drishti

Current Affairs
(Consolidation)

April 2019
(Part – I & II)

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Polity and Governance

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- *Electoral Bonds Scheme*
- *Travelling Abroad is a Basic Human Right: SC*
- *No Clinical Trials for New Drugs*

Electoral Bonds Scheme

Recently, the **Supreme Court** refused to stay on the electoral bond scheme, a new mechanism to fund elections.

Key Points

➢ The SC is hearing a petition questioning the anonymity-based funding scheme on the grounds that it promotes opacity, opens up the possibility of black money being donated to parties through shell companies and empowers the ruling party.

➢ The court has decided to examine the issue in detail because the rival contentions about the scheme raise weighty issues which have tremendous bearing on the sanctity of the electoral process.

➢ As an interim measure, the Court asked political parties to disclose, to the **Election Commission (EC)** in sealed covers, details of the donations they have received through electoral bonds.

Background

➢ The **'electoral bonds'** were introduced by the Finance Act, 2017 and scheme was subsequently notified in 2018.

➢ Electoral bonds are bearer instruments like **promissory notes** i.e. in effect these are similar to a bank note that is payable to the bearer on demand and free of interest.

➢ The bonds can be purchased by an Indian citizen or a body incorporated in the country.

➢ The bonds will not bear the name of the donor but the buyers of the bonds have to submit full KYC details at the time of buying.

➢ One can purchase bonds of various denominations from a **designated bank** (not all banks) within the 10-day window in every quarter of the financial.

➢ The purchasers of these bonds need to present these to the political parties of their choice, and the parties have to redeem them within 15 days.

Related information

➢ Donations to political parties below ₹2,000 can be made in cash. Thus, **cash donations are not entirely ruled out**.

➢ The Finance Act 2017 amended Income Tax Act giving the donors freedom with respect to providing names, address or PAN if the contribution is less than Rs. 20,000.

➢ The Finance Act 2017 amended Representation of People Act (RPA), 1951 allowing political parties to skip recording donations received by them through electoral bonds in their contributory reports to EC.

➢ The amendment to the Companies Act in 2017 lifted the cap on the amount corporates can contribute to political parties. Thus, **any company can donate any amount** of money to any political party.

➢ The Finance Act 2016 amended Foreign Contribution Regulation Act (FCRA) allowing donations from foreign companies having majority stake in Indian companies. Thus, **political parties can now receive foreign funds**.

➢ Every registered political party that has secured at least one per cent of the votes polled in the most recent Lok Sabha or State election will be allotted a verified account by the Election Commission. Electoral bond transactions can be made only via this account.

➢ A donor will get a deduction and the recipient, i.e. **the political party, will get tax exemption**.

Issues Involved

➢ The Electoral Bonds Scheme is alleged to have opened the **floodgates to unlimited corporate and anonymous financing** to political parties.

- The removal of cap on donations by companies and the **legalisation of anonymity** pose a danger to the autonomy of electoral process and can encourage corrupt practices in politics, and the unholy nexus between politics and corporate houses.
- Ordinary citizens will not be able to know who is donating how much money to which political party and thus adversely impact the ability to vote with an informed decision making.
- Nevertheless, the scheme has brought in a shift from the old electoral system in which massive amounts of political donations were being made in cash, and identity of the donors was not known as the system was wholly opaque and ensured complete anonymity.
- On the contrary, the electoral bonds are purchased only by means of a demand draft, cheque or through **Electronic Clearing System**; no black money can, therefore, be used for the purchase of these bonds.
- The non-disclosure of the identity of the donor has the objective to safeguard the donor from political victimisation, in case they turn out to have supported the losing party.
- Moreover, the KYC details are always available in the banking channel and can be retrieved as and when required by enforcement agencies.

Way Forward

- Given that political funding used to be a way to whitewash black money, the switch to a mechanism that operates through the banking system is undoubtedly a step forward in ensuring **clean political funding**.
- As a step towards **transparency**, the company should disclose in its yearly balance sheet the donations made by it so that the electors and company shareholders know how a party is being financed.
- The political class needs to debate more on the long-pending issue of political funding in order to resolve the anonymity vs transparency impasse.

Travelling Abroad is a Basic Human Right: SC

Recently, the Supreme Court has ruled that the right to travel abroad is an important basic human right.

Key Points

- The Court was hearing the plea of an IPS Officer who was denied permission to go abroad as he is facing departmental proceedings.
- SC observed that the pendency of departmental proceedings cannot be a ground to prevent the officer from travelling abroad.
- The Court observed that the right to travel abroad is an important basic human right for it nourishes independent and self-determining creative character of the individual, not only by extending his freedom of action but also by extending the scope of his experience.

Background

- Freedom of movement is one of the six freedoms under **Article 19(1)** of the Constitution i.e. freedom
  - of speech and expression;
  - to assemble peaceably and without arms;
  - to form associations or unions;
  - to move freely throughout the territory of India;
  - to reside and settle in any part of the territory of India; and
  - to practice any profession, or to carry on any occupation, trade or business.
- The freedom of movement has **two dimensions**, viz, **internal** (right to move inside the country) and **external** (right to move out of the country and the right to come back to the country).
- **Article 19** protects only the first dimension. The second dimension is dealt with by **Article 21** (right to life and personal liberty).
- In **Menaka Gandhi case (1978),** the Supreme Court took a **wider interpretation** of Article 21. The court held that the **'right to life'** is not merely confined to animal existence or survival but it includes within its ambit the right to live with **human dignity** and all those aspects of life which make a man's life meaningful, complete and worth living.
- It also ruled that the expression **'personal liberty'** in **Article 21** is of the widest amplitude and it covers a variety of rights that go to constitute the personal liberty of a man.

Note:

No Clinical Trials for New Drugs

The **Ministry of Health and Family Welfare** has allowed waivers on conducting trials for new drugs in India in case the drug is approved and marketed in countries specified by the **Central Drugs Standard Control Organisation (CDSCO)**.

Key Points

➢ New drugs approved for use in select developed markets will be **automatically allowed** in India provided global trials included Indian patients.

➢ It also removed a clause in the clinical trials that mandated the sponsor (the entity initiating the trial) to pay 60% of compensation upfront in case of death or permanent disability of a patient. Now, companies will pay the total amount once it is proven that the injury occurred because of the trial.

➢ **Compensations in cases of death and permanent disability,** or 'other' injuries to a trial participant will be decided by **Drug Controller General of India (DCGI)**.

➢ It removed regulations on tests conducted on animals in case of drugs approved and marketed for more than two years in well-regulated overseas drug markets.

➢ The new rules will end the unnecessary repetition of trials and speed up the availability of new drugs in the country. It is also expected to lower the cost of drugs and improve the **ease of doing business** for drug makers.

Central Drugs Standard Control Organisation (CDSCO)

➢ The CDSCO is the **Central Drug Authority** for discharging functions assigned to the Central Government under the **Drugs and Cosmetics Act, 1940**.

➢ Its major functions include – regulatory control over the import of drugs, approval of new drugs and clinical trials and approval of certain licences as **Central Licence Approving Authority**.

➢ It works under the **Directorate General of Health Services, Ministry of Health & Family Welfare**.

➢ It is **headquartered in New Delhi**.

➢ In 2016, the government launched an online licensing portal of **Central Drugs Standard Control Organization (CDSCO)** named **'SUGAM'**.

Drug Controller General of India (DCGI)

➢ DCGI is responsible for approval of licences of specified categories of drugs such as blood and blood products, IV fluids, vaccines and sera in India.

➢ It works under the **Ministry of Health & Family Welfare**.

■■■

Note:

Economic Scenario

Highlights

- *SC Scraps RBI's Circular on Resolving Bad Debt*
- *FinTech Conclave 2019*
- *Jet Airways Crisis*
- *Country-by-Country Report*
- *Advance-Pricing Agreement*
- *IMO's New Rule on Electronic Information Exchange*
- *Transport and Marketing Assistance Scheme*
- *Gig Economy*
- *Activity Report of the Bank Board Bureau*
- *Mind the Gap – State of Employment in India Report*
- *World Economic Outlook 2019*
- *Global Financial Stability Report, 2019*
- *Migration and Development Brief of World Bank*
- *Load Generation Balancing Report*

SC Scraps RBI's Circular on Resolving Bad Debt

The Supreme Court recently quashed the **Reserve Bank of India's (RBI) February 12, 2018** circular which provided a revised framework for quick recognition and resolution of stressed assets of banks.

Key Points

➢ SC ruled that the RBI February 12 circular was ultra vires of **Section 35AA** of the **Banking Regulation Act, 1949**.

➢ The Court said that the circular was unconstitutional and that a reference under the **Insolvency and Bankruptcy Code (IBC), 2016** has to be on a case-to-case basis and with the authorisation of the Central Government.

➢ **Section 35AA** of the Act says that the Central Government may, by order, authorise the RBI to issue directions to any banking company or banking companies to initiate insolvency resolution process in respect of a default, under the provisions of the **Insolvency and Bankruptcy Code, 2016**.

➢ The SC verdict could delay the process of stressed assets resolution as all loan restructuring schemes were disbanded as part of the simplified generic framework for resolution of stressed assets on February 12.

February 12 circular of RBI

➢ Through a notification issued on February 12, 2018, the RBI laid down a revised framework for the resolution of stressed assets, which replaced all its earlier instructions on the subject, such as, **Strategic Debt Restructuring Scheme (SDR)and Scheme for Sustainable Structuring of Stressed Assets (S4A)**.

➢ Banks were required to immediately start working on a resolution plan for debts of over ₹2,000 crore, which was to be finalised within 180 days, with a grace period of 90 days. In the case of non-implementation, lenders were required to file an insolvency application to the **National Company Law Tribunal (NCLT)**.

➢ The circular mandated banks to disclose defaults even if interest repayment was overdue by one day.

➢ The circular was ostensibly intended to stop the **"evergreening"** of bad loans — the practice of banks providing fresh loans to enable timely repayment by borrowers on existing loans.

➢ Several companies from the power and shipping sectors had challenged the circular, arguing that the time given by the RBI was not enough to tackle bad debt.

Insolvency and Bankruptcy Code, 2016

➢ The **Insolvency and Bankruptcy Code (IBC), 2016** was promulgated by the Government to tackle the 'twin balance sheet' problem.

  ○ **Twin balance sheet problem** refers to the stress on balance sheets of banks due to non-performing assets (NPAs) or bad loans on the one hand, and heavily indebted corporates on the other.

➢ Under IBC, the **National Company Law Tribunal (NCLT)** adjudicates insolvency resolution for companies and the **Debt Recovery Tribunal (DRT)** adjudicates insolvency resolution for individuals.

➢ If the default is over Rs. 1 lakh, the creditor may initiate insolvency resolution process and approach the NCLT.

➢ The Code is quite different from the earlier resolution systems as it shifts the responsibility to the creditor to initiate the insolvency resolution process against the corporate debtor.

➢ After a case is admitted by the NCLT, the resolution process will have to be completed within 180 days. It can also be extended by another 90 days.

➢ There is also a provision for fast-tracking the resolution process so as to complete it in 90 days (which can be extended by another 45 days).

➢ However, only small companies (private entities having a paid up capital of up to Rs 50 lakh or turnover of up to Rs 2 crore) and start-ups can opt for this method.

➢ The resolution processes are conducted by licensed Insolvency Professionals (IPs). An IP must have at least ten years of experience as chartered accountants, company secretaries, cost accountants, lawyers or in management.

➢ Insolvency and Bankruptcy Board of India (IBBI) exercises regulatory oversight over insolvency professionals, insolvency professional agencies and information utilities.

FinTech Conclave 2019

Recently, NITI Aayog organised **Financial Technology (FinTech) Conclave 2019** in New Delhi. The Conclave featured representatives from across the financial space – Central Ministries, regulators, bankers, startups, investors, service providers and entrepreneurs. It was inaugurated by the **Reserve Bank of India (RBI) Governor**.

Key Highlights

➢ Deliberations were held on various dimensions of the future of the FinTech, particularly the areas of:
- Digital Onboarding of Customers and Merchants for Financial Inclusion
- Building Financial Products for Bharat
- Emerging Areas of FinTech
- Fast-tracking investment in the FinTech industry
- Financial Inclusion of MSMEs

➢ Further, the RBI announced that it will issue norms for the **introduction of a regulatory sandbox** in the next two months to **promote innovation in the financial sector,** which enables the conduct of live experiments with limited chances of failure.

➢ The objective of the conclave is to **shape India's continued ascendancy in FinTech, build narrative for future strategy and policy efforts,** and to deliberate steps for comprehensive financial inclusion. India's ambition is to emerge as a $10 trillion economy and this is not possible without a revolution in the FinTech sector.

Note:
A regulatory sandbox is a controlled mechanism within which the sector will be able to experiment with solutions in a closely-monitored ecosystem so that the risks do not spread outside it, and the reasons for failure can be analysed.

Recommendations

➢ Bring clarity to **existing policies, and ensure consistent and formal guidelines** are evolved through consensus among the regulators and stakeholders.

➢ Open up access to data within a larger framework of informed consent and adequate privacy safeguards.

➢ **Increase funding sources and capital supply for MSMEs** by introducing sectoral caps and increased margin size.

➢ Introduction of a new sub-class of **Non-Banking Finance Companies (NBFCs)** exclusively for FinTech-centric companies to encourage innovation and targeted policy.

➢ Introduction of 100% paperless and presence-less eKYC and eSign.

Fintech Sector

➢ Fintech is used to describe new technology that seeks to improve and automate the delivery and use of financial services such as payment, peer to peer lending, retail banking etc.

➢ The FinTech movement has the potential to fundamentally transform the financial landscape where consumers will get to choose from a larger set of options at competitive prices and financial institutions could improve efficiency through lower operational costs.

➢ Building capacity by creation of 'smart MSMEs', expanding access to alternate data sources for underwriting and democratising access to government-led MSME ecosystem were other recommendations brought forward.

Challenges

➢ Difficulty of **regulating an evolving technology**.

➢ Monitoring activity **outside the regulated sector**.

➢ Since there is no connection with the customer as the application is completely processed online there is a **higher risk of Non-Performing Assets (NPAs)**.

FinTech in India

➢ India's FinTech sector is young but is growing rapidly, fueled by a large market base, an innovation-driven startup landscape, and friendly government policies and regulations.

➢ The Indian FinTech ecosystem is the **third largest in the globe** and brings nearly $6 billion in investments since 2014.

Jet Airways Crisis

Recently, Jet Airways which was once India's largest private carrier suspended all its domestic and international flight operations due to cash crunch. The suspension of operations follows the troubles at Kingfisher, Air Deccan, and Sahara.

Why do India's airlines keep struggling?

➢ **High Costs, Low Yields:** Aviation Turbine Fuel (ATF) prices constitute about 40% of costs for an Indian carrier and are taxed higher here than anywhere else in the world. Also, a depreciating rupee has further increased the fuel price. These, combined with typical low-ticket pricing in India's price-sensitive market make flying less profitable for the airlines as they are unable to pass down the cost fully to the passengers.

➢ **Government Apathy:** Airlines in India have been appealing to the government for a decade for a reduction in taxes on fuel. Jet fuel is 35-40% more expensive in India than in the rest of the world, because of relatively high tax rates.
  ○ The archaic Route Dispersal Guidelines (RDG) mandate airlines to fly a certain percentage of flights in smaller, unprofitable air routes. The

current form of RDG drives up costs and introduces inefficiencies.

➢ **Crew Shortage:** The gap between the crew and fleet is widening in India. IndiGo in February announced it would cut 30 daily flights from its schedule due to a shortage of crew to man its planes.

Aviation Turbine Fuel (ATF)

➢ ATF is Kerosene based fuel used for powering jet and turboprop engine aircraft.

➢ ATF doesn't come under the GST (Goods and Services Tax) regime.

➢ Indian states charge as much as 30% in sales tax on aviation turbine fuel, on top of excise duty charged by the centre, making it the costliest in Asia.

➢ Bringing the fuel under the national tax regime will make it easier for airlines to make payments as the rate will be uniform across the country unlike now when it varies from state to state.

History of Indian aviation sector

➢ For four decades after eight independent domestic airlines — Deccan Airways, Airways India, Bharat Airways, Himalayan Aviation, Kalinga Air Lines, Indian National Airways, Air India (formerly Tata Airlines), and Air Services of India — were merged to create state-owned Indian Airlines in 1953, India's aviation sector remained a national monopoly.

➢ Policy changes came in the 1990s — and liberalisation and economic reforms allowed private airlines to operate.

➢ Besides repealing the **Air Corporation Act**, 1953 the government announced an **Open Skies policy in 1992,** liberalising rules and regulations to open up the commercial aviation market. Under the **Air Corporation Act,** only the state-owned carriers had the monopoly to operate as scheduled airlines.

➢ In December 2004, the government announced a major policy change, allowing Indian scheduled carriers with a minimum five years' continuous operations and a minimum of 20 aircraft (the **so-called 5/20 rule**) to fly international routes. Jet was the key beneficiary of this policy change.

➢ In 2016, the government scrapped the 5/20 rule and replaced it with 0/20, enabling SpiceJet, IndiGo and GoAir to launch international flights in the following years.

Note:

Country-by-Country Report

Recently, India and the U.S. signed an inter-government agreement for the **automatic exchange of country-by-country (CbC)** reports.

Key Points

➢ It will **reduce the compliance burden** for Indian subsidiary companies of U.S. parent companies and also help to check cross-border tax evasion.

➢ The Agreement for Exchange of CbC Reports, along with the **Bilateral Competent Authority Agreement** will enable both the countries to automatically exchange CbC reports filed by the ultimate parent entities of multinational enterprises (MNE) in the respective jurisdictions, pertaining to the years commencing on or after January 1, 2016.

➢ It will also obviate the need for Indian subsidiary companies of U.S. MNEs to do local filing of the CbC reports.

➢ The move is a key step in making India compliant with the **Base Erosion and Profit Shifting (BEPS)** project of the Organisation for Economic Co-operation and Development (OECD), of which it is an active participant.

Base Erosion and Profit Shifting (BEPS)

➢ BEPS refers to the activities of multinational corporations to shift their profits from high tax jurisdictions to lower tax jurisdiction, thereby eroding the tax base of the high tax jurisdictions and depriving them of tax revenue.

➢ Under the OECD/G20 Inclusive Framework on BEPS, over 125 countries and jurisdictions are collaborating to implement the BEPS measures such as Automatic Exchange of Information (AEOI) to tackle BEPS.

➢ AEOI provides for the exchange of non-resident financial account information with the tax authorities in the account holders' country of residence. Participating jurisdictions that implement AEOI send and receive pre-agreed information each year, without having to send a specific request.

Country-by-Country Reporting

➢ The BEPS Action 13 report provides a template for MNEs to report annually the information regarding their income, earnings, taxes paid etc, for each tax jurisdiction in which they do business. This report is called the Country-by-Country (CbC) Report.

Bilateral Competent Authority Arrangement

➢ It is an arrangement between India and the U.S. to improve international tax compliance. It requires, in particular, the exchange of certain information with respect to U.S. and Indian reportable accounts on an automatic basis for the avoidance of double taxation and the prevention of fiscal evasion with respect to taxes on Income.

Organisation for Economic Co-operation and Development (OECD)

➢ The OECD is an intergovernmental economic organisation, founded to stimulate economic progress and world trade.

➢ Most OECD members are **high-income economies** with a very **high Human Development Index (HDI)** and are regarded as developed countries.

➢ **Founded:** 1961

➢ **Headquarters:** Paris, France

➢ **Total Members:** 36

➢ **India is not a member,** but a key economic partner.

➢ **Reports and Indices by OECD:**
  ○ Government at a Glance 2017 report
  ○ International Migration Outlook
  ○ OECD Better Life Index

Advance-Pricing Agreement

Recently, the **Central Board of Direct Taxes (CBDT)** entered into 14 **Unilateral Advance Pricing Agreements (UAPA)** which include 3 **Bilateral Advance Pricing Agreements (BAPA)** with the US, Australia and the Netherlands.

Key Points

➢ The **Advance-Pricing Agreements (APAs)** entered into pertains to various sectors and sub-sectors of the economy like anti-friction bearings, risk management solutions platforms, BPO, ATMs etc.

