aims at achieving** a global, continuous, autonomous, high quality, wide range Earth observation capacity, covering **six main interacting themes**: atmosphere, marine, land, climate, emergency and security.

Copernicus has following components:

- **Space component** (observation satellites and associated ground segment with missions observing land, atmospheric and oceanographic parameters).
- **In-situ measurements** (ground-based and airborne data-gathering networks providing information on oceans, continental surface and atmosphere).

6. WHO tightens air quality norms over health hazard

The World Health Organization (WHO) has tightened its **air quality guidelines for the first time** since 2005.

- It warned that air pollution is **one of the biggest environmental threats** to human health, causing seven million premature deaths a year.

Highlights of the new air quality guidelines:

- Harms from air pollution **begin at much lower levels** than previously thought, hence, **lowered acceptable thresholds for several pollutants**, including **ultrafine PM2.5**.
- These guidelines are **not legally binding** on countries, but are meant to provide guidance to help reduce levels of air pollution.
- It does **not include** recommendations about **pollutant mixtures or the combined effects of pollutant exposures**.

Thresholds:

- **Average 24-hour exposure:**
 - **PM2.5** must remain **below 15µg/m³**, down from 25µg/m³.
 - **PM10** particles has been **lowered from 50 to 45µg/m³**.
- **Exposure over a year-long period:**
 - PM2.5 has been brought down from **10 to 5µg/m³**.
 - PM10 has been brought down from **20 to 15µg/m³**.
- In comparison, **India's thresholds are many folds higher.**
- **According to the 2009 National Ambient Air Quality Standards** still in force, the acceptable PM2.5 exposure limit **over 24 hours is 60µg/m³** (four times the new WHO limit) and for exposure over a **year-long period, 40µg/m³** (eight times the revised WHO threshold).
- There are also standards for a host of chemical pollutants including **sulphur dioxide, lead and nitrogen dioxide.**

Improvements in air quality:

- Despite some improvements in air quality, the global toll in deaths and lost years of healthy life has **barely declined since the 1990s.**
- Air quality has markedly improved in high-income countries, it has generally **deteriorated in most low- and middle-income countries**, in step with large-scale urbanization and economic development.

Important observations:

- As per the new guidelines, among 100 global cities, Delhi's annual PM2.5 trends in 2020 was **16.8 times more** than WHO's revised air quality guidelines.
 - Annual average PM2.5 levels in Delhi ranged from 114-145µg/m³ in 2020.
- Mumbai's exceeded 8-fold, Kolkata 9.4, Chennai 5.4, Hyderabad 7 and Ahmedabad exceeded 9.8 fold.
- Large parts of the Indo-Gangetic Plains region, including several cities in Uttar Pradesh, West Bengal, Punjab, Haryana, had very high concentrations of PM2.5 and PM10.

Air pollution impacts in India:

- Every year, exposure to **air pollution is estimated to cause 7 million premature deaths** and result in the loss of millions more healthy years of life.
- **In children-** reduced lung growth and function, respiratory infections and aggravated asthma.
- **In adults-** ischaemic heart disease and stroke, other effects such as diabetes and neurodegenerative conditions.

- State of Global Air (SOGA 2020) estimated that over **116,000 infants in India died within a month after their birth due to exposure to severe air pollution** in 2019.
- India had the **highest burden of infant deaths due to air pollution** followed by Nigeria, Pakistan, Ethiopia and the Democratic Republic of Congo.
 - India released **National Clean Air Programme (NCAP)** in January 2019 which aims to achieve a **20% to 30% reduction in PM 2.5 concentrations** over 2017 annual levels in over a hundred cities **by 2024**.
 - NCAP does **not have a legal mandate**.

Other Facts:

- **90% of the entire global population** is breathing polluted air.
- Both **PM2.5 and PM10** are capable of penetrating deep into the lungs but **PM2.5 can even enter the bloodstream**, primarily resulting in **cardiovascular and respiratory impacts**.
- PM is primarily generated by **fuel combustion in different sectors** including transport, energy, households, industry and from agriculture.
- In 2013, **outdoor air pollution and particulate matter** were classified as **carcinogenic** by WHO's International Agency for Research on Cancer (IARC).

7. Uniform norms for Fortified Rice announces by centre

Days after the Prime Minister's announcement of a rice fortification plan, the Centre has issued "uniform" parameters for fortified rice kernels (FRK) for grade 'A' and common rice.

Plan for fortified rice

- The fortified rice is to be distributed under various government schemes, including the public distribution system (PDS) and midday meals in schools, by 2024.
- The specifications for such rice have been issued by the Ministry of Consumer Affairs, Food and Public Distribution.
- Department of Food and Public Distribution (DFPD) under Ministry of Consumer Affairs, Food and Public Distribution for the first time issued uniform specifications for Fortified Rice Kernels (FRK).

What are the norms announced?