➢ The progress of the APA scheme strengthens the Government's resolve to **foster a non-adversarial tax regime**.

➢ APAs enhance tax revenues and make the country an **attractive destination for foreign investments**. These agreements would be binding on both the taxpayer as well as the Government.

Note:

Advance-Pricing Agreement (APA)

➢ An APA is a **contract between a taxpayer and a tax authority specifying the pricing method that the taxpayer will apply to its related-company transactions**.

➢ The APA scheme was **introduced in the Income-Tax Act in 2012**. It allows the CBDT to enter into APA with taxpayers for a maximum period of 5 years.

➢ The primary goal of APA is to **provide certainty to taxpayers in respect of the transfer price** of the cross-border transactions undertaken by such taxpayers with their group entities.

➢ Rapid growth in international trade through an increasing number of Multinational Enterprises (MNEs) has given rise to numerous tax disputes on the issue of transfer pricing.

➢ An **APA is a mechanism to resolve transfer pricing disputes in advance,** i.e., before the cross-border related party transaction actually takes place.

➢ The **transfer price of goods and services transacted between group entities is decided in advance** by the tax authorities and taxpayers, so as to **prevent any dispute arising from such transfer pricing**.

➢ An APA can be unilateral, bilateral, or multilateral.

   ❍ **Unilateral APA** involves only the taxpayer and the tax authority of the country where the taxpayer is located.

   ❍ **Bilateral APA** involves the taxpayer, Associated Enterprise (AE) of the taxpayer in the foreign country, the tax authority of the country where the taxpayer is located and the foreign tax authority.

   ❍ **Multilateral APA** involves the taxpayer, two or more AEs of the taxpayer in different foreign countries, tax authority of the country where the taxpayer is located, and the tax authorities of AEs.

Note:
Transfer Pricing: Transfer pricing refers to the setting of prices of goods and services that are exchanged among the subsidiary or legal entities that are part of the same larger enterprise. It allows for tax savings for the companies, though tax authorities may contest their claims.

Central Board of Direct Taxes (CBDT)
➢ CBDT functions under the Central Board of Revenue Act, 1963.

➢ It is a part of the Department of Revenue in the Ministry of Finance.

➢ CBDT provides inputs for policy and planning of direct taxes in India and is also responsible for the administration of direct tax laws through the Income Tax Department.

IMO's New Rule on Electronic Information Exchange

International Maritime Organisation (IMO) has mandated new rules for national governments to introduce electronic information exchange between ships and ports.

Key Points

➢ The new rules took effect from April 2019 and, seeks to make cross-border trade simpler and the logistics chain more efficient.

➢ The requirement, mandatory under IMO's Convention on **Facilitation of International Maritime Traffic (FAL Convention),** is part of amendments under the revised Annex to the FAL Convention, adopted in 2016.

➢ It encourages the use of a "single window" for data, to enable all the information required by public authorities in connection with the arrival, stay and departure of ships, persons and cargo, to be submitted via a single portal, without duplication.

➢ Under the requirement for electronic data exchange, all national authorities should now have provision for the electronic exchange of this information.

India's Initiatives

➢ India launched a Port Community System — 'PCS1x'— at ports in December 2018.

➢ Port Community System (PCS1x) is a cloud-based new generation technology, with a user-friendly interface.

➢ This system enables maritime trade to have improved communication with the customs.

International Maritime Organization (IMO)
➢ The International Maritime Organization is a **specialized agency of the United Nations**.

➢ IMO is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships.

➤ It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic.

➤ It was established by means of a Convention adopted under the auspices of the United Nations in Geneva in 1948 and met for the first time in January 1959.

➤ It currently has 174 Member States.

FAL Convention

➤ The Facilitation of International Maritime Traffic (FAL Convention) was adopted in 1965.

➤ The main objective of the convention is to achieve the most efficient maritime transport as possible, looking for smooth transit in ports of ships, cargo, and passengers.

Transport and Marketing Assistance Scheme

The Ministry of Commerce and Industry has laid out a detailed procedure for claiming benefits under the Transport and Marketing Assistance (TMA) scheme, which aims at boosting agricultural exports.

Transport and Marketing Assistance (TMA) Scheme

➤ The Department of Commerce of the Ministry of Commerce & Industry had announced the TMA scheme in March 2019 for providing financial assistance for transport and marketing of agriculture products to boost exports of such commodities to certain countries in Europe and North America.

➤ The level of assistance would be different for different regions as notified from time to time for export of eligible products. The scheme covers freight and marketing assistance for export by air as well as by sea.

➤ The objective of the scheme is to mitigate the disadvantage of higher cost of transportation of export of specified agricultural products due to trans-shipment.

➤ It also aims to promote brand recognition for Indian agricultural products in the specified overseas markets.

➤ All exporters, duly registered with relevant Export Promotion Council as per Foreign Trade Policy, of eligible agricultural products, shall be covered under this scheme.

➤ Assistance under TMA would be provided in cash through direct bank transfer as part reimbursement of freight paid.

➤ The assistance shall be admissible only if payments for the exports are received in Free Foreign Exchange through normal banking channels.

➤ The scheme shall be admissible for the exports made through **Electronic Data Interchange (EDI)** ports only.

Electronic Data Interchange (EDI)

➤ Electronic Data Interchange (EDI) is generically defined as the **computer-to-computer exchange of business information** through standard interfaces.

➤ One of the greatest advantages of EDI is its ability to reduce the cost and time required for reproducing information that the Exporters / Importers used to furnish on paper.

➤ This enables the Customs Department to redirect its resources to more valuable activities, such as examining the consignments for prohibited goods, to ensure accuracy and fairness in procedures, and finding ways to assist industry.

Gig Economy

Delhi has emerged as the top destination for migrant workers joining India's tech-enabled gig economy.

➤ The gig economy is **"a labour market characterised by the prevalence of short-term contracts or freelance work, as opposed to permanent jobs"**.

➤ An **estimated 56% of new employment** in India is being generated by the gig economy companies across both the blue-collar and white-collar workforce.

➤ The reasons for this exponential growth are:

　❍ In the digital age, the worker need not sit at a fixed location—the job can be done from anywhere, so employers can select the best talent available for a project without being bound by geography.

　❍ The millennial generation seems to have quite a different attitude to careers. They seek to do work that they want to do rather than have careers that may not satisfy their inner urges.

　❍ This suits businesses as well. In a gig economy, they save resources in terms of benefits like provident fund, paid leave and office space.

　❍ Heightened migration and readily available job training.

Note:

GIG, A NEW-AGE ECONOMY

BENEFITS	DOWNSIDE	CHALLENGES FOR GOVT
■ Creation of jobs on mass scale ■ Freedom and flexibility of work ■ Easy access to services ■ Price advantage for consumers	■ Inconsistency in services ■ Partners arm-twisted by service providers ■ Difficult to trust a service provider without a recommendation from someone you trust	■ Highly unregulated ■ Lack of policies on job structure, tax, privacy ■ Exponential growth

FEW KEY PLAYERS
UBER, OLA, ZOMATO, FOODPANDA, SWIGGY, AIRBNB, UPWORK

CRUISE MODE
■ Ola, Uber offered fat incentives in the initial years
■ Targets were pretty achievable
■ Hundreds of thousands availed bought cars to partner with Ola, Uber
■ Few claimed to earned Rs 1 lakh a month

FOR OLA, UBER DRIVERS

REVERSE GEAR
■ Drivers hit downhill road as Ola, Uber gained market share
■ Incentives became unattractive
■ Needed more trips to meet targets, had to face growing traffic
■ Crimes on passengers compounded problems

Challenges

➢ The gig economy thrives largely unregulated, therefore workers have little job security and few benefits. But, with the tech companies coming in, there is data available, making it a possibility to enable job security.

➢ A worker needs to be skilled enough. Unless a person is extremely talented, his bargaining power will necessarily be limited.

➢ There are already many more potential online independent workers than jobs, and this demand - supply mismatch will only get worse over time, depressing wages.

Way Forward

➢ There is a need for the government to step in and implement radical changes in labour laws or implement tax rebates and concessions that can be passed on directly to drivers or delivery partners as health or insurance benefits.

➢ The gig economy is providing employment to a large semi-skilled and unskilled workforce. Therefore, It is important to hand-hold this sector and help it grow. The economy needs policies and processes that give clarity to the way the sector should function.

Activity Report of the Bank Board Bureau

The **Bank Board Bureau (BBB)** recently released its activity report for October 2018 to March 2019.

Key Recommendations

➢ The report has proposed incentives like the **Employee Stock Option Scheme (ESOS)** to the employees and empowerment of PSU banks by giving complete autonomy to boards to decide the organisational structure.

➢ The BBB suggested revamping credit governance architecture in nationalised banks to reinforce efforts to minimise credit costs and enhance the efficiency of credit allocation.

➢ It has proposed improvement in the operating environment as well as the process for search and selection of directors to nudge and attract the best board level talent.

➢ Performance assessment of WTDs (whole-time directors) and senior management personnel should be undertaken by the Board.

➢ To help nationalised banks take on the present and emerging challenges as well as help create a leadership pipeline, the Bureau has identified 75 personnel from a pool of 450 senior management personnel across nationalised banks.

➢ Shortly, a globally ranked Indian institution will be identified where every year the identified personnel will undergo an intensive leadership development journey.

Note:
ESOS is the compensation scheme, wherein the specified employees or executives are granted a certain number of shares of the company. Here, the employee has the right, but not the obligation to buy the company's shares at a specific time and a specific date.

Bank Board Bureau
➢ The Government had set up Banks Board Bureau, it is an **autonomous body**. Set up with a view to improve the governance of **Public Sector Banks (PSBs)**.

➢ The Bureau will recommend for **selection of heads - Public Sector Banks and Financial Institutions** and **help Banks in developing strategies** and **capital raising plans**.

➢ The constitution of **Banks Board Bureau** will have three ex-officio members and three expert members in addition to Chairman.

➢ All the Members and Chairman will be part time.

Mind the Gap – State of Employment in India Report

Oxfam India has released its 'Mind the Gap - State of Employment in India' report.

Key Highlights

➢ **Lack of quality jobs and increasing wage disparity** are key markers of inequality in the Indian labour market.

➢ **Regressive social norms continue to hamper women's participation** in the workforce.

➢ The largest number of jobs were generated in the unorganised sector.

➢ **Job generation was adversely impacted after demonetisation** and hit the women workforce most. **Women were forced to move out of the labour force** to make way for men to get the few jobs that were available.

➢ **Caste and class continue to play crucial roles** in determining employment for men and women, especially in stigmatised vocations like sanitation, rag-picking, and jobs in the leather industry.

Recommendations

➢ Economic factors can be improved by way of policy interventions.

➢ A shift in development focus towards labour-intensive sectors can create more jobs and push for better work conditions to make jobs more inclusive.

➢ Substantially higher investments in health and education can improve productivity.

World Economic Outlook 2019

The **International Monetary Fund** has released its biannual **World Economic Outlook Report**.

Key Highlights

➢ IMF has cut down the global growth to 3.3% in 2019. Few reasons being: U.S.-China trade tensions, macroeconomic stress in Turkey and Argentina, tighter credit policies in China, mounting debt levels and increasing inequality etc.

➢ Beyond 2020, the IMF predicts that global growth will stabilise at around 3.5%, buoyed mainly by growth in China and India.

➢ The International Monetary Fund (IMF) has cut India's Gross Domestic Product (GDP) growth forecast for 2019-20, following similar action by the **Asian Development Bank (ADB)** and the **Reserve Bank of India (RBI)**.

➢ India's growth is projected to be 7.3% in 2019 (2019-20) and 7.5% in 2020. The growth will be driven by:

  ❍ The continued recovery of investment and robust consumption.

  ❍ A more expansionary stance of monetary policy and some expected impetus from fiscal policy.

Recommendations

➢ At the global level, the report stated that there is a need for greater multilateral cooperation to resolve trade conflicts, to address climate change and risks from cybersecurity, and to improve the effectiveness of international taxation.

➢ The following are the recommendations specific to India:

  ❍ In terms of the policy, it has called for continued implementation of structural and financial sector reforms in order to lower public debt and aid growth.

  ❍ The report emphasized enhancing governance of public sector banks and reforms to hiring and dismissal regulations that would incentivize job creation and absorb the country's large demographic dividend.

  ❍ Continued fiscal consolidation is needed to bring down public debt, strengthening goods and services tax compliance and lowering subsidies.

Global Financial Stability Report, 2019

The **International Monetary Fund (IMF)** has released its **biannual Global Financial Stability Report (GFSR)**. The GFSR provides an **assessment of balance sheet vulnerabilities** across financial and non-financial sectors in advanced and emerging market economies.

Key Highlights

➢ The latest GFSR has introduced a way to quantify vulnerabilities in the financial system, encompassing six sectors: **corporates, households, governments, banks, insurance companies,** and **other financial institutions**.

Note:

➢ The report specifically focuses on corporate sector debt in advanced economies, the sovereign–financial sector nexus in the Euro area, China's financial imbalances, volatile portfolio flows to emerging markets and downside risks to the housing market.

➢ It recommends action by policymakers, including through the clear communication of any changes in their monetary policy outlook, the deployment and expansion of macroprudential tools, the stepping up of measures to repair public and private sector balance sheets, and the strengthening of emerging market resilience to foreign portfolio outflows.

Migration and Development Brief of World Bank

The **World Bank** has released its **biannual "Migration and Development Brief"**. The brief aims to provide an update on key developments in the area of migration and remittance flows and related policies over the past six months.

Key Highlights

➢ India has retained its position as the world's top recipient of remittances. The Indian diaspora sent $79 billion back home in 2018.

➢ India was followed by China, Mexico, the Philippines, and Egypt.

➢ In 2019, remittance flows to low- and middle-income countries are expected to reach $550 billion, to become their largest source of external financing.

➢ The overall increase in remittance is driven by a stronger economy and employment situation in the United States and a rebound in outward flows from some **Gulf Cooperation Council (GCC)** countries and the Russian Federation.

➢ The global average cost of sending $200 remained high, at around 7% in the first quarter of 2019, according to the **World Bank's Remittance Prices Worldwide database**. Reducing remittance costs to 3% by 2030 is a global target under **Sustainable Development Goal (SDG) 10.7**.

➢ Renegotiating exclusive partnerships and letting new players operate through national post offices, banks, and telecommunications companies will increase the competition and thus lower the remittance prices.

Remittances

➢ A remittance is funding that is sent or transferred to another party usually abroad. Remittances can be sent to another country via a wire transfer, mail, draft, or check. Remittances can be used for any type of payment such as an invoice, but it's typically used to pay family members back in a person's home country.

➢ These are basically the sum of two main components - **Personal Transfers in cash** or in kind between resident and non-resident households and Compensation of Employees, which refers to the income of workers who work in another country for a limited period of time.

➢ Remittances have played an increasingly large role in the economies of small and developing countries. Since the late 1990s, remittances have exceeded development aid, and in some cases make up a significant portion of a country's Gross Domestic Product (GDP).

Load Generation Balancing Report

The **Central Electricity Authority (CEA)** has released its **Load Generation Balancing Report 2018-2019**.

Key Points

➢ India has again missed the target of becoming an electricity-surplus nation as its peak power deficit stood at 0.8% and the overall energy deficit remained 0.6% in 2018-19.

➢ CEA is an apex technical organization for facilitating the overall development of the Power Sector in the country to provide quality power for all at an affordable price.

➢ CEA functions under the Electricity Act, 2003.

■■■

Note:

International Relations

Highlights

- *President of Algeria Resigns*
- *Sudan's President Ousted by Army*
- *Crisis in Libya*
- *Elections in Ukraine*
- *Iran Threatens to Close the Strait of Hormuz*
- *President of India visits Bolivia*

- *President's Visit to Chile*
- *Parliamentary Election in Maldives*
- *Indo-Pacific Wing in MEA*
- *Iran Oil Import Waiver Lifted*
- *BCIM not a Part of BRI: China*

President of Algeria Resigns

Abdelaziz Bouteflika, President of Algeria has resigned after remaining in power for more than two decades.

Background

➢ Since February 22, 2019 tens of thousands of people protested throughout Algeria demanding that President Bouteflika must resign.

➢ **Constitutional Provisions**
  ❍ Algeria's Constitutional Council has accepted Mr. Bouteflika's resignation and informed Parliament that his post was officially vacant.
  ❍ Algeria's Constitution says that once the President officially resigns, the Speaker of the upper house of Parliament acts as an interim leader for up to 90 days during which a presidential election must be organized.

➢ **Demand of Protestors**
  ❍ It is to be seen whether the protesters will now vacate the streets and accept the transition. Some of them have called for a break with the system and demanded a democratic transition.

Sudan's President Ousted by Army

President **Omar al-Bashir**, who ruled Sudan for 30 years, was overthrown in a coup by the armed forces.

➢ The president was forcefully removed after months of protest over rising costs of food and other necessities but the demands quickly widened for the removal of President Omar al-Bashir and his government.

Reasons for Ouster

➢ **Economic Hardships and Civil War**
  ❍ Mr. Bashir presided over a 21-year war in southern Sudan.
  ❍ In 2011, following a referendum, South Sudan gained independence from Sudan. The referendum had been part of a peace deal agreed between Mr. Bashir and rebels from South Sudan.

Note:

○ However, the split had significant financial repercussions, because South Sudan gained 75% of Sudan's oil resources.

○ Sudan's economy - which had already been strained by more than a decade of US sanctions - was hit hard.

○ US Sanctions: Sudan has suffered prolonged periods of isolation since 1993 when the United States added Bashir's government to its list of terrorism sponsors for harboring Islamist militants.

○ In December 2018, the government of Sudan tried to prevent economic collapse, brought on by years of US sanctions and loss of oil revenue, with emergency austerity measures and a sharp currency devaluation.

➤ **Algeria's Influence**

○ Recently, Abdelaziz Bouteflika, president of Algeria has resigned after remaining in power for more than two decades.

○ This increased the wave of protests throughout Sudan.

➤ **ICC Charges**

○ Mr. Bashir has been indicted by the **International Criminal Court** in **The Hague** and is facing an arrest warrant over allegations of genocide in Sudan's Darfur region during an insurgency that began in 2003 and led to the death of an estimated 300,000 people.

Crisis in Libya

General Khalifa Haftar, head of the **Libyan National Army (LNA),** has launched a millitary campaign on the capital **Tripoli of Libya**.

Background

➤ Anti-government protests began on February 15, 2011, leading to civil war between the opposition forces and Muammar Gaddafi loyalists.

➤ The capital city, Tripoli was captured and the government was overthrown after military intervention by western powers.

➤ In Libya, a UN-backed internationally recognized government was put in place called the **Government of National Accord (GNA)**.

➤ Libya has no single government currently, with LNA backing the Tobruk-based parliament which governs the East of Libya, and the GNA which controls Libya's western parts from Tripoli.

➤ The UN-backed government failed to provide stability to Libya. West Libya which was under GNA control was replete with inter-militia battles and kidnappings.

➤ The GNA commands no security forces, public administration scarcely exists, water, petrol and power shortages abound, and few banks operate.

India's response

➤ India also evacuated its contingent of peacekeeping forces comprising of 15 CRPF personnel from Tripoli.

➤ India has also asked its citizens to exercise extreme caution.

Impact

➤ The civil war in Libya may lead to a new migrant crisis from Africa into Europe.

➤ Libya has the largest oil reserve in Africa and one of the largest oil producer in the world. Instability in Libya may increase oil prices globally. This will impact India directly.

Libya

➤ Libya is a mostly desert and **oil-rich country** in **northern africa**.

➤ Libya gained independence in 1951. Soon after oil was discovered and earned the country immense wealth.

➤ **Colonel Gaddafi** seized power in 1969 and ruled for four decades until he was toppled in 2011 following an armed rebellion assisted by Western military intervention.

➤ **Capital:** Tripoli

➤ **Currency:** Libyan dinar

Note:

Elections in Ukraine

Recently, Volodymyr Zelenskiy has been elected as the new president of Ukraine.

Issues Ukraine is facing

➢ **Confrontation with Russia**

○ Ukraine is at loggerheads with Russia over the occupation of **Crimean peninsula** by Russia.

○ The annexation of Crimea from Ukraine followed a Russian military intervention in Crimea that took place in the aftermath of the 2014 Ukrainian revolution and was part of wider unrest across southern and eastern Ukraine.

○ Last year Russia also arrested 24 Ukrainian naval officers from Kerch Strait for alleged border violations.

○ Ukraine is also seeking **North Atlantic Treaty Organization (NATO)** and European Union membership, a move that would be offensive to Russia and that could obstruct attempts to resolve other tensions with Russia.

Euromaidan Movement

Euromaidan (European Square) was a wave of demonstrations and civil unrest in Ukraine, which began in November 2013 with public protests in Maidan Nezalezhnosti (Independence Square) in Kyiv, Ukraine.

➢ **The separatist movement in East Ukraine**

○ The Donbass region (the Donetsk and Luhansk regions) of eastern Ukraine is facing a pro-Russian separatist movement since 2014.

○ According to the Ukrainian government, the movement is actively supported by the Russian government and Russian paramilitaries make up to between 15% to 80% of the separatists fighting against Ukraine government.

Normandy Format

Normandy format is also known as the Normandy contact group, or the Normandy Four is a diplomatic group of senior representatives of the four countries (Germany, Russia, Ukraine, and France) to resolve the war in Eastern Ukraine.

➢ **Corruption**

○ Corruption was one the key reason behind the ouster of a sitting president, Petro Poroshenko.

○ Transparency International's Corruption Perceptions Index shows Ukraine at 120 among 188 countries.

○ The newly elected president has vowed various severe measures against corruption.

➢ **Economic Crisis**

○ Ukraine's economy is recovering from the severe decline in the economy it experienced after the 2014 unrest, yet the gross domestic product is still substantially below its level in 2013.

○ In December 2018, the International Monetary Fund (IMF) has given US$3.9 billion packages to Ukraine.

○ But further assistance is conditional on Ukraine making key reforms and tackling corruption.

India-Ukraine Relations

➢ Immediately after the breakup of the Soviet Union, the Government of India recognized the Republic of Ukraine as a sovereign independent country in December 1991.

➢ The Embassy of India in Kyiv was established in May 1992 and Ukraine opened its Mission in New Delhi in February 1993.

➢ India and Ukraine enjoy warm and friendly relations and cooperate in areas like Culture, Arts, Education, Mutual Legal Assistance, Outer Space cooperation.

➢ Defense Relations

○ India and Ukraine also have significant defense cooperation. Ukraine has been a source of military technology and equipment for India since its independence.

○ Indian companies are collaborating with Ukrainian companies in this area.

○ India is dependent on Ukraine's military-industrial complex which plays an instrumental role in the modernization and upkeep of its air force.

Note:

> Diaspora
>> Ukraine also has a significant size of the Indian community excluding students, it is estimated to be about two thousand.
>> There are more than 8,000 Indian students enrolled in various Ukrainian medical/technical universities.

Iran Threatens to Close the Strait of Hormuz

Iran has said that it could close the strategic Strait of Hormuz shipping route if it faces more "hostility," from the United States.

Background

> Recently, US tightened sanctions on Iran andlifted off Significant Reduction Exceptions (SREs) waivers.
> However, Iran has said that it will continue to sell its oil and use the Strait of Hormuz. But if Iran is prevented from doing that it will close the strait.

What is the Hormuz Strait?

> Strait of Hormuz is the channel linking the Persian Gulf (west) with the Gulf of Oman and the Arabian Sea (southeast).

> The strait is 35 to 60 miles (55 to 95 km) wide and separates Iran (north) from the Arabian Peninsula (south).
> It contains the islands of Qeshm (Qishm), Hormuz, and Hengām (Henjām). It is of great strategic and economic importance.

Importance of Hormuz Strait

> **Strategic Location**
>> Strait of Hormuz connects the Indian Ocean with the Arabian/Persian Gulf.

>> Strait of Hormuz separates the modern Iranian state from the countries of Oman and the United Arab Emirates.
>> The Strait of Hormuz is a strategic artery linking the Middle East to the Asia Pacific, Europe, North America.

> **Commercial Shipping**
>> In all recorded history, the seaway has connected Arab and Persian civilizations with the Indian subcontinent, Pacific Asia and the Americas. Porcelain from China and spices from the Indochina peninsula often passed through the strait on their way to Central Asia and Europe.
>> All shipping traffic from energy-rich Gulf countries converges in the strait, including crude oil and liquefied natural gas exports from Iran, Iraq, Kuwait, Bahrain, Qatar, Saudi Arabia, and the United Arab Emirates.
>> Thirty percent of the world's crude oil trade passes through Strait of Hormuz. It is also the route for nearly all the liquefied natural gas (LNG) from lead exporter Qatar.

Impact of Closure

> Closure of the Strait of Hormuz or even threatening can lead to a rise in crude oil price due to supply concerns and unsettled stock markets.
> It may also disrupt trade between the Middle East and the rest of the world as commercial ships will not risk being confronted by the Iranian Navy.
> The closure may also have serious geopolitical repercussions as United States Navy's Central Command is located in the Persian Gulf. Any confrontation between the US and Iran may escalate and will have larger security implication in the whole region.

President of India visits Bolivia

Recently, the President of India completed his visit to the Plurinational State of Bolivia.

Key highlights

> First ever visit by an Indian President to Bolivia.
> Bolivia also conferred the highest State Honour of Bolivia on the President.

Note:

The Plurinational State of Bolivia

➢ Bolivia is officially known as the Plurinational State of Bolivia.

➢ It is a landlocked country located in western-central South America.

➢ The capital of Bolivia is Sucre while the seat of government and financial center is located in La Paz.

➢ In 2009, a new constitution changed the country's official name to "Plurinational State of Bolivia" in recognition of the multi-ethnic nature of the country.

Outcome of Visit

➢ 8 memorandum of understandings (MoUs) were signed between India and Bolivia concerning fields of culture, visa waiver for diplomats, the exchange between diplomatic academies, mining, space, traditional medicine, the establishment of Centre of Excellence in IT and the Bi-Oceanic Railway project.

➢ Bolivia also joined the International Solar Alliance by signing the framework agreement.

➢ **Lithium Deposit Exploration**

    ❍ Both sides also agreed to work together for exploration and extraction of the vast Lithium deposits of Bolivia.

    ❍ Lithium is a key resource used in making batteries that India needs for its clean technology initiatives such as increased use of electric cars. It will be a boost to India's FAME II scheme.

    ❍ India agreed to facilitate Bolivian supplies of lithium Carbonate to India and foster joint ventures for Lithium battery/cell production plants in India.

➢ **Financial Aid**

    ❍ Under the framework of South-South Cooperation, India gave a US$ 100 million Line of Credit to Bolivia for financing development projects in sectors that Bolivia may choose.

India-Bolivia Relations

➢ The Indian Embassy in Peru is concurrently accredited to Bolivia since April 1981.

➢ Bolivia opened a resident Mission in India in 2012.

➢ Trade Relations

    ❍ India-Bolivia bilateral trade has grown in the last two years and it stood at US$ 875 million in 2018.

    ❍ 60% of Bolivian gold is exported to India.

    ❍ Bolivia is the 8th leading trading partner of India in the Latin America region.

    ❍ There is a scope for diversifying trade basket to further strengthen the bilateral trade.

President's Visit to Chile

Recently, the President of India completed his visit to the Republic of Chile.

Key Points

➢ India-Chile commemorated the 70th anniversary of the Establishment of Diplomatic Relations between Chile and India.

➢ India and Chile are partners in the International Solar Alliance.

➢ India-Chile signed three Memorandum of Understandings (MoUs) in the fields of - mining, culture & disability.

➢ Chile is India's window to Latin America and the Pacific Alliance.

➢ Chile is the fifth largest trading partner of India in the Latin American region.

➢ India-Chile signed the Preferential Trade Agreement in 2017 to enhance the trade.

➢ The bilateral trade is growing and stood at US$ 2.8 billion in 2017-18.

> **Republic of Chile**
> ➢ The capital of Chile is **Santiago**.
> ➢ It is a South American country occupying a narrow strip of land between the Andes to the east and the Pacific Ocean to the west.

Note:

> It borders Peru to the north, Bolivia to the northeast, Argentina to the east, and the Drake Passage in the south.

> The **Atacama desert,** one of the driest places in the world touches Chile in its northern side and is a source of sodium nitrate fertilizer.
>   ○ It owes it aridity due to a constant temperature inversion of cool north-flowing Humboldt ocean current.

> **Chuquicamata** is the World's largest copper town of Chile.

Parliamentary Election in Maldives

The Maldivian Democratic Party (MDP) has won the parliamentary election in the 87-Member People's Majlis (Maldivian Parliament).

Significance For India

> After a downward trend in relations during the presidency of Abdulla Yameen, that benefited China considerably, the relation between India and Maldives are warming up again under the new president Ibrahim Solih.

> Since September 2018, India and Maldives have seen a number of bilateral visits.

India-Maldives Relation

> India and the Maldives share deep historical, cultural, and economic ties.

> India was among the first to recognize Maldives after its independence in 1965 and to establish diplomatic relations with the country. India established its mission at Malé in 1972.

> India's bilateral and financial assistance to the Maldives has been reciprocated through an **"India first"** policy by the Maldives.

Importance of the Maldives for India

> The Maldives is an important aspect of India's 'Neighbourhood First' policy.

> Strategically located in the Indian Ocean, the Maldives archipelago comprising 1200 coral Islands lies next to key shipping lanes which ensure uninterrupted energy supplies to countries like China, Japan, and India. More than 97% of India's international trade by volume and 75% by value passes through the region.

> As the pre-eminent South Asian power and a 'net security provider' in the Indian Ocean region, India needs to cooperate with the Maldives in security and defense sectors.

> India is also a preferred destination for Maldivians for education, medical treatment, recreation, and business.

South Asian Association for Regional Cooperation (SAARC)

> The South Asian Association for Regional Cooperation (SAARC) is a regional intergovernmental organization and geopolitical union in South Asia formed in 1985.

> The member states include Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka.

> SAARC comprises 3% of the world's area, 21% of the world's population and 9.12% of the global economy, as of 2015.

> The organization promotes the development of economic and regional integration. It launched the South Asian Free Trade Area in 2006.

> SAARC maintains permanent diplomatic relations at the UN as an observer and has developed links with multilateral entities.

- Maldives is also a member of SAARC. It is important for India to have the Maldives on board to maintain its leadership in the region.
- Since China's naval expansion into the Indian Ocean - Maldives significance has steadily grown and now it's at the heart of international geopolitics.
- There is significant Indian diaspora in the Maldives. Innumerable Indians work across the hospitality, education, and health-care sectors of the Maldives economy.

Indo-Pacific Wing in MEA

India has set up an Indo-Pacific division in the Ministry of External Affairs.

- The new division is intended to give a coherent architecture to the policy, which was articulated by the prime minister at the Shangri-La Dialogue in 2018.

Importance of Separate Division

- MEA's territorial divisions are crucial for policy making, so the creation of an Indo-Pacific division is a big step by the government.
- The division will integrate the Indian Ocean Rim Association (IORA), ASEAN region and the Quad.
- India is planning to put greater energy to the IORA because the core of its Indo-Pacific policy is rooted in the Indian Ocean.
- The US also recently renamed its Pacific Command to the Indo-Pacific Command as it seeks to give significance to its Indo-Pacific policy.

Highlights of PM Narendra Modi's address at Shangri-La

- By projecting an equivalence in ties with the US, Russia, and China – India reaffirmed its principle of strategic autonomy and cautioned against the return of the 'great power rivalries'.
- India's Indo-Pacific strategy is not aimed at China's containment.
- India sees the Indo-Pacific as primarily a geographic domain — a "natural region".
- The Indo-pacific region is ultimately multi-polar, hence rejecting or contesting the idea that either China or the United States could be the one regional hegemonic power.
- India is indispensable to the security of the Indian Ocean.

- Signified the interconnectedness of the Indian and Pacific Oceans and the importance of the oceans to security and commerce.

Shangri-La Dialogue

- The Shangri-La Dialogue (SLD) is an intergovernmental security forum held annually by an independent think tank, the International Institute for Strategic Studies in Singapore.
- The Shangri-La Dialogue has evolved into a key strategic gathering of the Asia-Pacific region.
- It is attended by defense ministers, permanent heads of ministries and military chiefs of Asia-Pacific states.

Indian Ocean Rim Association

- The Indian Ocean Rim Association is an intergovernmental organization which was established on 7 March 1997.
- IORA has 21 Member States, mainly littoral Indian Ocean states, and 7 other states as Dialogue Partners.
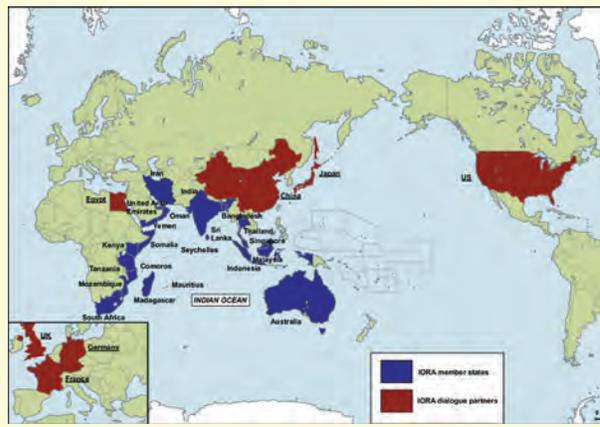
Iran Oil Import Waiver Lifted

The US has stated that it will not renew exemptions from its sanctions for importing oil from Iran. There will be no Significant Reduction Exceptions (SREs) to any nation anymore.

- India is the world's third-biggest oil consumer. It meets more than 80% of its crude oil requirements and around 40% of its natural gas needs through imports.
- India is Iran's top oil buyer after China. In 2018-19, it imported 23.5 million tonnes from Iran; in the previous year, almost 10% of its total 220.4 million tonnes of crude import was from Iran.

Note:

➤ Iran was the fourth largest supplier of oil to India in 2018-19, and other suppliers may not provide the same benefits in the form of price and credit facilities.

Key Points

➤ The exemptions were granted last November for a 180-day period for India and seven other countries, and are due to expire on May 2.

➤ India, China, and US allies Japan, South Korea, and Turkey will be the most impacted by the non-renewal of waivers.

➤ The other three currently exempted countries — Italy, Greece, and Taiwan — have already reduced their imports to zero.

➤ The US has said that India's "escrow account" used for Rupee-Rial trade cannot be operated after May 2 deadline.

Note:
An escrow account is a temporary pass-through account held by a third party during the process of a transaction between two parties.

➤ However, there is no change in the exemption given for India's investments in Chabahar port as a trade route to Afghanistan.

➤ The US will place financial curbs on any entities or companies violating the oil sanctions, including a ban on the use of the SWIFT banking international transaction system by the companies, seizure of any US assets of those companies, and curtailing any other dollar transactions.

Impact of Sanctions

➤ **On Iran:** The significant reduction in oil export will deny Iran its principal source of revenue.

➤ **On Global Oil Supplies:** Iran has a 4% share of global oil production in 2018. Sanctions on Iran are likely to impact global oil supply chains.
  ○ Disruption in supply may also lead to a significant rise in oil prices.
  ○ However, the United States, Saudi Arabia, and the United Arab Emirates, three of the world's largest energy producers have said that they are committed to ensuring that global oil markets remain adequately supplied.

Impact on India

➤ **Oil Supply for Refineries:** The decision of the US is likely to irk India, particularly since the US has also imposed sanctions on another of India's top suppliers, Venezuela.

➤ **Current Account Deficit:** Higher crude oil prices will widen the trade deficit and current account deficit, given that the value of imports goes up with crude oil.
  ○ Each dollar increase in the price of oil raises India's annual import bill by over Rs 10,500 crore, any spike in global crude prices could have a bigger impact on India's deficit numbers in the absence of the Iranian oil.

➤ **Rupee and Inflation:** The currency could be impacted if the trade and current account deficits were to widen. An increase in the import bill will tend to put pressure on the rupee. The rise in crude oil prices passed on to the consumer will increase inflation.

BCIM not a Part of BRI: China

China has stated that the Bangladesh-China-India-Myanmar (BCIM) Corridor will not be a part of the Belt & Road Initiative.

Key Points

➤ India's decision to skip the **Belt and Road Forum (BRF)** may have led to the exclusion of the **Bangladesh-China-India-Myanmar (BCIM) Economic corridor** from the list of projects covered by the China-led Belt and Road Initiative (BRI) umbrella.

➤ Citing sovereignty concerns, India, for the second time, has not officially participated in the BRF, as **China Pakistan Economic Corridor (CPEC)** — a flagship of the BRI—passes through **Pakistan occupied Kashmir (PoK)**.

➤ In the official communique of BRF, South Asia is covered by three major undertakings—the **China-Myanmar Economic Corridor (CMEC),** the **Nepal-China Trans-Himalayan Multidimensional Connectivity Network** and the **China Pakistan Economic Corridor (CPEC)**.

Bangladesh-China-India-Myanmar (BCIM) Corridor

➢ The 2800 km BCIM corridor proposes to link **Kunming in China's Yunnan province with Kolkata**, passing through nodes such as **Mandalay in Myanmar and Dhaka in Bangladesh** before heading to Kolkata.

China-Myanmar Economic Corridor (CMEC)

➢ The 1,700-km corridor provides China another node to access the Indian Ocean.

➢ The CMEC will run from **Yunnan Province of China to Mandalay in Central Myanmar**.

➢ From there it will head towards Yangon, before terminating at the **Kyaukpyu Special Economic Zone (SEZ)** on the Bay of Bengal.

➢ The CMEC will reduce Beijing's trade and energy reliance on the Malacca straits — the narrow passage that links the Indian Ocean with the Pacific.

➢ China is worried that US Naval domination over the **Malacca straits** can threaten one of China's major economic lifelines.

Nepal-China Trans-Himalayan Multi-dimensional Connectivity Network

➢ The **Nepal-China Trans-Himalayan connectivity network** starting from **Chengdu**, from where it is linked to **Tibet by the Sichuan-Tibet Highway** and **Railway**.

➢ China has visualized that that railway can eventually be connected with the Indian railway network, linking China and India across the Himalayas.

China Pakistan Economic Corridor (CPEC)

➢ The CPEC is a bilateral project between Pakistan and China, intended to promote connectivity across Pakistan with a network of highways, railways, and pipelines accompanied by energy, industrial, and other infrastructure development projects.

➢ CPEC links the Western part of **China to the Gwadar Port in Balochistan,** Pakistan running some 3000 km from **Xinjiang to Balochistan via Khunjerab Pass** in the Northern Parts of Pakistan.

Note:

Science and Technology

Highlights

- EMISAT Satellite
- First Images of a Black Hole
- Meteorite Sheds Light on the Sun's Infant Years
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EMISAT Satellite

The ISRO has launched the EMISAT satellite onboard the **PSLV-C45** from the **Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh**.

➢ The PSLV-C45 was also carrying 28 international nanosatellites — 24 from the US, 2 from Lithuania and one each from Spain and Switzerland.

➢ The flight of PSLV was also the longest mission of the PSLV, lasting around three hours.

About EMISAT Satellite

➢ The EMISAT satellite is aimed at **electromagnetic spectrum measurement**.

➢ It was successfully placed in its intended **Sun-Synchronous Polar Orbit (SSPO)** of 748 km.

➢ It is an all weather and all terrain condition satellite, which will allow it to work through clouds, rain, forest and coastal areas.

➢ EMISAT is an **ELINT (Electronic Intelligence) satellite**, which means it will have a radar to measure the electromagnetic spectrum - so as to intercept and analyze radar signals, find their location, identify the hostile radars based on their **radio frequency (RF)** signature.

➢ This will be a vital tool for India when EMISAT along with the **Airborne Warning and Control System (AWACS)** can effectively locate, tackle and silence enemy radars, and secure Indian airspace.

Polar Orbit

➢ A polar orbit travels north-south over the poles and takes approximately 90 minutes for a full revolution.

➢ These orbits have an inclination near 90 degrees. This allows the satellite to see virtually every part of the Earth as the Earth rotates underneath it.