- Common Rice have in case of procurement of Fortified Rice Stocks, of which 1% of FRK (w/w) should be blended with normal rice stock.
- These specifications as per standard practice have been issued in respect of Paddy, Rice and other coarse grains namely Jowar, Bajra, Maize, Ragi.

What is Fortification?

- FSSAI defines fortification as “deliberately increasing the content of essential micronutrients in a food so as to improve the nutritional quality of food and to provide public health benefit with minimal risk to health”.

What is Fortified Rice?

- Rice can be fortified by adding a micronutrient powder to the rice that adheres to the grains or spraying the surface of ordinary rice grains with a vitamin and mineral mix to form a protective coating.
- Rice can also be extruded and shaped into partially precooked grain-like structures resembling rice grains, which can then be blended with natural polished rice.
- Rice kernels can be fortified with several micronutrients, such as iron, folic acid, and other B-complex vitamins, vitamin A and zinc.
- These fortified kernels are then mixed with normal rice in a 1:100 ratio, and distributed for consumption.

What is the plan announced by the PM?

- Malnutrition and lack of essential nutrients in poor women and poor children pose major obstacles in their development.
- In view of this, it has been decided that the government will fortify the rice given to the poor under its various schemes.
- Be it the rice available at ration shops or the rice provided to children in their mid-day meals, the rice available through every scheme will be fortified by the year 2024.

Why such a move?

- The announcement is significant as the country has high levels of malnutrition among women and children.
- According to the Food Ministry, every second woman in the country is anemic and every third child is stunted.
- India ranks 94 out of 107 countries and is in the ‘serious hunger’ category on the Global Hunger Index (GHI).

- Fortification of rice is a cost-effective and complementary strategy to increase vitamin and mineral content in diets.
- According to the Food Ministry, seven countries have mandated rice fortification – the USA, Panama, Costa Rica, Nicaragua, Papua New Guinea, Philippines, and the Solomon Islands.

Advantages offered

- **Health:** Fortified staple foods will contain natural or near-natural levels of micro-nutrients, which may not necessarily be the case with supplements.
- **Taste:** It provides nutrition without any change in the characteristics of food or the course of our meals.
- **Nutrition:** If consumed on a regular and frequent basis, fortified foods will maintain body stores of nutrients more efficiently and more effectively than will intermittently supplement.
- **Economy:** The overall costs of fortification are extremely low; the price increase is approximately 1 to 2 percent of the total food value.
- **Society:** It upholds everyone's right to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger

Issues with fortified food

- **Against nature:** Fortification and enrichment upset nature's packaging. Our body does not absorb individual nutrients added to processed foods as efficiently compared to nutrients naturally occurring.
- **Bioavailability:** Supplements added to foods are less bioavailable. Bioavailability refers to the proportion of a nutrient your body is able to absorb and use.
- **Immunity issues:** They lack immune-boosting substances.
- **Over-nutrition:** Fortified foods and supplements can pose specific risks for people who are taking prescription medications, including decreased absorption of other micro-nutrients, treatment failure, and increased mortality risk.

Adhering to FSSAI standard

The Food Safety and Standards Authority of India (FSSAI) sets standards for food items in the country.

- According to FSSAI norms, 1 kg fortified rice will contain iron (28 mg-42.5 mg), folic acid (75-125 microgram), and Vitamin B-12 (0.75-1.25 microgram).
- In addition, rice may also be fortified with micronutrients, singly or in combination, with zinc(10 mg-15 mg), Vitamin A (500-750 microgram RE), Vitamin B1 (1 mg-1.5 mg), Vitamin B2 (1.25 mg-1.75 mg), Vitamin B3 (12.5 mg-20 mg) and Vitamin B6 (1.5 mg-2.5 mg) per kg.

Prelims Practice Questions

1. Which of the following items are included under the Concurrent List?

1. Public health and sanitation
2. Marriage and divorce
3. Criminal procedure
4. Charities and charitable institutions

Options:

- a. 1, 2 and 3 only
- b. 2, 3 and 4 only
- c. 1, 3 and 4 only
- d. 1, 2, 3 and 4

Answer: b

Explanation:

- The Concurrent List is a list of subjects given in the Seventh Schedule to the Constitution of India. It includes the power to be considered by both the union and state government.
- The subjects of marriage and divorce, criminal procedure and charities and charitable institutions come under the concurrent list while Public health and sanitation is a state subject.

2. With reference to Asian Development Bank (ADB), which of the following statements is/are incorrect?

1. India is a founding member of the Asian Development Bank.
2. Japan holds the largest share in ADB, followed by China and India.
3. Only countries from Asia can be part of ADB.