➢ An orbit is called sun-synchronous when the angle between the line joining the center of the Earth and the satellite and the Sun is constant throughout the orbit.

Significance of Launch

➢ This was the first time when the PSLV has placed objects in three different orbits.

➢ The fourth stage was restarted and stopped twice to bring PSLV to the altitude of 507 km after EMISAT launch.

➢ At the fourth stage three experimental payloads were deployed:

  ○ **Automatic Identification System (AIS)** for Maritime satellite applications capturing messages transmitted from ships

Note:

- ○ **Automatic Packet Repeating System (APRS)** from AMSAT (Radio Amateur Satellite Corporation), India - assisting amateur radio operators in tracking and monitoring position data
- ○ **Advanced Retarding Potential Analyzer for Ionospheric Studies (ARIS)** from Indian Institute of Space Science and Technology (IIST) - for the structural and compositional studies of the ionosphere.

First Images of a Black Hole

The scientists at **Event Horizon Telescope Project** have released the first-ever image of a Black Hole (more precisely, of its shadow) on April 10, 2019.

➢ The targeted black hole is located in the center of galaxy **Messier 87**, in the constellation **Virgo**. It is located about 53 million light -years away from earth.

➢ The black hole has a mass of 6.5 billion Suns.

➢ The image was made possible by the **Event horizon telescope (EHT)**.

➢ The EHT picks up the radiation emitted by particles in the galaxy heated to a billion degrees as they revolve around the black hole close to the speed of light.

What is a black hole?

➢ The term 'black hole' was coined in the mid-1960s by **American Physicist John Archibald Wheeler**.

➢ Black hole refers to a point in space where matter is so compressed as to create a gravity field from which even light cannot escape.

➢ It was theorized by Albert Einstein in 1915.

Event Horizon

➢ There is a region of space beyond the black hole called the event horizon. This is a **"point of no return" beyond which it is impossible to escape the gravitational effects of the black hole**.

Event Horizon Telescope (EHT) Project

➢ EHT is an array of 8 radio telescopes (used to detect radio waves from space) located in different parts of the world. It combines data from several **Very-Long-Baseline Interferometry (VLBI)** stations around Earth with angular resolution sufficient to observe the objects having size of black hole's event horizon.

Elements of a black hole

Accretion disc — A swirling mass of matter destined to spiral into the black hole or be ejected into space

Event horizon — Gravitational boundary beyond which neither light nor matter can escape

Relativistic jets — Matter and radiation extending out hundreds of thousands of light years
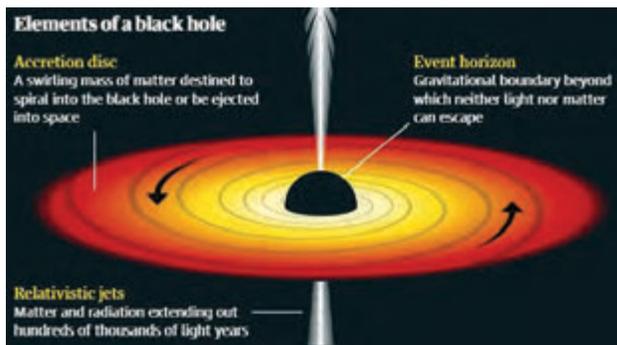
The Event Horizon Telescope Array

Black Holes & Dark Matter

➢ An international research team has ruled out the possibility that primordial black holes (formed in the early age of the universe) might be the primary source of dark matter.

➢ The theory that primordial black holes are a source of dark matter was proposed by **Professor Stephen Hawking**.

What is Dark Matter?

➢ Dark matter, though never detected, is believed to be present in the entire universe, its existence presumed because a number of observable celestial phenomena could not be possible if the universe did not have much more matter in it than is seen.

➢ It is believed to make up more than 95% of the Universe.

➢ Its gravitational force prevents stars in our Milky Way from flying apart.

➢ However, attempts to detect such dark matter particles using underground experiments, or accelerator experiments including the world's largest accelerator, the **Large Hadron Collider (LHC)**, have failed so far.

Note:

Presence of Dark Matter in Universe

➢ In the solar system, Mercury, the planet closest to the Sun, takes just 88 days to make one revolution around the sun, while Neptune, the farthest one, takes 165 years to make one round.

➢ Laws of gravity expect us to see stars closer to the center of galaxies rotating faster than the stars on the edge.

➢ However, in most galaxies, the stars closer to the center and the stars at the edge of the galaxies take almost the same time to make one revolution.

➢ **This implied that something invisible matter enveloping the galaxies was giving an extra push to the outer stars, speeding them up.**

➢ This entity has remained as one of the unresolved puzzles in cosmology since the 1930s. It is named as `Dark Matter'.

➢ The material is considered to be a 'matter' since it has gravitational attraction and it is 'dark' because it does not seem to interact with light (or any part of the electromagnetic spectrum).

Primordial Black Holes

➢ When the big bang hypothesis was proposed, two Soviet physicists, Yakov Borisovich Zel'dovich and Igor Dmitriyevich Novikov, showed that at the initial instant of the big bang, the densities would have been very high at many points, resulting in the formation of small black holes.

➢ They were named `primordial black holes'.

➢ Stephen Hawking investigated them in 1971. He computed that the mass of the primordial black holes could range from as low as one-hundredth of a milligram to as high as more than the mass of Thousand Suns.

Gravitational Lensing
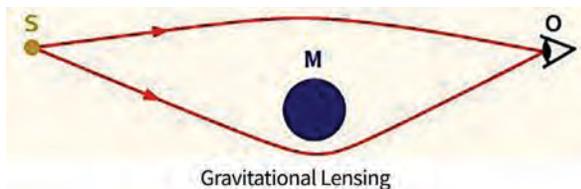
Gravitational lensing
➢ When the black hole is in alignment with a distant star, due to gravitational attraction, light rays are bent inwards like a lens, making the star appear brighter. This is called **'gravitational lensing'**.

➢ This rare phenomenon can occur only when the star, the black hole and the observer on the Earth are aligned in a straight line.

➢ This phenomenon was **first proposed in Albert Einstein's General Theory of Relativity**.

Meteorite Sheds Light on the Sun's Infant Years

By analyzing a piece of meteorite found in Kazakhstan in 1962, researchers have envisaged how the Sun behaved in its infancy.

Key Findings

➢ Researchers found that during initial years Sun was able to generate superflares which were a million times stronger than the strongest solar flare ever recorded at the 1859 Carrington event.

  ○ The solar storm of 1859 (also known as the Carrington Event) was a powerful geomagnetic storm during solar cycle 10 (1855–1867).

  ○ A solar flare is a sudden flash of increased brightness on the Sun, sometimes they are also accompanied by a coronal mass ejection.

➢ Such superflares must have taken place 4.5 billion years ago when the Sun was barely forming.

➢ Researchers also inferred that irradiation by such superflares from the Sun is the **sources of elements like beryllium-7**.

➢ **Among the first-formed solids of the solar system were the calcium-aluminum-rich inclusions (CAI).** The CAIs are nearly 4.5 billion years old.

Asteroid
➢ These rocks are generally found **between Mars and Jupiter** in an orbit called the asteroid belt.

➢ These are usually the **fragments of a planet** that never came together.

Comet
➢ It is a chunk of ice and rock originating from the outer solar system. Some of them occasionally get **gravitationally pulled towards the inner solar system,** with the possibility of hitting Earth.

➢ When passing close to the Sun, the comet warms and begins to release gases, a process called outgassing.

➢ This produces a visible atmosphere or coma, and sometimes also a tail.

Meteoroid

➢ It a space rock that's bigger than a dust grain but smaller than an asteroid. The dividing line between asteroid and meteoroid is fuzzy, but generally, space rocks bigger than boulders are asteroids and smaller ones are meteoroids.

Meteor

➢ The streak of light seen when a space rock — an asteroid or a comet — enters the earth's atmosphere and starts burning up. It's the scientific synonym for "shooting star."

Meteorite

➢ If a meteor doesn't entirely burn up, a piece of space rock that landed on Earth is called a meteorite.

Bolide

➢ Astronomers use the term to describe a bright fireball from an incoming meteor; geologists use it as a catch-all term for a comet or an asteroid that hit the Earth.

Coronal Mass Ejection

➢ A coronal mass ejection (CME) is a **significant release of plasma and accompanying magnetic field from the solar corona**. They are **often followed by solar flares**.

Simulated Martian Base

Recently, a Chinese company **C-Space** has opened **"Mars Base 1"**, a simulated Martian base of future astronauts in the desert hills of **Gobi Desert in China's Gansu Province**.

➢ The base is currently an educational facility and in the future, it will be expanded to be a tourist destination also.

Gobi Desert

➢ The Gobi is a desert and semi-desert region of Central Asia. The Gobi (from the Mongolian Gobi, meaning "waterless place") stretches across huge portions of both Mongolia and China.

➢ The Gobi desert is bounded by the Altai Mountains and the grasslands and steppes of Mongolia in the north, and Tibetan Plateau to the southwest, and by the North China Plain to the southeast.

Universe's First Molecule

Scientists have detected the **most ancient type** of molecule in our universe in space for the first time ever.

Key Points

➢ **Helium hydride ion (HeH+)** was the first molecule that formed when, almost 14 billion years ago, the falling temperatures allowed recombination of the lighter elements (hydrogen, helium, deuterium and traces of lithium) **produced in the Big Bang**.

➢ Helium combined first with free electrons to form the first ever neutral atom, hydrogen was still ionised or present in the form of bare protons

➢ Helium atoms combined with these hydrogen ion into the **"helium hydride ion (HeH+)"**, the universe's first molecular bond.

➢ Once the universe cooled down, hydrogen atoms started to interact with helium hydride, creating molecular hydrogen, which set the stage for star formation.

➢ Despite its importance in the history of the early Universe, HeH+ has so far escaped detection in **astrophysical nebulae** — cloud of gas and dust in outer space.

➢ Helium hydride — a combination of helium and hydrogen — was detected roughly 3,000 light-years from Earth by **NASA's Stratospheric Observatory** for **Infrared Astronomy (SOFIA)**.

➢ The molecule was found in a planetary nebula, **NGC 7027**, which is the dusty remnant of a sun-like star.

➢ While **helium hydride** has been produced and tested in a laboratory setting, this discovery marks the first time that this molecule has been detected in space — which sheds light on the chemistry of the early universe.
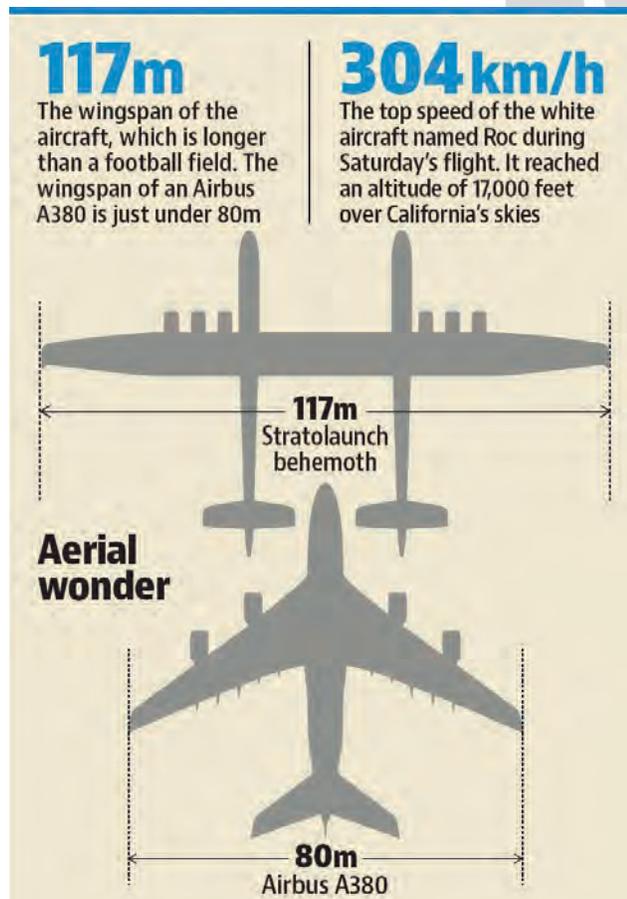
Note:

Stratospheric Observatory for Infrared Astronomy

➢ It is a **Boeing 747SP jetliner** modified to carry a 100-inch diameter telescope. It is a joint project of **NASA and the German Aerospace Centre**.

➢ It is flown at approx 45,000 feet, where its observations are not impacted by interference from Earth's atmosphere.

➢ SOFIA returns to Earth after every flight, allowing scientists to regularly update the instrument with the latest technology. One of the most recent upgrades included adding a specific channel to detect signatures of **helium hydride**, which previous telescopes did not have.

World's Largest Plane

World's largest airplane built by Scaled Composites, a partner of US based Stratolaunch Systems, has made its first test flight in the **Mojave Desert in California**.

➢ The plane, made of carbon composites, is named as Roc.

117m
The wingspan of the aircraft, which is longer than a football field. The wingspan of an Airbus A380 is just under 80m

304 km/h
The top speed of the white aircraft named Roc during Saturday's flight. It reached an altitude of 17,000 feet over California's skies

117m
Stratolaunch behemoth

Aerial wonder

80m
Airbus A380

➢ The Stratolaunch Systems Corp was started by Microsoft co-founder **Paul Allen**.

➢ The plane is designed to drop rockets and other space vehicles weighing up to 500,000 pounds at an altitude of 35,000 feet.

Young Scientist Programme (Yuvika)

The **ISRO has launched** a special programme for School Children called "Young Scientist Programme" or "YUva VIgyani KAryakram" from this year.

➢ The Program is primarily aimed at imparting basic knowledge on Space Technology, Space Science and Space Applications to the younger ones with the intent of arousing their interest in the emerging areas of Space activities.

➢ The programme will be of two weeks duration during summer holidays (second half of May 2019) and the schedule will include invited talks, experience sharing by the eminent scientists, facility and lab visits, exclusive sessions for discussions with experts, practical and feedback sessions.

➢ It is proposed to select 3 students each from each State/ Union Territory to participate in this programme covering CBSE, ICSE and State syllabus.

➢ The selection is based on the 8th Standard academic performance and extracurricular activities.

➢ Students belonging to the rural areas have been given special weightage in the selection criteria.

Dhanush Artillery Guns

Recently, the Ordnance Factory Board (OFB) has handed over the first batch of six indigenously built Dhanush Artillery guns to the Army.

➢ Dhanush is an **upgraded version of the Swedish 155-mm Bofors howitzers**, which India procured in the mid-1980s.

➢ It is a 155-mm, 45-calibre gun with a maximum range of 40 km in salvo mode (simultaneous discharge of artillery), compared to the 39-calibre, 27-km range of the original guns, so it can be deployed in both deserts and mountains.

➢ The gun is fitted with inertial navigation system with Global Positioning System- (GPS) based gun recording

Note:

and auto-lying, an enhanced tactical computer for onboard ballistic computations, an onboard muzzle velocity recording, an automated gun sighting system equipped with camera, thermal imaging and laser range finder.

➢ It has achieved indigenization to the extent of about 81% and by the end of 2019, the indigenization level of the gun will go up to 91%.

Note:

"Dhanush" is also a **surface-to-surface short range** nuclear capable ballistic missile with a strike range of 350 kms developed by the Defence Research and Development Organisation (DRDO).

Virtual Reality Centre of Indian Navy

Recently, Chief of Naval Staff Admiral Sunil Lanba inaugurated the first **'state-of-the-art' Virtual Reality Centre (VRC)** at the Directorate of Naval Design (Surface Ship Group), New Delhi.

➢ This center would provide a major boost to the Indigenous warship design capabilities of the Indian Navy.

➢ It will also provide impetus to self-reliance and greater fillip to warship construction under "Make in India" initiative of the Indian government.

➢ **Augmented Reality (AR):** An enhanced version of reality where live direct or indirect views of physical real-world environments are augmented with superimposed computer-generated images over a user's view of the real-world, thus enhancing one's current perception of reality.

➢ **Virtual Reality (VR):** It can be referred to as immersive multimedia or computer-simulated reality which replicates an environment that simulates a physical presence in places in the real world or an imagined world, allowing the user to interact in that world.

➢ **Mixed reality (MR):** It can be referred to as hybrid reality that is the merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time.

➢ **Extended reality:**
  ○ Extended Reality (XR) is an **umbrella term** encapsulating **Augmented Reality (AR), Virtual Reality (VR), mixed reality (MR)** and **everything in between**.
  ○ Although drawing the line between AR and VR experiences can be challenging, it is clear that many of the same underlying technologies will power revolutionary XR experiences.

Nirbhay Missile

➢ Recently, **Defense Research & Development Organisation (DRDO)** has successfully conducted the sixth flight test of **"Nirbhay" cruise missile** from the Integrated Test Range (ITR), Chandipur Odisha.

➢ Nirbhay is an indigenously designed & developed Long Range **Sub-Sonic Cruise Missile** that can be armed with a 200-300-kilogram warhead.

➢ This nuclear-capable, solid fuel, missile has the **capability to cruise at 0.7 Mach**, and at altitudes as low as 100 m.

➢ The missile can be deployed from multiple platforms and has a range of 1000 km.

Enzyme to arrest bacteria cell growth discovered

Recently, the scientists at the **Centre for Cellular & Molecular Biology (CCMB)** have come up with a way to inhibit the multiplication of bacteria even before the cell wall begins to grow.

➢ They have discovered a new enzyme which helps in **breaking cell walls of bacteria**. The finding is significant for it offers a potential for a new **drug delivery route to arrest the anti-bacterial resistance** through existing antibiotic drugs.

➢ Regular antibiotics target the machinery that creates the bacterial cell wall — a mesh-like structure that is made up of cross-linked sugars and peptides.

➢ However, this experiment shows how to target cell-wall formation at the beginning itself, earlier than when the present set of antibiotics act.

➢ With the rapid rise of antibiotic resistance, researchers across the world are exploring new ways to target

bacteria. In this context, the new findings can play a crucial role in fighting the battle against antibiotic resistance.

Centre for Cellular & Molecular Biology (CCMB)

➢ It is a premier research organization which conducts high quality basic research and training in frontier areas of modern biology, and promote centralized national facilities for new and modern techniques in the interdisciplinary areas of biology.

➢ It was set up initially as a semi-autonomous Centre on April 1, 1977 with the Biochemistry Division of the then Regional Research Laboratory (presently, Indian Institute of Chemical Technology, IICT) Hyderabad.

➢ **During 1981-82,** the CCMB was accorded the status of a full-fledged national laboratory with its own Executive Committee and Scientific Advisory Council.

➢ It is **located in Hyderabad and operates under the aegis of the "Council of Scientific and Industrial Research" (CSIR)**.

➢ It is designated as **"Center of Excellence" by the Global Molecular and Cell Biology Network, UNESCO**.

Chytridiomycosis Disease

➢ Scientists have warned of deadliest disease "Chytridiomycosis" that already wiped out 90 species of frogs and toads.

➢ Chytridiomycosis is caused by a fungus — **Batrachochytrium dendrobatidis** — that attacks the skin of frogs, toads and other amphibians.

  ❍ As the creatures use their skin to breathe and regulate their bodies' water levels, the damage caused by the disease eventually leads to heart failure and death.

  ❍ It spreads through contact and water.

➢ The rapid global spread of the fungus is due to a **lack of animal trade rules and airport surveillance**, which allows wildlife to be imported without examination.

➢ The **fungus originated in Asia** and gradually became pandemic in Latin America and Australia owing to trade (import and export of amphibians as pets) with Asia.

  ❍ This can be termed as a **negative externality of Globalisation on the wildlife**.

➢ Moreover, a genetic mutation of the fungus may have made it more dangerous. Governments and other agencies must focus on regulation and need to start

taking biosecurity and the illegal wildlife trade far more seriously to prevent the spread of diseases.

Drug Resistant Fungal Infection

A fungal infection resistant to drugs is being detected in patients across the hospitals in the world.

➢ The fungus is named as **Candida Auris (C. Auris)**, which attacks people with weakened immune systems.

➢ It is quietly spreading across the globe. Over the past five years, it has been detected in Venezuela, Spain, Britain, India, Pakistan, and South Africa.

➢ Recently C. Auris was also detected in the United States.

➢ C. Auris is impervious to major antifungal medications, making it a new example of one of the world's most intractable health threats, the rise of drug-resistant infections.

➢ The symptoms of infection are fever, aches, and fatigue. Nearly half of patients who contract C. Auris die within 90 days, according to the Centre for Disease Control, USA.

Three-Person Baby

A team of Greek and Spanish doctors has produced a baby (in Greece) using genetic material from two women and a man.

➢ The technique used is called as **'Maternal Spindle transfer'** in which maternal DNA is put into the egg of a donor woman, which is then fertilized using the father's sperm.

➢ The procedure was developed to help existing IVF treatments in which mothers have **mitochondrial diseases**.

➢ Mitochondrial diseases are long-term, genetic, often inherited disorders that occur when mitochondria fail to produce enough energy for the body to function properly.

Three-parent babies
The technique involves using DNA from three people in order to prevent serious inherited diseases
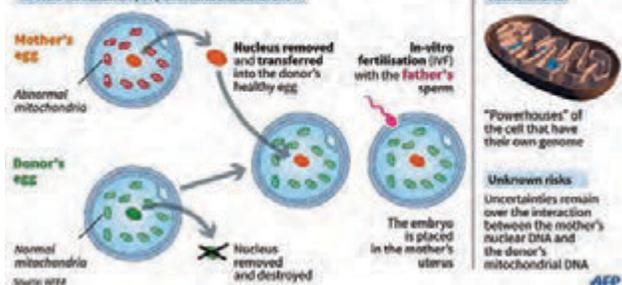
Antibiogramoscope Device

A team of professors at Anna University, Chennai has developed a device called Antibiogramoscope to deal with **antibiotic resistance**.

➢ The research was supported by the University Grants Commission (UGC) and Department of Science and Technology (DST).

➢ The team developed a liquid **Antibiotic Sensitivity Testing (AST) medium**. To this, a commercially available fluorescent molecule is added along with the sample (body fluid).

➢ This is transferred to the antibiogramoscope's microwells which are coated with one type of antibiotic.

➢ When bacteria grow in the medium, it produces a compound called **erucamide**, which binds to the **fluorescent molecule**, turning off its fluorescence.

➢ This means if we see fluorescence in some microwells, those antibiotics are effective in killing the bacteria.

➢ No fluorescence means the bacteria is growing despite the antibiotic which highlights antibiotic resistance.

➢ Antibiogramoscope has cleared validation tests at **National Accreditation Board for Testing and Calibration Laboratories (NABL)** accredited microbiological lab.

Advantages of Antibiogramoscope Over Traditional Methods

➢ It identifies resistant strains of bacteria much quicker, helping physicians choose the right drug, all at a lower cost.

➢ The existing method uses a solid medium to grow bacteria, while this new method uses liquid medium giving superior results.

➢ The system is automated, needing no human intervention once the samples and medium are loaded.

National Accreditation Board for Testing and Calibration Laboratories (NABL)

➢ NABL is a Constituent Board of **Quality Council of India**.

➢ NABL has been established with the objective of providing Government, Industry Associations and Industry in general with a scheme of Conformity Assessment Body's accreditation which involves third-party assessment of the technical competence of testing including medical and calibration laboratories, proficiency testing providers and reference material producers.

➢ **Quality Council of India (QCI)** is a **non-profit autonomous society** registered under the Societies Registration Act, 1860.

➢ The aim of QCI is to establish an accreditation structure in the country and to spread quality movement in India by undertaking a **National Quality Campaign**.

3D Printed Heart with Human Tissue

Scientists in Israel have unveiled a 3D print of a heart with human tissue and vessels, advancing the possibilities for transplants.

Key Points

➢ This is the **first time that anyone has successfully engineered and printed an entire heart replete with cells, blood vessels, ventricles and chambers**. People have managed to 3D-print the structure of a heart in the past, but not with cells or with blood vessels.

➢ The heart produced by scientists is about the **size of a rabbit's**. Scientists believe that larger human hearts would require the same technology but expanding the cells to have enough tissue to create a human-sized heart, is a challenge.

➢ The ink for this 3D print was developed by scientists **by taking a biopsy of fatty tissue from a patient**. This is crucial for eliminating the risk of **implant rejection**.

➢ Cardiovascular disease is the world's leading cause of death, according to the WHO, and transplants are currently the only option available for patients in the worst cases. But the number of donors is limited and thus many die while waiting. Sometimes, a patient's body even rejects the transplant, leading to his/her death.

Scientists Restore Brain Cell Activity

In a radical experiment, scientists have **restored brain circulation and some cell activity in pigs brains**, hours after the animals died in a slaughter houses.

Key Points

➢ The results, though done in pigs and not humans, challenge the long-held view that, after death, brain cells undergo sudden and irreversible damage.

- It was held that the brain cannot long survive without blood. Within seconds, oxygen supplies deplete, electrical activity fades, and unconsciousness sets in. If blood flow is not restored, within minutes, neurons start to die in a rapid, irreversible, and ultimately fatal wave.
- In the study, the researchers developed a novel system for studying intact, postmortem brains, dubbed as **BrainEx**.

About BrainEx

- It's a network of pumps that pipe a synthetic solution — a substitute for blood — into the brain's arteries at a normal body temperature.
- The brains were placed in the BrainEx system four hours after the pigs' death, and were allowed to "perfuse" with the synthetic blood substitute for 6 hours.
- During this time, the BrainEx system not only preserved brain cell structure and reduced cell death, but also restored some cellular activity.
  - For example, some cells were metabolically active, meaning they used glucose and oxygen and produced carbon dioxide. Other cells reacted with an inflammatory response when stimulated with certain molecules.
- In contrast, the brains that were not treated with BrainEx rapidly decomposed.

Ethical concerns

- Although scientists are a long way from being able to restore brain function in people with severe brain injuries. If some restoration of brain activity is possible, then the definition of brain death will need to change.
- More guidelines are required around the ethical issues raised by the study, which raises long-standing assumptions about what makes an animal — or a human — alive.
- One concern is also of **'how to detect consciousness'** and how long systems like BrainEx should be allowed to run.

Significance

- The work could provide scientists with new ways of studying the brain, allowing them to examine functions in the entire, intact brain in a way that haven't been possible before.

- However, the researchers stressed that they did not observe any kind of activity in the pigs' brains that would be needed for normal brain function or things like awareness or consciousness.

Way Forward

- Because the study lasted for only 6 hours, more research is needed to know whether BrainEx can preserve brains for longer than this time.
- In addition, a lot of questions remain about **how similar this model is to the real brain environment** as the system does not use real blood, and the brain is not bathed in fluid as it is inside the skull.
- The new technology opens up **opportunities to examine complex cell and circuit connections of the brain** and functions that are lost when specimens are preserved in other ways.
- The work also could stimulate research on ways to promote brain recovery after loss of blood flow to the brain, such as during a heart attack.

Bubble Boy Disease

As per the recent study, U.S. scientists used 'HIV' in making a gene therapy that cured eight infants of **"bubble boy" disease**. The study details how scientists turned the **enemy 'HIV virus'** into a saviour, altering it so it couldn't cause disease and then using it to deliver a gene that babies with "bubble boy" disease lacked.

- Bubble Boy Disease, also known as **Severe Combined Immunodeficiency Syndrome (SCID)** is caused by a genetic flaw that keeps the bone marrow from making effective versions of blood cells that comprise the immune system.
- It affects 1 in 2,00,000 newborns, almost exclusively males. Without treatment, it often kills in the first year or two of life.
- The nickname **'bubble boy disease' has come from a famous case in the 1970s** – a Texas boy with SCID, lived for 12 years in a protective plastic bubble for isolation from germs.
- A bone marrow transplant from a genetically matched sibling can cure SCID, but most people lack a suitable donor. Transplants are risky too; the Texas boy died after one.
- Doctors think **gene therapy** could be a solution. It involves removing some of a patient's blood cells,

using the modified HIV to insert the missing gene, and returning the cells to the body.

World's First Malaria Vaccine

The world's first malaria vaccine **"RTS,S/AS01"** has been rolled out in Malawi, Africa for children of age under two.

➢ RTS,S/AS01, trade name **Mosquirix**, is an injectable vaccine targeting **P. falciparum**, the most prevalent malaria strain in Africa.

➢ It is the first and only vaccine to show partial protection in young children. In clinical trials, the vaccine was found to prevent approximately 4 in 10 malaria cases, including 3 in 10 cases of life-threatening severe malaria.

➢ The WHO-coordinated pilot programme is a collaborative effort with Ministries of Health in Ghana, Kenya and Malawi and a range of in-country and international partners, including **PATH**, a non-profit organization, and GSK, the vaccine developer and manufacturer, which is donating up to 10 million vaccine doses for this pilot.

Note:

PATH is an international non-profit team of innovators which advises and partners with public institutions, businesses, grassroots groups, and investors to tackle the world's toughest global health problems, including malaria.

➢ The malaria vaccine pilot aims to reach about 360,000 children per year across the three countries.

➢ Recently, the **World Bank released "World Malaria Report, 2018"**, according to which Malaria occurs in 91 countries but about 90% of the cases and deaths are in sub-Saharan Africa.

Working of vaccine

➢ The vaccine aims to trigger the immune system to defend against the first stages of malaria when the P. falciparum parasite enters the human host's bloodstream through a mosquito bite and infects liver cells.

➢ The vaccine is designed to prevent the parasite from infecting the liver, where it can mature, multiply, re-enter the bloodstream, and infect red blood cells, which can lead to disease symptoms.

Financial Support

➢ Financing for the pilot programme has been mobilized through an unprecedented collaboration among three key global health funding bodies: **Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria;** and **Unitaid**. Additionally, WHO, PATH and GSK are providing in-kind contributions.

Weaknesses

➢ **It is inconvenient:** A child must receive four injections before age 2, sometimes at intervals that do not match the routine vaccine schedules for most other diseases.

➢ **Partly effective:** Testing in more than 10,000 African children from 2009 to 2014 showed that, even after four doses, the vaccine prevented only about 40 percent of detectable malaria infections.

➢ **Not long lasting:** It is unclear how long even those relatively low levels of protection last; previous trials followed vaccinated children for four years.

➢ **Develop Resistance:** It did not protect well against parasite strains that were poor genetic matches, raising a concern that, over time, parasites could evolve resistance to the vaccine as they have to drugs

Malaria in India

India ranks very high in the list of countries with a serious malaria burden. In 2018, 3,99,134 cases of malaria and 85 deaths due to the disease were reported in the country, according to data from the National Vector Borne Disease Control Programme.

Echidnas Milk as Antimicrobial

Recently, scientists have isolated an **antimicrobial protein** found in the milk of an egg-laying mammal **'Echidnas'**.

➢ The protein can serve as an alternative to antibiotics used on livestock.

➢ The protein in the milk of echidna can puncture the cell membranes of multiple bacterial species, thus destroying the source of infection.

➢ There are many ways to produce the protein in large quantities and one among them is using E. coli bacteria. It can then be used to fight infections.

➢ The scientists pointed out that there is a rise of the antimicrobial resistance bugs in livestock which can be checked by the use of antibiotics in the animal husbandry industry.

Note:

KNOW YOUR EGG-LAYING MAMMALS
MONOTREMES

SHORT-BEAKED ECHIDNA

PLATYPUS

WESTERN LONG-BEAKED ECHIDNA

EASTERN LONG-BEAKED ECHIDNA

ATTENBORROUGH'S LONG-BEAKED ECHIDNA

Monotremes: Egg Laying Mammals

➢ Egg laying mammals are also known as **Monotremes**.

➢ There are only five living monotreme species: the duck-billed platypus and four species of echidna (also known as spiny anteaters).

➢ All of them are found only in **Australia and New Guinea**.

Cloud Honeypots

➢ According to a report by Sophos (an IT security company) "Exposed: Cyber attacks on Cloud Honeypots", over five million attacks were attempted on the global network of **honeypots**.

➢ Cybercriminals attempted attacks on **Mumbai Cloud server honeypot** more than 678,000 times in a month, which was second to Ohio in the US that recorded more than 950,000 login attempts.

What is a Honey Pot?

➢ A honeypot is a system intended to mimic likely targets of cyberattackers for security researchers to monitor cybercriminal behavior.

➢ It is used to trap attackers into thinking that they have penetrated a network, allowing time for defenders to analyze their threat parameters and generate appropriate threat indicators to block an impending attack.

Malware Kronos

A British cybersecurity researcher has pleaded guilty for developing a malware named **"Kronos"** aimed at **stealing banking information**.

➢ It can be noted that the same researcher was earlier hailed as a hero for finding a "kill switch" to the **WannaCry virus**.

  ❍ WannaCry virus was a **crypto ransomware**, also known as WannaCrypt, which affected thousands of computers spread over 150 countries, including India in May, 2017.

➢ Kronos is a type of **Trojan**. Trojans are commonly spread via email attachments, and once downloaded, can give attackers free reign to snoop and steal sensitive information like financial data, emails, and passwords.

➢ It first appeared online on a Russian underground forum in 2014.

Ransomware

➢ Ransomware usually locks computers, encrypts the data on it and prevents software and apps from running.

➢ It prevents users from accessing their devices and data until a certain ransom is paid to its creator or risk losing access forever.

Trojan

➢ A Trojan is a type of malware that is often disguised as legitimate software, but can take control of your computer.

➢ It is designed to damage, disrupt, steal, or in general inflict some other harmful action on your data or network.

New Human Ancestor Species Found

Scientists have identified a new human ancestor species previously unknown. It has been named as **Homo luzonensis**.

➢ Homo luzonensis is classified as a **separate species** on the basis of 13 bones and teeth from two adults and one child found in a cave on the **island of Luzon in the Philippines**.

➢ Unlike Homo sapiens, whose premolar teeth generally have a single root, Homo luzonensis' premolars had

two or three roots, similar to more primitive species such as Homo erectus, which lived in Africa and Asia between about 1.89 million and 143,000 years ago.

➢ The Homo luzonensis were around 3-4 feet tall and lived on the island of Luzon at least **50,000 to 67,000 years ago**.

➢ It is not a direct ancestor of modern day humans, but rather a distant ancient relative.

Significance

➢ The fossils have an unexpected mix of both **ancient and more advanced traits of hominin** (the group consisting of modern humans, extinct human species and all our immediate ancestors).

➢ The teeth's small sizes and relatively simple shapes point to a more modern species. Foot bone resembles those of the ancient australopithecines.

➢ The discovery also adds to a growing body of evidence that human evolution is not as linear as was once thought.

➢ There are some questions which are unanswered such as how the species arrived on the island and who its ancestors were.

New Genetic Method to Empower Conservation

A team of scientists at Stanford University and the **National Centre for Biological Sciences** at India's **Tata Institute of Fundamental Research** have developed a method for extracting genetic information.

➢ The new method is faster and cheaper and collects information from degraded and left-behind materials, such as feces, skin or saliva, and from food products suspected of containing endangered animals.

➢ This is significant as it will **help wildlife conservationists aiming to protect endangered species**, but they were unable to collect the DNA samples from rare and elusive animals.

➢ The new method relies on identifying multiple, short portions of DNA segments in a single experiment **(a multiplex PCR)**, followed by 'next-generation sequencing', in which multiple fragments of DNA can

be decoded simultaneously, and several times, in an automated process.

➢ The team tested their method on Caribbean queen conches and tigers.

> **Multiplex polymerase chain reaction (Multiplex PCR)**
> Multiplex polymerase chain reaction refers to the use of polymerase chain reaction to amplify several different DNA sequences simultaneously.

Cell-based Meat

➢ The Cellular and Molecular Biology (CCMB), in collaboration with the **National Research Centre on Meat (NRCM)**, has initiated research aimed at producing meat through cellular agriculture or cells sourced from animals and later cultivated into the meat.

➢ It has also been called as **'cell-based meat' or 'clean meat' or 'ahimsa meat'** (non-violence meat) which will be is nutritionally equivalent to conventional animal meat.

➢ Significance of Cell-based Meat
  ○ Protecting biodiversity and environment
  ○ Stop use of animals in research purposes
  ○ Can address concerns relating to food security, environmental sustainability, and animal welfare.

Mission DELHI

➢ Recently, Indian Council of Medical Research (ICMR) launched **"Mission DELHI" (Delhi Emergency Life Heart-Attack Initiative) project**.

➢ In the pilot phase, it will cater only to people living in a three-kilometer radius of the All India Institute of Medical Sciences (AIIMS).

➢ The project aims to reduce the mortality from a serious type of heart attack called **ST-Elevation Myocardial Infarction (STEMI)**, wherein one of the heart's major arteries, supplying oxygen-rich blood to the heart muscle, gets completely blocked.

➢ It aims to reduce the time it takes for people with a serious heart attack to receive clot-busting medicine.

■■■

Note:

Environment and Ecology

Highlights

- Island Protection Zone, 2019
- India Denmark Cooperation on Offshore Wind Energy
- SC Suspended EC for Airport in Goa
- IMD's Monsoon Forecast
- Agreement to Save Coastal Wetlands
- Resilient Cities Asia-Pacific Congress 2019
- Antibacterial Properties of Ganga

- Decline in Usable Groundwater
- Global Energy and CO_2 Status Report
- Energy Transition Report
- State of the Global Climate: WMO
- Global Deal for Nature
- Earth Day

Island Protection Zone, 2019

The **Ministry of Environment, Forest and Climate Change (MoEFCC)** has recently notified **Island Protection Zone (IPZ), 2019** for Andaman and Nicobar.

Key Points

➢ It allows eco-tourism projects 20 metres from the **high tide line (HTL)** in smaller islands like **Baratang, Havelock and Car Nicobar,** and at 50 metres in larger ones.

➢ It also allows for eco-tourism activities like mangrove walks, tree huts and nature trails in Island **Coastal Regulation Zone** IA (classified as the most eco-sensitive region of the islands which includes turtle nesting grounds, marshes, coral reefs etc).

➢ The notification further allows for the construction of roads, roads on stilts by reclaiming land in exceptional cases for defence installations, public utilities or strategic purposes in eco-sensitive zones.

➢ It states that in case construction of such roads pass through mangroves, a minimum three times the mangrove area destroyed during the construction process shall be taken up for compensatory plantation of mangroves elsewhere.

➢ The new notification also allows a number of new activities in the inter-tidal zone between Low Tide Line (LTL) and HTL which includes land reclamation and bunding for foreshore facilities like ports, harbours, jetties, transfer of hazardous substances from ships to ports, manual mining of atomic minerals, and mining

of sand for construction purposes with permission from local authorities in non-eco-sensitive sites.

➢ The legal changes in the IPZ are aligned with the NITI Aayog's proposal for holistic development in the Islands which is being taken forward under the guidance of the Island Development Agency.

Concerns

➢ The notification has brought the norms for Andaman and Nicobar at par with Coastal Regulation Zone (CRZ) norms for other islands close to the main land and backwater islands where a No Development Zone (NDZ) only 20 metres from HTL has been stipulated.

➢ These changes can affect the fragile ecology of the region like marine biodiversity including corals and turtle nesting sites.

Island Development Agency (IDA)

➢ The Island Development Agency (IDA) was set up in 2017 for the holistic development of islands.

➢ The IDA has identified 10 islands for development which include 5 islands in Andaman & Nicobar Islands (Smith, Ross, Little Andaman, Long and Avis) and 5 in Lakshadweep (Minicoy, Bangaram, Cheriyam, Suheli and Thinnakara).

➢ The Union Home Minister is the Chairman of the Agency. Other members of the Agency include cabinet secretary, home secretary, secretary (environment, forests and climate change), secretary (tourism) and secretary (tribal welfare).

Note:

India Denmark Cooperation on Offshore Wind Energy

Recently, the Government has given its approval for a Cooperation Agreement between the Ministry of New and Renewable Energy of India and the Ministry for Energy, Utilities and Climate of the Kingdom of Denmark on strategic sector cooperation in the field of Renewable Energy with a focus on Offshore Wind Energy and a Letter of Intent to establish an Indo-Danish Centre of Excellence for renewable energy in India.

Key Points

➢ The objective of the Cooperation Agreement is to promote cooperation between the two countries in the field of renewable energy with a special focus on Off-shore wind.