Options:

- a. 1 only
- b. 2 and 3 only
- c. 3 only
- d. 1, 2 and 3

Answer: b

Explanation:

- The Asian Development Bank (ADB) is a regional development bank established in 1966 and headquartered in Manila, Philippines. India is a founding member of the Asian Development Bank.
- Japan holds the largest share in ADB with 15.677%, followed by U.S.A (15.567%), China (6.473%), and India (5.812%).
- From 31 members at its establishment in 1966, ADB has grown to encompass 68 members – of which 49 are from within Asia and the Pacific and 19 outside.

3. Which of the following is/are the Nerve agents?

1. Sarin (GB)
2. Soman (GD)
3. Tabun (GA)
4. VX

Options:

- a. 1 only
- b. 2 and 4 only
- c. 1, 2 and 3 only
- d. 1, 2, 3 and 4

Answer: d**Explanation:**

- Nerve agents, sometimes also called nerve gases, are a class of organic chemicals that disrupt the mechanisms by which nerves transfer messages to organs. The disruption is caused by the blocking of acetylcholinesterase (AChE), an enzyme that catalyzes the breakdown of acetylcholine, a neurotransmitter. Nerve agents are acetylcholinesterase inhibitors used as poison.
- The main nerve agents are the chemicals sarin (GB), soman (GD), tabun (GA) and VX.

4. The La Palma islands, where the Cumbre Vieja volcano has erupted for the first time in 50 years, is a part of which of the following countries?

- A Cuba
- B Spain
- C Italy
- D Chile

Answer : B

Explanation

- The **Cumbre Vieja volcano** erupted for the first time in 50 years. The last time hot molten lava erupted and spread was in 1971.
- **La Palma** is the most north-westerly island of the **Canary Islands, Spain**.
 - It's geography is a result of a volcanic formation and has an area of 708 square kilometres making it the fifth largest of the eight main Canary Islands.
- The Canary Islands are a group of ocean island volcanoes located off the coast of western Africa that have been formed by volcanic activity since around 20 million years ago.
 - It comprises the Spanish provinces of Las Palmas and Santa Cruz de Tenerife.

5. Which of the following is the application of the recently developed 'Super-hydrophobic cotton composite with Metal-Organic Framework (MOF)'?

- A Odour absorption
- B Insect repellent
- C Erosion and landslide protection
- D Clean-up marine oil-spill

Answer : D

Explanation

- Recently, the Indian Institute of Technology (IIT), Guwahati, has developed a **super-hydrophobic cotton composite with Metal-Organic Framework (MOF)** that can **clean-up marine oil-spill**.
- It is a novel MOF composite, which is a highly porous and water-repellent material and can absorb oil selectively from an oil-water mixture.

- This MOF composite has great capability for selective separation of the oils from oil/water mixtures and the separation efficiency lies between 95% and 98%, irrespective of the chemical composition and density of the oils.
- It can also absorb large volumes of oils and can be reused for a minimum of 10 times so that the sorbents can provide more recovery of the spilled oil.
- It will clean-up the spilled oil from environmental water (river, sea or ocean water) during oil transportation with high efficiency and large absorption capacity, thus reducing environmental water pollution.
 - It is environmentally friendly and cost effective.
- **Hence, option D is correct.**

6. Consider the following:

1. Agricultural fertilisers
2. Anaesthetic gases
3. Making of explosives

The above uses are most appropriately related to which of the following chemical compounds?

- A Ammonium Nitrate
- B Green Vitriol
- C Sodium bicarbonate
- D Feldspar

Answer : A

Explanation

- **Ammonium Nitrate (NH_4NO_3)** is a nitrogen-rich white, crystalline chemical that is soluble in water.
- **Uses:**
 - It is a common chemical ingredient of **agricultural fertilisers**.
 - It is used as an ingredient for the production of **anaesthetic gases and cold packs**.
 - It is also the main ingredient in the manufacture of **commercial explosives** used in mining and construction.
 - **As Explosive:** It is the main component of the explosive composition known as **ANFO- Ammonium Nitrate Fuel Oil**.

- Pure ammonium nitrate is not an explosive on its own. For Ammonium nitrate to be explosive, a **primary explosive or detonator** like RDX or TNT is required.
- Hence, option A is correct.

Mains Practice Questions

1. "The agriculture sector is critical for India from a consistent growth and food security perspective". Discuss the steps to be taken to revitalise the agricultural sector. (250 words)

Approach

- Introduce by explaining the given statement and showing how the agriculture sector is critical for India for consistent growth and food security.
- Discuss in brief the main issues faced by the agriculture sector in India.
- Discuss the steps to be taken to revitalise the sector.
- Conclude with an emphasis on adopting sustainable agriculture for sustainable development.

2. "The poverty line in India may not permit a comfortable existence, but allows above subsistence existence". Critically examine the concept of poverty line in India. (250 words)

Approach

- Give a brief introduction of the concept of poverty line in India.
- Discuss the significance and issues related with the concept of poverty line.
- Provide a way forward to solve the problem of malnutrition and poverty.
- Conclude suitably.