➢ The areas of cooperation would include technical capacity building for management of offshore wind projects, measures to develop and sustain a highly efficient wind industry, onshore as well as offshore, forecasting and scheduling of off-shore wind etc.

➢ The 'Indo-Danish Centre of Excellence in Integrated Renewable Power' would work on renewable energy resource assessments with a focus on the onshore and offshore wind; hybridisation of wind, solar, hydro and storage technologies; integration of renewable energy, Testing and R&D; and skill building.

Note:
Onshore wind refers to turbines located on land, while offshore turbines are located out at sea or in freshwater.

Onshore wind farms
➢ **Pros:**
  ○ The cost of onshore wind farms is relatively cheap, allowing for mass farms of wind turbines.
  ○ The shorter distance between the windmill and the consumer allows for less voltage drop off on the cabling.
  ○ Wind turbines are very quick to install, unlike a nuclear power station, which can take over twenty years, a windmill can be built in a matter of months.
  ○ Less emissions associated with the transportation of wind structures.

➢ **Cons:**
  ○ They don't produce energy all year round due to often poor wind speed or physical blockages such as buildings or hills.
  ○ Turbines are optimized at a specific speed, which can limit their efficiency as a result of the unpredictable speed and direction of winds at these locations
  ○ Onshore wind farms are a danger to birds, Cause noise pollution and are aesthetically displeasing.

Offshore wind farms
➢ **Pros:**
  ○ More efficient than onshore wind farms, as wind speed and direction are more consistent at these locations.
  ○ Can be built to be much larger than onshore wind turbines; can, therefore, harness more energy.
  ○ No physical restrictions in these locations to block wind flow.
  ○ Wind farms have a relatively negative impact upon the environment as the builders are careful not to build in shipping lanes, fishing areas or in a delicate environment.

➢ **Cons:**
  ○ Expensive technology associated with transferring energy from the turbines.
  ○ Endure more wear and tear from wind and waves than onshore wind farms, thereby increasing operation and maintenance costs.
  ○ Long cables are used to transfer the energy which results in voltage drop off.

Wind energy in India

➢ India has the 4th largest installed capacity in wind power after China, U.S and Germany. The total installed capacity of wind power in India as on March 2017 is around 32 GW.

➢ The potential of wind energy is concentrated in the states of – Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Telangana. Tamil Nadu has the highest installed capacity in the country followed by Maharashtra and Gujarat.

➢ As per the National Institute of Wind Energy (NIWE) data, has wind energy potential of 302 GW at 100-meter hub-height.

Note:

- India is implementing **National Offshore Wind Energy Policy, 2015** with an objective to develop the offshore wind energy in the Indian Exclusive Economic Zone (EEZ) along the Indian Coastline.
  - The Ministry of New and Renewable Energy is the nodal ministry and the NIWE is the nodal agency for the development of offshore wind energy in India.

National Institute of Wind Energy (NIWE)

- NIWE has been established in Chennai in the year 1998, as an autonomous R&D institution by the Ministry of New and Renewable Energy (MNRE).
- It is a knowledge-based institution which offers services and seeks to find complete solutions for the kinds of difficulties and improvements in the entire spectrum of the wind energy sector by carrying out further research.

SC Suspended EC for Airport in Goa

The Supreme Court (SC) has suspended the Environmental Clearance (EC) granted for the development of Greenfield International Airport at Mopa in Goa.

Key highlights

- The SC cited procedural flaws in the grant of EC
  - People living in the proposed project-area were not consulted properly.
  - Non- disclosure of vital information in the application form for clearance and in Environment Impact Assessment (EIA) Report as well.
  - Expert Appraisal Committee (EAC) did not analyze the EIA report properly before approving the EC.
  - The National Green Tribunal (NGT) did not carry out the merit review of the appeal made against the EC given to the Mopa Airport.
- A phrase **'Environmental Rule of Law'** was coined by SC. The court said that every branch of governance and institutions across the country should strive to enforce environmental rule of law.
- Proper structures for environmental decision making find expression in the guarantee against arbitrary action and the affirmative duty of fair treatment under Article 14 (Right to Equality; Equality before law) of the Constitution.

- The health of the environment is key to preserving the Right to Life as a constitutionally recognized value under Article 21 (Protection of Life and Personal Liberty) of the Constitution.

Environmental Rule of Law

- The environmental rule of law is based on four pillars of sustainable development – **economic, social, environmental** and **peace**.
- It **integrates environmental needs with the essential elements of the rule of law** and provides the basis for improving environmental governance.
- It **highlights environmental sustainability by connecting it with fundamental rights** and obligations.
- It reflects **universal moral values and ethical norms of behaviour,** and it provides a foundation for environmental rights and obligations.
- Without environmental rule of law and the enforcement of legal rights and obligations, environmental governance may be arbitrary, that is, discretionary, subjective, and unpredictable.

Environment Impact Assessment (EIA)

- It can be defined as the **study for predicting the effect of a proposed activity/project on the environment**.
- It is **statutory under the Environment Protection Act, 1986** for some projects.
- Process
  - **Screening** based upon scales of investment, type of development and location of development; is done to see whether a project requires an environmental clearance as per the statutory notifications.
  - **Scoping** is a process of detailing the Terms of Reference (ToR) of EIA, that is the main issues or problems in the development of a project.
  - **Impact Prediction** involves mapping the environmental consequences of the significant aspects of the project and its alternatives.
- **Public mandatorily needs to be informed and consulted on the proposed development after the completion of EIA report.**

IMD's Monsoon Forecast

The **Indian Meteorological Department (IMD)** has released its Monsoon forecast.

Key Points

➢ India is likely to have a 'near normal' Monsoon. The monsoon seasonal (June to September) rainfall is likely to be 96% of the Long Period Average (LPA) with a model error of ± 5%. The LPA of the season rainfall over the country as a whole for the period 1951-2000 is 89 cm.

Note:
Below normal is 90% to 96% while near normal is 96 to 104%. So 96% falls in both categories.

➢ IMD uses two models to make the monsoon forecast— **Statistical Ensemble Forecasting System (SEFS)** and the **Climate Forecast System (CFS)**.

➢ The SEFS model has predicted 96% of LPA while the CFS model has predicted 94% of LPA which falls under the below normal category.

➢ Weak El Nino is likely to prevail during the Monsoon season with reduced intensity in the later part of the season.

➢ Another reason for expecting a near-normal monsoon this year is the **neutral Indian Ocean Dipole (IOD)** which may turn positive during the monsoon season.

➢ Overall, the country is expected to have well-distributed rainfall scenario during the 2019 monsoon season, which will be beneficial to farmers in the country during the ensuing Kharif season.

Statistical Ensemble Forecasting System (SEFS)

➢ SEFS uses five predictors. These predictors along with some equations are used by scientists to carry out statistical analysis to finally come out with a forecast.

➢ The Five predictors are **North Atlantic Sea Surface Temperature; Equatorial South Indian Ocean Sea Surface Temperature; East Asia Mean Sea Level Pressure; NW Europe Land Surface Air Temperature; and Equatorial Pacific Warm Water Volume**.

➢ The problem with this model is that it uses data from the past 100 years to come up with a forecast when many of the relationships between global climate factors have changed.

Climate Forecast System (CFS)

➢ The **Climate Forecast System (CFS)** is a model representing the global interaction between Earth's oceans, land, and atmosphere.

➢ CFS uses the latest scientific approaches for taking in or assimilating, observations from data sources including surface observations, upper air balloon observations, aircraft observations, and satellite observations.

Indian Meteorological Department (IMD)

➢ The vision of India Meteorological Department is to provide efficient Weather and Climate Services for the safety of life and property and to contribute towards the National development.

➢ IMD was established in 1875. It is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology, seismology and allied subjects.

➢ It functions under the Ministry of Earth Science.

Indian Ocean Dipole (IOD)

➢ IOD is a system of oscillating sea surface temperatures in which the western Indian Ocean becomes alternately warmer and then colder than the eastern part of the ocean.

➢ A positive IOD occurs when the sea surface temperatures are greater than normal in the Arabian Sea and less than normal in the tropical eastern Indian Ocean. When the reverse is the case, a negative IOD is said to have developed.

➢ A positive IOD leads to greater monsoon rainfall and more active (above normal rainfall) monsoon days while negative IOD leads to less rainfall and more monsoon break days (no rainfall).

Agreement to Save Coastal Wetlands

The **Central Marine Fisheries Research Institute (CMFRI)** and the **Indian Space Research Organisation (ISRO)** has signed a Memorandum of Understanding (MoU) to map, validate and protect smaller wetlands in coastal regions.

Key Points

➢ It is an attempt to build resilience against the impact of climate change.

➢ MoU signed between the CMFRI and the Space Applications Centre of ISRO includes:
  ○ Identify and demarcate wetlands, and restore them through suitable livelihood options such as coastal aquaculture.

❍ Develop a mobile app and a centralized web portal that will have a comprehensive database of wetlands that are smaller than 2.25 hectares in the country.

➢ The collaborative move is part of a national framework for fisheries and wetlands, developed recently by the National Innovations in Climate Resilient Agriculture (NICRA) project of CMFRI.

National Innovations in Climate Resilient Agriculture (NICRA)

➢ National Innovations on Climate Resilient Agriculture (NICRA) is a network project of the Indian Council of Agricultural Research (ICAR) launched in February 2011.

➢ The project aims to **enhance the resilience of Indian agriculture to climate change** and climate vulnerability through strategic research and technology demonstration.

➢ The research on adaptation and mitigation covers crops, livestock, fisheries, and natural resource management.

Central Marine Fisheries Research Institute (CMFRI)

➢ The Central Marine Fisheries Research Institute was established by the Government of India in 1947 under the **Ministry of Agriculture and Farmers Welfare** and later it joined the **Indian Council of Agricultural Research (ICAR)** in 1967.

➢ ICAR is the largest network of agricultural research and education institutes in the world functioning under the **Department of Agricultural Research and Education, Ministry of Agriculture & Farmers' Welfare**.

Resilient Cities Asia-Pacific Congress 2019

Recently, the fourth edition of **Resilient Cities Asia-Pacific (RCAP)** Congress was held in New Delhi. The first three being held in Bangkok, Thailand in 2015; in Melaka, Malaysia in 2016 and in Vietnam in 2017.

Key highlights

➢ The 4th Resilient Cities Asia-Pacific 2019 Congress was organised by the International **Council for Local Environmental Initiatives (ICLEI)** – Local Governments for Sustainability.

➢ The Vice President of India highlighted the need to make sustainable solutions such as harvesting solar energy, enhancing green cover and water conservation an essential part of town planning.

➢ It offered cities and regions from Asia-Pacific a variety of innovative solutions that build resilience to climate change at the sub-national level.

➢ The event also offered a combination of high-level planarians and technical sessions on the implementation and achievement of the **Nationally Determined Contributions (NDCs)** and the New Urban Agenda of 2016.

➢ Discussions were held on the need for localizing the global frameworks; ensuring that targets that go along with Sustainable Development Goals consider local contexts, challenges, and realities.

➢ Some of the challenges discussed at the session were lack of continuous engagement with relevant stakeholders; limited engagement of the private sector, lack of infrastructure to mitigate vulnerability etc.

Objectives of the conference

➢ To share and learn about good urban resilience practices.

➢ To showcase innovative ideas, solutions and initiatives.

➢ To provide local governments with exposure and access to tools and processes that help mainstream resilience considerations into policy and practice.

➢ To provide a networking platform to promote concerted and coordinated action in Asia among the main players in the field of urban resilience.

➢ To explore tangible opportunities for creating partnerships between local governments and the private sector.

➢ To bring together funders and cities and facilitate the match-making between available financial resources and current cities' needs.

Resilient Cities Asia-Pacific
➢ Resilient Cities is the annual global platform for urban resilience and climate change adaptation where dialogues are conducted to forge partnerships, with the ultimate goal of identifying implementable solutions and creating lasting impacts for cities in the region.
➢ It was launched in 2010.

Note:

Antibacterial Properties of Ganga

The study, 'Assessment of Water Quality and Sediment To Understand the Special Properties of River Ganga,' was commissioned by the Ministry of Water Resources, River Development & Ganga Rejuvenation and conducted by the Nagpur-based **National Environmental Engineering and Research Institute (NEERI)**.

Key Points

➢ The study found that the Ganga river water contains a significantly higher proportion of organisms with antibacterial properties.

➢ Other Indian rivers also contain these organisms but the Ganga — particularly in its upper Himalayan stretches — has more of them.

➢ As part of the assessment, five pathogenic species of bacteria (Escherichia, Enterobacter, Salmonella, Shigella, Vibrio) were selected and isolated from the Ganga, Yamuna and the Narmada and their numbers compared with the bacteriophages present in the river water.

Note:
Bacteriophages are a kind of virus that kill bacteria, they are frequently found in proximity to each other.

➢ In the river Ganga, the bacteriophages were detected to be approximately 3 times more in proportion than bacterial isolates.

➢ Samples drawn from the Ganga contained almost 1,100 kinds of bacteriophage, and proportionally there were less than 200 species detected in the samples obtained from the Yamuna and the Narmada.

➢ The antibacterial properties varied widely along the length of the river. For instance, the stretch from Gomukh to Tehri had 33% more bacteriophage isolates than from Mana to Haridwar and Bijnor to Varanasi. In the stretch from Patna to Gangasagar, the bacteriophages were only 60% of that in the Gomukh to Tehri stretch.

➢ The super-phage isolated from Ganga and decoded for its lysine gene and cloned to produce lysine protein at IIT Roorkee holds great potential as an antibacterial pharmaceutical.

Note:
Lysine is an amino acid (building block of protein).

Decline in Usable Groundwater

A team from the Indian Institute of Technology (IIT) Kharagpur and Athabasca University, Canada, has compiled the first estimates of Usable Groundwater Storage (UGWS) at the state-level across India using both in situ and satellite-based measurements.

Key Points

➢ More than 85 % of the groundwater usage in India is linked with irrigation abstraction practices.

➢ The estimates show rapid depletion of usable groundwater storage during 2005-2013 in most of the northern parts and the eastern parts of the country.

➢ The southern and western Indian states like Andhra Pradesh, Maharashtra, Gujarat, Chattisgarh have shown replenishing usable groundwater storage trends.

➢ Factors behind groundwater depletion are:

○ **Lack of an organised water supply** leads to increased dependence on groundwater.

○ Depletion in groundwater is positively linked with the **increased cropping practice of water-intensive crops**.

○ **Overexploitation of the groundwater:** About 85% of rural drinking water needs and 65% of irrigation needs and 50% of urban drinking water and industrial needs are fulfilled from the groundwater.

Implications of groundwater depletion

➢ Rapid depletion in UGWS would accelerate the **decline in food production** and **availability of drinking water**, two of the prime goals under UN Sustainable Development Goals 2030. This would affect more than 120 million people in the Gangetic states.

➢ **Summer groundwater droughts** that some states are facing, would intensify in recent future years and will become severe to very severe by 2050, with the possibility of spreading over all the seasons.

➢ **Decline in the flow in the adjoining rivers,** including Ganga, thus also **impacting river-aquifer interaction**.

Recommendations

➢ In order to develop a sustainable groundwater management programme, it is important to know the exact water-stress.

Note:

➢ India needs to develop a robust quantitative approach, possibly with the help of advanced hydroscience and data science techniques to understand the conjunctive water demands and usages.

Global Energy and CO₂ Status Report

Recently the **International Energy Agency (IEA)** has released its 2nd Global Energy and CO₂ Status Report. The annual Report provides a picture of global trends and developments across fuels, renewable sources, and energy efficiency and carbon emissions, in 2018.

Key highlights

➢ **Global energy consumption** in 2018 increased at nearly twice the average rate of growth since 2010, driven by a robust global economy and higher heating and cooling needs in some parts of the world.

➢ Demand for all fuels increased, led by natural gas, even as solar and wind posted double-digit growth. The United States had the largest increase in oil and gas demand worldwide.

➢ CO_2 emitted from coal combustion was responsible for over 0.3°C of the 1°C increase in global average annual surface temperatures above pre-industrial levels.

➢ India's emissions growth was higher than that of the United States and China, primarily due to a rise in coal consumption. China, the United States, and India together accounted for nearly 70% of the rise in energy demand.

➢ India's per capita emissions were about 40% of the global average and contributed 7% to the global carbon dioxide burden. The United States, the largest emitter, was responsible for 14%.

➢ Although steps are being taken to fulfil **India's Intended Nationally Determined Contributions (INDC)**, India's energy intensity improvement declined 3% from last year even as its renewable energy installations increased more than 10% from last year.

India's Intended Nationally Determined Contributions (INDCs)

➢ As per its commitments to the United Nations Framework Convention on Climate Change, India's INDCs are:

○ to reduce the emissions intensity of its GDP by 33 to 35% by 2030 from 2005 levels.

○ to achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030, and

○ to create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030.

International Energy Agency (IEA)

➢ The IEA works to ensure reliable, affordable and clean energy for its 30 member countries and beyond. Its mission is guided by four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.

➢ Founded in 1974, the IEA was initially designed to help countries co-ordinate a collective response to major disruptions in the supply of oil, such as the crisis of 1973. **Headquarters:** Paris.

Energy Transition Report

The World Economic Forum has recently published **Fostering Effective Energy Transition 2019 Report**. The report contains the **Energy Transition Index (ETI)**, which compares the energy sectors of 115 countries and analyses their readiness for the energy transition.

Key findings

➢ Energy systems have globally become less affordable and less environmentally sustainable than they were five years ago.

➢ Access to energy has improved and currently, less than 1 billion people are living without access to electricity.

➢ The biggest challenge facing attempts to future proof global energy demands is the lack of readiness among the world's largest emitters.

➢ Environmental sustainability of energy production has improved marginally, indicating a general lack of substantive progress.

➢ India is amongst the countries with high pollution levels and has a relatively high CO_2 emission intensity in its energy system.

➢ Despite this, India has made significant progress in improving energy access in recent years.

➢ India has made fast progress towards universal electrification due to strong political commitment,

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Note:

a stable policy regime, use of grid expansion and decentralized generation sources, and a supportive environment for investment in infrastructure.

Energy Transition Index

➢ Energy transition index ranks countries on how well they are able to balance energy security and access with environmental sustainability and affordability.

➢ **Sweden** is at the top followed by Switzerland and Norway in the top three.

➢ **India** has moved up two places from last year to rank **76th** on a global energy transition index.

➢ India is the second best in the BRICS bloc of emerging economies, with Brazil being the best at 46th place globally.

➢ However, India is the only amongst the five economies to improve its rank since last year.

State of the Global Climate: WMO

The **World Meteorological Organization (WMO)** has recently published the Statement on the State of the Global Climate on the sidelines of a high-level meeting on climate and sustainable development.

Key findings

➢ 2018 was the fourth warmest year on record.

➢ The levels of carbon dioxide concentrations have continuously increased in 2018. Increasing levels of greenhouse gases in the atmosphere are key drivers of climate change.

➢ Global Mean Sea Level for the period from January to July 2018 has been 2 to 3 mm higher than for the equivalent period in 2017.

➢ Ocean Heat Content provides a direct measure of the energy that accumulates in the upper layers of the ocean. For each three-month period in 2018, the ocean heat content in the upper 700m and upper 2000m were either the highest or second highest on record.

➢ Observations in the open-ocean over the last 30 years have shown a clear trend of decreasing pH (Ocean acidification). Changes in pH are linked to shifts in ocean carbonate chemistry that can affect the ability of marine organisms such as molluscs and reef-building corals, to build and maintain shells and skeletal material.

➢ The extent of Arctic and Antarctic sea ice was below average throughout 2018 and was at record-low levels for the first two months of the year.

➢ Preliminary results for 2018, based on a subset of glaciers, indicate that the hydrological year 2017-18 was the 31st consecutive year of negative mass balance (mass balance is the gain or loss of ice from the glacier system).

➢ WMO also underlined the extreme weather events experienced all over the world in 2018, including the severe flooding in Kerala in August 2018.

Impact of climate change

➢ **Natural hazards:** In 2018, natural hazards, such as flood, hurricane, associated with extreme weather and climate events affected nearly 62 million people.

➢ **Food security:** Exposure of the agriculture sector to climate extremes is threatening to reverse gains made in ending malnutrition. New data by the Food and Agriculture Organization and World Food Programme shows a continuing rise in world hunger after a prolonged decline.

➢ **Displacement:** According to the International Organization for Migration, over 2 million people were displaced due to disasters linked to weather and climate events as of September 2018.

World Meteorological Organization (WMO)

➢ The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 192 Member States and Territories.

➢ It originated from the International Meteorological Organization (IMO), which was established after the 1873 Vienna International Meteorological Congress.

➢ Established by the ratification of the WMO Convention in March 1950, WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.'

➢ WMO is headquartered in **Geneva, Switzerland**.

Global Deal for Nature

A group of scientists have proposed a bold new science policy to reverse the **sixth mass extinction**, called A **Global Deal for Nature (GDN)**.

Key Points

➢ The Global Deal for Nature is a time-bound, science-based plan to save the diversity and abundance of life on Earth.

➢ It analyzed how much of the planet we need to maintain to ensure that our ecosystems continue to harbour an abundance of species, and provide services essential for human life, including carbon sequestration.

➢ The three overarching goals of the GDN are to protect biodiversity by conserving at least 30% of the earth's surface by 2030; mitigate climate change by conserving the earth's natural carbon storehouse; and reduce major threats.

➢ As a complement to the protection targets, GDN offers policy recommendations for reducing the threats that exert pressure on the natural world, such as:

  ○ Slowing and stopping the clearing of intact natural habitats for agriculture, directing cropland to lands that have already been degraded, and focusing on reducing food waste.

  ○ Putting in place proactive approaches to govern roads, dams and energy development projects.

  ○ Managing fisheries according to scientific targets.

  ○ Reducing plastic and chemical pollution, which harms the air, water, land and species on which we depend.

➢ GDN estimates that the cost of nature conservation measures across half the Earth could be $100 billion per year. Current spending on conservation is less than 10% of that.

Earth Day

Earth Day was celebrated on April 22.

Key Points

➢ Worldwide events were held to demonstrate support for environmental protection. The theme of Earth Day 2019 was **"Protect Our Species"**.

➢ It was first celebrated in 1970, and is now **coordinated globally by the Earth Day Network** and celebrated in more than 193 countries each year.

➢ The idea of commemorating such a day was propounded by **Gaylord Nelson**, an American environmentalist and politicians.

➢ According to the United Nations, International Earth Day is celebrated to remind us that the Earth and its ecosystems provide us with life and sustenance.

➢ Earth Day also recognizes a collective responsibility, as called for in the 1992 Rio Declaration (Earth Summit), to promote harmony with nature and the Earth to achieve a just balance among the economic, social and environmental needs of present and future generations of humanity.

➢ This day provides an opportunity to raise public awareness around the world to the challenges regarding the well-being of the planet and all the life it supports.

Earth Day Network

➢ Earth Day Network is a nonprofit organization whose mission is to diversify, educate and activate the environmental movement worldwide.

➢ EDN Headquarters is located in Washington DC, USA.

➢ Recently the Earth Hour 2019 was observed on March 30 from 8:30 pm to 9:30 pm local time with the theme #Connect2Earth.

■■■

Note:

Art & Culture

Highlights

- 100 years of Rowlatt Satyagraha
- A centenary of Jallianwala Bagh massacre
- Bengal famine of 1943-44 was man-made
- Battle of Kangla Tongbi

- Alexander Statue in Athens
- World Heritage Day
- Mahavir Jayanti
- Konyak Dance

100 years of Rowlatt Satyagraha

April 2019 marks the **100 years anniversary of Rowlatt Satyagraha** which was started by Mahatma Gandhi.

Rowlatt Act

➢ Rowlatt Satyagraha was in response to the British government enacting the **Anarchical and Revolutionary Crimes Act of 1919**, popularly known as the **Rowlatt Act**. Gandhiji called for a countrywide campaign against the Rowlatt Act.

➢ This act was passed on the recommendations of Sedition Committee chaired by Sir Sidney Rowlatt.

➢ This act had been hurriedly passed in the Imperial Legislative Council despite the united opposition of the Indian members.

➢ It gave the government enormous powers to repress political activities and allowed detention of political prisoners without trial for two years.

Response to Gandhi's Call

➢ Mahatma Gandhi wanted non-violent civil disobedience against such unjust laws, which would start with a **hartal on 6 April 1919**.

➢ But before it could be launched, there were large-scale violent, anti-British demonstrations in Calcutta, Bombay, Delhi, Ahmedabad, etc.

➢ Especially in Punjab, the situation became explosive due to wartime repression, forcible recruitments, and ravages of disease.

➢ In towns across the North and West India, life came to a standstill, as shops shut down and schools closed in response to the bandh call.

➢ The Satyagraha lost momentum with the Jallianwala Bagh Massacre on 13th April 1919.

A centenary of Jallianwala Bagh massacre

13th April 2019 marks the hundredth anniversary of Jallianwala Bagh Massacre in Amritsar.

How Events Unfolded?

➢ Both Extremists and the moderate faction of the Indian National Congress supported the British efforts during World War 1 in hope that, British will grant self-government to India after the war.

➢ The **Montagu-Chelmsford Reforms 1919** proved to be a mere eyewash in the name of self-government. Congress said that the reforms are "disappointing" and "unsatisfactory".

➢ The government now armed itself with extraordinary powers to suppress any voice against the reforms and passed **Anarchical and Revolutionary Crimes Act of 1919**, popularly known as the **Rowlatt Act**.

Jallianwala Bagh Massacre

➢ On April 9, 1919, two nationalist leaders, **Saifuddin Kitchlew** and **Dr. Satyapal**, were arrested by the British officials without any provocation except that they had addressed protest meetings, and taken to some unknown destination.

➢ This caused resentment among the Indian protestors who came out in thousands on April 10 to show their solidarity with their leaders.

➢ Soon the protests turned violent because the police resorted to firing in which some of the protestors were killed. To curb any future protests government put martial law in place and law and order in Punjab was handed over to **Brigadier-General Dyer**.

Note:

- On **13th April, Baisakhi day**, a large crowd of people mostly from neighbouring villages, unaware of the prohibitory orders in the Amritsar gathered in the Jallianwala Bagh.
- Brigadier – General Dyer arrived on the scene with his men. The troops surrounded the gathering under orders from General Dyer and blocked the only exit point and opened fire on the unarmed crowd killing more than 1000 unarmed men, women, and children.

Hunter Commission

- On October 14, 1919, the Government of India announced the formation of the **Disorders Inquiry Committee** to investigate the Jallianwala Bagh shooting.
- The committee was commonly known as **Hunter Commission** after the name of chairman, Lord William Hunter. It also had Indian members.
- In the final report submitted in March 1920, **the committee unanimously condemned Dyer's actions**.
- However, the Hunter Committee **did not impose any penal or disciplinary action against General Dyer**.

Nationalist Response

- Rabindranath Tagore renounced his knighthood in protest.
- Mahatma Gandhi gave up the title of Kaiser-i-Hind, bestowed by the British for his work during the Boer War.
- Gandhi was overwhelmed by the atmosphere of total violence and withdrew the movement on April 18, 1919.
- The Indian National Congress (INC) appointed its own non-official committee that included Motilal Nehru, C.R. Das, Abbas Tyabji, M.R. Jayakar, and Gandhi to look into the shootings.
  - They criticized Dyer's act as inhuman and also said that there was no justification in the introduction of the martial law in Punjab.

Turning Point in Indian Freedom Struggle
JALLIANWALA MASSACRE
April 13, 1919

1919: ■ Resentment was high in Punjab after the ruthless British drive to recruit soldiers for World War-I and forced contribution for the war fund

MARCH 30 AND APRIL 6: ■ Gandhiji's call for a country-wide 'hartal' to protest against the Rowlatt Act of 1919 received a tremendous response from Punjab

APRIL 9: ■ Ram Navami day, the Hindu-Muslim solidarity in the celebrations and the unity during the 'hartal' days made Punjab Lt Governor Michael O'Dwyer's administration panicky ■ Gandhiji's entry into Punjab was banned ■ Two popular leaders of Amritsar, Saifuddin Kitchlew and Satya Pal arrested

APRIL 11: ■ Continuing provocations by Britishers led to mass demonstrations in Lahore, Kasur and Gujranwala. Police action in Amritsar led to violence and the city's law & order was handed over to Brigadier-General Reginald Dyer

APRIL 13: ■ Baisakhi day, a meeting was called in Jallianwala Bagh. Suddenly Dyer appeared there with troops, blocked the exits and without any warning to the people, ordered firing on the completely peaceful and defenceless crowd. The fusillade continued till Dyer's ammunition ran out. Over a thousand people were reported killed and many more injured

MAY 31: ■ Rabindranath Tagore renounced his Knighthood in protest. The country was now getting charged up to fight British rule

OCT 14: ■ British government forms a committee of inquiry into the events in Punjab

NOV 19: ■ Appearing before the Hunter Committee set up to investigate the ghastly act, Dyer admitted that he acted so to strike terror not only in the city of Amritsar, but throughout Punjab

Source: Excerpts from Recollections and Reflections by Chimanlal H. Setalvad

Memorial at Jallianwala Bagh, Amritsar

KBK Infographics

British Apology

- Britain has never officially apologized for the massacre.
- The Labour Party in Britain has been asking for a formal apology saying that those who lost their lives in the massacre deserve a "full, clear and unequivocal apology for what took place".
- Recently, British Prime Minister Theresa May described the Jallianwala Bagh massacre in Amritsar as a "shameful scar" on British Indian history but stopped short of a formal apology.

Bengal famine of 1943-44 was man-made

Researchers, using old weather data and modern simulation methods, have proved that the Bengal famine of 1943-44 was not caused by an agricultural drought but was man-made, a conclusion long acknowledged by historians.

About Research

- This new study was led by Prof Vimal Mishra of

Note:

IIT Gandhinagar's civil engineering department, which has been published in Geophysical Research Letters.

➤ Using observations from weather stations and simulations with a hydrological model that estimated soil moisture content, the research reconstructed agricultural droughts and established a link between famines and agricultural droughts in India in the half-century between 1870-2016.

➤ They estimated a measure called soil moisture percentile, or SMP. When the SMP was less than 20, it was categorised as drought.

Key Highlights

➤ The majority of famines were caused by large-scale and severe soil moisture droughts that hampered food production.

➤ Out of six major famines during the period (1873-74, 1876, 1877, 1896-97, 1899, 1943), the researchers concluded that the first five were linked to soil moisture.

➤ The period 1873-1874 and 1943-1944 did not identify as drought periods, because of two possible reasons - either they were too localised, or the famine was caused by factors other than soil moisture deficits.

➤ For the 1873-1874 famine, which was localised to Bihar and Bengal, the paper concludes that it was the first of these two reasons.

➤ However, the 1943 Bengal famine was not caused by drought but rather was a result of a complete policy failure during the British era.

Bengal famine of 1943-44

➤ About 2-3 million are estimated to have died in Bengal famine of 1943.

➤ The new study identified 1937-1945 as a "period under drought based on severity, area, and duration".

➤ The drought was most widespread during August and December 1941 — prior to the famine.

➤ During World War II, market supplies and transport systems were disrupted Because of British policies and prioritisation of distribution of supplies to the military and other select groups.

➤ In early 1943, military and political events adversely affected Bengal's economy, which was further exacerbated by refugees from Burma.

➤ Additionally, wartime grain import restrictions imposed by the British government played a major role in the famine.

➤ Other factors included malaria, starvation, and malnutrition spread in the region.

Battle of Kangla Tongbi

The **Platinum Jubilee of the Battle of Kangla Tongbi** was commemorated on 07 Apr 2019 by Army Ordnance Corps at Kangla Tongbi War Memorial near Imphal, honoring the valiant brave hearts of Ordnance Personnel of 221 Advance Ordinance Depot.

➤ The Battle of Kangla Tongbi, considered one of the fiercest battles of World War II, was fought by Ordnance personnel of 221 Advance Ordnance Depot (AOD) on the night of 6/7 April 1944.

➤ Japanese forces had planned a three pronged offensive to capture Imphal and the surrounding areas.

➤ In their attempt to extend their line of communication to Imphal, the 33rd Japanese Division cut in behind the 17th Indian Division at Tiddim (Myanmar) and establishing themselves firmly on the main Kohima – Manipur highway, started advancing towards Kangla Tongbi.

➤ Here at Kangla Tongbi, a small but determined detachment of 221 AOD put up stiff resistance against the advancing Japanese forces.

➤ The position of 221 AOD was not at all sound from a tactical point of view. It was exposed to the enemy from all sides and had to rely on its own combatant manpower for its defence.

➤ Major Boyd, the Deputy Chief of Ordnance Officer (DCOO) was made in charge of the operations for defence of the Depot. A Suicide squad comprising of Major Boyd, Havildar/Clerk Store Basant Singh, Conductor Panken and other personnel from the Depot was created.

➤ On 06 Apr 1944, orders were received to evacuate 4,000 tons of ammunition, armaments and other warlike stores. On the night of 6/7 April 1944, the Japanese mounted a heavy attack on the Depot, rushing downhill into a deep nallah which was used as a covered approach to the Depot.

➤ A camouflaged bunker had been cited by the Depot on this approach. The Bren Gun Section in this bunker having spotted an enemy section within range, opened fire. This shook the enemy and forced the Japanese to withdraw leaving many dead. The Bren Gun was manned by none other than Hav/Clerk Store Basant Singh.

Note:

➤ For this act of gallantry, Major Boyd was awarded the Military Cross (MC), Conductor Panken, the Military Medal (MM) and Hav/Clerk Store Basant Singh, the Indian Distinguished Service Medal (IDSM).

Notre Dame Cathedral burned

➤ A fire broke out in Paris's Notre Dame Cathedral on April 15, 2019, which caused enormous damage to the Church.

➤ It is reported that blaze has destroyed the cathedral's roof and spire, but its structure remains sound. Most of the relics were rescued from the blaze.
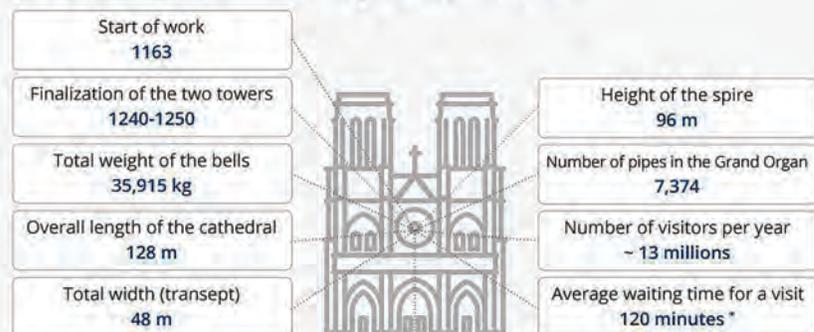
Historical significance of Notre Dame

➤ According to the official cathedral history, Paris Bishop Maurice de Sully during the reign of King Louis VII started the construction of the cathedral dedicated to the Virgin Mary in 1163.

➤ It took 182 years to complete the construction of the Notre-Dame de Paris and was completed in 1345.

➤ It is located on a small island called the Ile de la Cite in the middle of the River Seine.

➤ It has its own share of both the glorious and the tragic historical moments.

➤ It was at Notre Dame in 1431 that Henry VI, king of England, was crowned king of France.

➤ It housed several statues of kings which attracted the anger of protesters during the French Revolution in 1789. They ransacked the cathedral, destroyed the royal statues and brought down the original spire.

➤ When Catholicism was banned in France during the Revolution, Notre-Dame was turned into a Temple of Reason.

➤ But in 1801, after a reconciliation agreement was signed between Napoleon Bonaparte and Pope Pius VII, the cathedral was returned to the Catholic Church.

➤ Napoleon chose the damaged church for his coronation as Emperor of France in 1804. The crumbling cathedral remained a venue for imperial events for years.

➤ In 1844, King Louis Philippe ordered its renovation. Architect Eugène Emmanuel Viollet-le-Duc and his team started the ambitious project and in 20 years, he restored it, with a new spire.

➤ It had priceless artefacts in its possession such as the Holy Crown of Thorns, believed to have been worn by Jesus before the crucifixion, a piece of the "True Cross" upon which he was said to be crucified, and a nail from the crucifixion.

➤ It is believed that King Louis IX of France brought the Crown of Thorns and the fragment of the cross from the Latin Empire of Constantinople to Paris in the 13th century.

Architecture specialty of Notre Dame

➤ Two distinct features of Notre-Dame are its **flying buttresses** and **gargoyles**.

○ The **flying buttresses** are arching supporting structures providing stability to a roof or vault of the main hall, and they connect with a vertical support outside.

○ A **gargoyle** is a carved or formed grotesque located on an angle along the gallery of the north tower of Notre-Dame, known as "Le Stryge". It was carved during the 19th CE restoration of the cathedral. It appears as a vampire, sitting with its hands on the chin, tongue protruding, staring down at the city.

➤ A classic gargoyle functions as a drain pipe for rainwater, however gargoyle on this cathedral does not serve this purpose. Therefore, the expression **"chimeras"** is used for those kinds of stone monsters.

Notre Dame Cathedral By The Numbers

Start of work	1163
Finalization of the two towers	1240-1250
Total weight of the bells	35,915 kg
Overall length of the cathedral	128 m
Total width (transept)	48 m

Height of the spire	96 m
Number of pipes in the Grand Organ	7,374
Number of visitors per year	~ 13 millions
Average waiting time for a visit	120 minutes *

Historical events:
1302 Philip the Fair opens the first Estates General
1715 Louis XIV's bowels are buried
1804 Napoleon's coronation as Emperor
1831 Publication of the novel "Notre-Dame de Paris" by Victor Hugo
1944 Mass held during the liberation of Paris and attended by De Gaulle
1996 Funeral of François Mitterrand
2019 Huge fire destroys large part of the roof and spire

Note:

Alexander Statue in Athens

Recently, a statue of **Alexander the Great** has been installed in central Athens, Greece. Three decades after it was finished by **Yannis Pappas**, one of the greatest Greek sculptors of the 20th century.

➢ In the bronze statue, Alexander bears no arms and is depicted at a very young age.

➢ In the past, statues of the Alexander have been erected in other parts of Greece, but not in Athens.

➢ The long delay is mainly due to bureaucratic reasons and Greek authorities delayed installing so as not to raise tensions during efforts to resolve a row with neighboring Macedonia over its name.

➢ The figure, the history and the legacy of Alexander were found in recent years at the center of the dispute between the two countries over the use of the name Macedonia.

➢ The Republic of Macedonia was renamed as Republic of North Macedonia in January 2019 and since the two sides have stepped up efforts to strengthen bilateral cooperation in many sectors.

About Alexander

➢ Alexander the Great, also known as Alexander III or Alexander of Macedonia was born in **356 BCE in Pella, Macedonia**. He died in **323 BCE in Babylon**.

➢ He was the king of Macedonia (336–323 BCE), who overthrew the Persian empire.

➢ He spent most of his ruling years on an unprecedented military campaign through Asia and northeast Africa, and by the age of thirty, he had created one of the largest empires of the ancient world, stretching from Greece to northwestern India.

Alexander Invasion of India

➢ In 326 BCE, Alexander invaded India, after crossing the river Indus he advanced towards Taxila.

➢ He then challenged **king Porus**, ruler of the kingdom between the rivers Jhelum and Chenab.

➢ The Indians were defeated in the fierce battle of Hydaspes.

➢ Alexander captured Porus and, like the other local rulers he had defeated, allowed him to continue to govern his territory.

➢ Alexander remained in India for **19 months** (326-325 BCE), which were full of fighting and in July 325 BCE Alexander and his army returned westward for home.

Republic of North Macedonia

➢ After declaring independence from Yugoslavia in 1991, the 'Republic of Macedonia' chose the name "Macedonia".

➢ But that title severely strained relations with neighbor Greece, which also has a region called Macedonia.

➢ The 'Greek region of Macedonia' lies in the northern, mountainous part of the country and includes its second-largest city, Thessaloniki, as well as the UNESCO World Heritage Site of Philippi.

➢ In January 2019, the country renamed as 'Republic of North Macedonia' ending a decade long dispute with Greece.

World Heritage Day

Every year, **April 18** is celebrated as World Heritage Day. In 1982, ICOMOS established 18 April as the International Day for Monuments and Sites. UNESCO approved it the following year during its 22nd General Conference.

Key Points

➢ Every year, a theme is proposed for the day which guides the celebrations. The theme for this year's celebrations is **'Rural Landscapes'**, which is related to the theme of the 2019 ICOMOS Scientific Symposium on Rural heritage that will take place in Marrakesh, Morocco in October.

➢ This year's International Day for Monuments and Sites offers the opportunity for National and International Scientific Committees to raise awareness about the relevance of rural landscapes, the challenges that encompass their conservation, the benefits that these efforts provide, and how rural landscapes are intrinsically related with sustainable development.

➢ In the ICOMOS "Principles concerning rural landscapes as heritage", adopted by the ICOMOS General Assembly in 2017, rural landscapes are defined as **"terrestrial and aquatic areas co-produced by human-nature interaction used for the production of food and other renewable natural resources, via agriculture, animal husbandry and pastoralism, fishing and aquaculture, forestry, wild food gathering, hunting,**

Note:

and extraction of other resources, **such as salt**. Rural landscapes are multifunctional resources. At the same time, all rural areas have **cultural meanings** attributed to them by people and communities: **all rural areas are landscapes**".

The International Council on Monuments and Sites (ICOMOS)

➤ It is the only **global non-government organization (headquartered in Paris),** which is dedicated to promoting the application of theory, methodology, and scientific techniques to the conservation of the architectural and archaeological heritage.

United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Heritage Sites

➤ Formed in 1945, it is a specialized agency of the United Nations (UN) based in Paris.

➤ It seeks to build peace through international cooperation in Education, the Sciences and Culture.

➤ As of January 2019, it has 193 member states.

➤ The UNESCO selects landmarks or areas around the world which are of cultural, historic or scientific significance, known as **World Heritage Sites**.

➤ A UNESCO World Heritage site can be any place such as a forest, lake, building, island, mountain, monument, desert, complex or a city; which has a special physical or cultural significance. There are currently 1,092 sites on this list, of which 37 are in India.

➤ In India, out of 37, 29 are Cultural properties, 7 are Natural properties and 1 is named as mixed.

➤ Khangchendzonga National Park is the only World Heritage site in India which is categorized as Mixed.

➤ In 2016, Nalanda Mahavihara and the Architectural Work of Le Corbusier in Chandigarh (total 17 sites across the world) have been listed in the World Heritage list.

➤ In 2017, historic city of Ahmedabad and in 2018, Victorian Gothic and Art Deco Ensembles of Mumbai was added in the list.

Mahavir Jayanti

17th April 2019 marked the occasion of the 'Mahavir Jayanti'.

➤ It is one of the most auspicious festivals in the Jain community.

➤ This day marks the **birth of Vardhamana Mahavira**, who was the 24th and the last Tirthankara who succeeded the 23rd Tirthankara, Parshvanatha.

➤ According to Jain texts, Lord Mahavira was born on the 13th day of the bright half of the moon in the month of Chaitra.

➤ The idol of Mahavira is carried out on a chariot, in a procession called rath yatra. On the way, 'stavans' or Jain prayers are recited. The statues of the Lord Mahavira are given a **ceremonial bath called abhisheka**.

Lord Mahavira

➤ Mahavir was born to King Siddhartha of **Kundagrama** and Queen Trishala, a Lichchhavi princess in the year **540 BC** in the **Vajji kingdom**, identical with modern day Vaishali in Bihar.

➤ Mahavira belonged to the **Ikshvaku dynasty**.

➤ Lord Mahavir was named as **Vardhamana**, which means **"one who grows"**.

➤ He abandoned the worldly life at the age of 30 and attained 'kaivalya' or omniscience at the age of 42.

➤ It is believed that the Mahavira passed away and attained nirvana (liberation from the cycle of birth and death) at the age of 72 in 468 BC at a place called **Pavapuri** near modern Rajgir in Bihar.

Jainism

➤ The word Jaina comes from the term **Jina, meaning conqueror**.

➤ Jainism attaches utmost importance to ahimsa or non-violence. It preaches **5 mahavratas (the 5 great vows)**:
  ○ Ahimsa (Non-violence)
  ○ Satya (Truth)
  ○ Asteya or Acharya (Non-stealing)
  ○ Aparigraha (Non-attachment/Non-possession)
  ○ Brahmacharya (Celibacy/Chastity)

➤ Among these 5 teachings, the Brahmacharya (Celibacy/Chastity) was added by Mahavira.

➤ The **three jewels or Triratna** of Jainism include **Samyak Darshana (right faith), Samyak Gyana (right knowledge)** and **Samyak Charitra (right conduct)**.

➤ Jainism is a **religion of self-help**. There are no gods or spiritual beings that will help human beings. It does not condemn the varna system.

➢ In later times, it got divided into two sects: **Shvetambaras (white-clad)** under **Sthalabahu** and **Digambaras (sky-clad)** under the leadership of **Bhadrabahu**.

➢ The important idea in Jainism is that the entire world is animated: even stones, rocks, and water have life. Non-injury to living beings, especially to humans, animals, plants, and insects, is central to Jaina philosophy.

➢ According to Jaina teachings, the cycle of birth and rebirth is shaped through karma. Asceticism and penance are required to free oneself from the cycle of karma and achieve the **liberation of the soul**.

➢ The practice of **"Santhara"** is also a part of Jainism. It is the ritual of fasting unto death. Swetambara Jains call it Santhara whereas Digambars call it Sallekhana.

Konyak Dance

Recently, the Guinness World Records has acknowledged Konyak dance as record holder for the **"largest traditional dance"**.

➢ Around 4,700 Konyak Naga women, in their colourful traditional attire came together on April 5, 2019, in an attempt to set a Guinness World Record for the "Largest Traditional Konyak Dance".

➢ In their attempt, Konyak people danced to the beat of traditional instruments and sang a ceremonial song for five minutes and one second.

➢ The programme was organised at Mon (Nagaland) during the **Aoleang Monyu festival** of the Konyak tribe which is celebrated every year in the first week of April to welcome the spring.

Konyak Tribe

➢ This is one of the 16 Naga tribes and people of this community live mainly in the Mon district of Nagaland, India.

➢ They are recognized among other Naga by their tattoos, which they have all over their face and hands.

➢ The Konyak language belongs to the Northern Naga sub branch of the Sal subfamily of Sino-Tibetan.
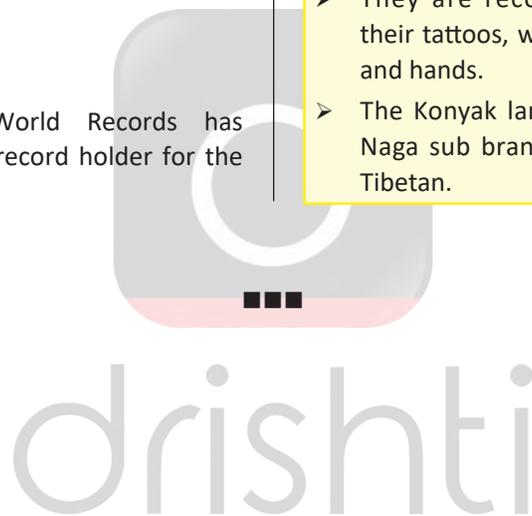
Social Issues

Highlights

- *The shape of an urban employment guarantee*
- *State of World Population-2019: UNFPA*

- *India vs China in School Education*

The shape of an urban employment guarantee

India is in the midst of a massive job crisis especially Indian cities and towns as per leaked **Periodic Labour Force Survey (PLFS) report** of the **National Sample Survey Office (NSSO)**.

Key Points

➤ As per the report, the unemployment rate in India has reached 45-year high (6.1%) in 2017-18 affecting India's cities and towns aggravatingly.

➤ Aside from unemployment, low wages and precarity continue to be widespread along with having the majority of the population working in the informal sector.

➤ As per Census 2011, India has 4,041 cities and towns with an urban local body (ULB) in the form of a Municipal Corporation, Municipal Council or Nagar Panchayat.

➤ However, many programmes have been launched to transform urban areas, but most **Urban Local Bodies** are struggling to carry out basic functions because of a lack of financial and human capacity.

➤ Further, with increasing uncheck urbanisation, they are facing more challenges due to the degradation of **urban ecological commons**.

➤ To propel the economic engine of the country, there is a need to promote the sustainable development of India's small and medium towns.

An idea of Urban Employment Guarantee Programme

➤ In the context of the present employment crisis, it is worthwhile to consider introducing an **employment guarantee programme** in urban areas.

➤ Urban informal workers with limited formal education would undertake public works such as building and maintenance of roads, footpaths and bridges for a guaranteed 100 days in a year, at ₹500 a day.

➤ Such a programme would give urban residents a statutory right to work and thereby ensure the right to life guaranteed under Article 21 of the Constitution.

➤ Along with addressing the concerns of underemployment and unemployment, such a programme can bring in much-needed public investment in towns to improve the quality of urban infrastructure and services, restoring urban commons, skilling urban youth and increasing the capacity of ULBs.

➤ In Madhya Pradesh, the Government has launched the **"Yuva Swabhiman Yojana"** which provides employment for both skilled and unskilled workers among urban youth.

Way Forward

➤ It is essential for the proper implementation of **Employment Guarantee Programmes** that ULB receives funds from the Centre and the State at the beginning of each financial year so that funds are available locally. Wages would be disbursed in a decentralised manner at the local ULB.

➤ Another novel aspect is the creation of a skilling and apprenticeship programme for unemployed youth with higher education to assist with administrative functions in municipal offices, government schools, or public health centres, and for the monitoring, measurement, or evaluation of environmental parameters.

➤ A new set of **"green jobs"** which include the creation, restoration/rejuvenation, and maintenance of urban commons such as green spaces and parks, forested or woody areas, degraded or waste land, and water bodies, should be created.

➤ Since it is an urban programme, it should have a wider scope than the **Mahatma Gandhi National**

Note:

Rural Employment Guarantee Act (MGNREGA); this would provide employment for a variety of works for people with a range of skills and education levels.

➢ There is a need to emphasise that it would not come at the expense of MGNREGA but rather the two would go hand-in-hand.

➢ Both State and Central governments must treat towns as **"engines of growth"** for the economy rather than spaces where thousands toil to make a living.

➢ This programme should be administered by the ULB in a participatory manner by involving ward committees.

➢ An urban employment guarantee programme not only improves incomes of workers but also has multiplier effects on the economy.

➢ It will boost local demand in small towns, improve public infrastructure and services, spur entrepreneurship, build skills of workers and create a shared sense of public goods

State of World Population-2019: UNFPA

According to **State of World Population-2019 report** by the **United Nations Population Fund (UNFPA)**, India's population grew at an average of 1.2% annually between 2010 and 2019 which is more than double the annual growth rate of China.

➢ The release of the report also **marks 50 years of the UNFPA** being established to support countries to bring down fertility levels.

➢ It also marks 25 years of **International Conference on Population and Development (ICPD)** in 1994, where 179 governments agreed on a rights-based approach to sexual and reproductive health to address population growth.

> **Note:**
> Reproductive health can be defined as a state of well-being related to one's sexual and reproductive life.

Key findings

➢ The **world's population rose to 7.715 billion in 2019, up from 7.633 billion in 2018**, with the global average life expectancy of 72 years.

➢ The **least developed countries** recorded the highest population growth, with countries in Africa registering an average of 2.7% a year.

➢ Much of the overall increase in global population till 2050 is projected to occur in high fertility countries, mostly in Africa, or in countries with large populations, such as Nigeria and India.

➢ **India's population grew at 1.2% a year** between 2010 and 2019, marginally higher than the global average of 1.1% a year in this period.

➢ Around half of India's population in 24 states have achieved the **replacement fertility rates of 2.1 children per women**, which is the desired family size when the population stops growing.

  ○ However, the country's large youth population will continue to fuel population growth even as the size of the ageing population increases.

  ○ **Replacement level rate** is roughly **2.1 children per woman** for most countries, although it may vary with mortality rates.

  ○ In India, the **total fertility rate** per woman declined from 5.6 in 1969 to 3.7 in 1994 and **2.3 in 2019**.

➢ As of 2019, India's population stood at 1.36 billion, growing from 942.2 million in 1994 and 541.5 million in 1969.

➢ **India's Age structure:** 27% of India's population was in the age bracket of 0-14 years and 10-24 years, while 67% of the country's population was in the 15-64 age bracket. 6% of the country's population was of the age 65 and above.

➢ India registered an **improvement in life expectancy at birth**. The life expectancy at birth in 1969 was 47 years, growing to 60 years in 1994 and **69 years in 2019**.

➢ The findings on **women aged between 15-49 years** were published for the first time in this report. It includes data on women's ability to make decisions over **three key areas**:

  ○ **Sexual intercourse with their partner**

  ○ **Contraception use**

  ○ **Health care**

➢ According to the analysis, the absence of reproductive and sexual rights has major and negative repercussions on women's education, income and safety, leaving them "unable to shape their own futures.''

➢ Early marriage continues to remain an obstacle to female empowerment and better reproductive rights.

➢ The report highlights the threat to women's and girls' reproductive rights posed by emergencies caused by conflict or climate disasters.

Note:

United Nations Population Fund

➢ UNFPA is the **United Nations sexual and reproductive health agency**. It was established as a trust fund in 1967 and began operations in 1969.

➢ In **1987, it was officially renamed as 'United Nations Population Fund'**. However, the original abbreviation, UNFPA (United Nations Fund for Population Activities), was retained.

➢ The mandate of **UNFPA is established by the United Nations Economic and Social Council (ECOSOC)**.

➢ UNFPA is a **subsidiary organ of the UN General Assembly**.

➢ UNFPA is **entirely supported by voluntary contributions** of donor governments, intergovernmental organizations, the private sector, and foundations and individuals, **NOT** by the United Nations regular budget.

➢ UNFPA works directly to tackle **Sustainable Development Goal 3 on health, Goal 4 on education and Goal 5 on gender equality**.

Replacement level rate

➢ It is defined as the average number of children born per woman – at which a population exactly replaces itself from one generation to the next, without migration.

India vs China in School Education

India has three times more school than China, but that's not translating into better education system, according to a new study recently released by NITI Aayog.

Key Points

➢ Today India has 3-4 times more schools than China but most of the country's schools are performing dismally.

➢ Though in the past decade, many initiatives have been introduced to speed up the reach of education to the masses but India seems to be heading towards only achieving the target of quantitative reach rather than qualitative reach.

➢ Despite years of effort and changing syllabuses, teacher trainings as well as students assessments, the situation has not improved due to structural flaws.

➢ India today suffers from the twin challenges of "unviable sub-scale schools" and a "severe shortage of teachers" which makes in-school interventions only marginally fruitful.

Problems facing India's education system

➢ **Number of Schools:** India has adopted the strategy of building schools near every habitation, resulting in a proliferation of schools with tiny population and inadequate resources.

  ○ As a result of increase only the quantitative parameter in case of schools, around 1.5 crores Indian students study under unviable conditions.

➢ **Shortage of Teacher:** Teacher vacancies have compounded the problem. The country today has a shortage of more than 10 lakh teachers.

  ○ Moreover, the teachers that do exist are inadequately distributed, there is more teacher-student ratio in urban areas than the case with rural areas.

  ○ Apart from academic work, teachers are also engaged in managing midday meals, conducting surveys and in administrative and election duties.

➢ **Low learning levels: Annual Status of Education Reports (ASER)** found that nearly half of class 5 children cannot read a class 2 text. Dropout rates increase as children move up. Around 30% enrolled in class 1 graduate from class 12. Teachers aren't knowledgeable enough, also curriculum lacks relevance, particularly at the secondary level.

➢ **Core academic institutions:** State Councils of Educational Research and Training (SCERT) and District Institutes of Education and Training (DIETs)- are understaffed and skills like curriculum design analysis are often missing.

Recommendations

➢ **Consolidating several such schools** within a short distance of one another, and providing transport and allowances. School consolidation, pioneered in states like Rajasthan and Jharkhand, has already reaped rich dividends.

➢ Move teachers from surplus to **deficit schools, restructure the teacher cadres, and increase investment** in teacher recruitment. Madhya Pradesh has undertaken an online teacher rationalization process, moving nearly 10,000 teachers from surplus to deficit schools.

➢ Move away from just **completing the syllabus to focusing** on the competencies students have mastered. Students should be taught based on their learning levels rather than grades. Extra time should be carved out to bridge the learning gaps.

➢ **Reconsider vocational education** in secondary education.

➢ Institution like SCERTs and DIETS should be filled with people having relevant skill set through competitive process along with having stringent annual performance review mechanism.

➢ There is a need of automating some system like **maintaining academic register, real-time data monitoring of school** performance assessment, etc.

Way Forward

Truly transforming public education system requires implementation of the above recommendations as well as bold measures like changing the way we manage public finances and making education budget more flexible. It will need political will and coming together of bureaucracy, civil society and public sector.

■■■

Note:

Miscellaneous

Highlights

- *NIRF & ARIIA Rankings 2019*
- *NuGen Mobility Summit 2019*
- *Data Users Conference on Census 2021*
- *State of World Population-2019: UNFPA*
- *Survey 2019: Ambitions Beyond Growth: UNESCAP*
- *Global Measles Cases up by 300%: WHO*

- *Index of Cancer Preparedness*
- *World Homoeopathy Day 2019*
- *World Health Statistics Overview, 2019*
- *Five Coffee Varieties got GI Tag*
- *Alexandrine Parakeet*

NIRF & ARIIA Rankings 2019

The President of India has announced the results for the **National Institutional Ranking Framework (NIRF)-2019** and **Atal Ranking of Institutions on Innovation Achievements (ARIIA)-2019**. These were the fourth edition of NIRF Rankings and the first edition of ARIIA ranking.

Key highlights

➢ **NIRF Rankings 2019**

○ NIRF rankings 2019 has been given under **9 categories**: Overall, Universities, Engineering, Medical, Management, Law, Architecture, Pharmacy and Colleges.

○ **Indian Institute of Madras (IIT Madras) topped** the list in **'overall category'**.

○ **IISc Bengaluru** has topped **'University category'**.

○ **Miranda House, Delhi** has secured the top position in **Colleges category**.

○ **IIT Madras** in the **engineering category**.

○ National Law School of India University, Bangalore in the Law category, IIT Kharagpur in Architecture category, AIIMS in the medical category, IIM Bangalore in the management category and Jamia Hamdard, New Delhi in the 'Pharmacy Category'.

➢ **ARIIA Rankings 2019**

○ **IIT Madras** has topped the **'Public funded Institutions Category'**.

○ **Vellore Institute of Technology, Tamil Nadu** has topped the **'Private Institutions Category'**.

National Institutional Ranking Framework (NIRF)

➢ The National Institutional Ranking Framework (NIRF) was launched by the Ministry of Human Resource Development in 2015.

➢ This framework outlines a methodology to rank institutions across the country.

➢ The parameters broadly cover Teaching, Learning and Resources, Research and Professional Practices, Graduation Outcomes, Outreach and Inclusivity, and Perception.

Atal Ranking of Institutions on Innovation Achievements (ARIIA)

➢ It is an initiative of Ministry of Human Resource Development (MHRD) to systematically rank all the major higher education institutions and universities in India on indicators related to "Innovation and Entrepreneurship Development" amongst students and faculties.

➢ Major Indicators are Budget & Funding Support, Infrastructure & Facilities, Awareness, Promotions & support for Idea Generation & Innovation, Promotion & Support for Entrepreneurship Development, Innovative Learning Methods & Courses, Intellectual Property Generation, Technology Transfer & Commercialization, Innovation in Governance of the Institution.

➢ The objective of ARIIA ranking is to inspire Indian institutions to reorient their mindset and build ecosystems to encourage high-quality research, innovation and entrepreneurship.

Note:

NuGen Mobility Summit 2019

The **International Centre for Automotive Technology (ICAT)** will organise NuGen Mobility Summit, 2019, at **Manesar, NCR in November 2019**.

Key Points

➢ The **objective of the Summit** is to share new ideas, learnings, global experiences, innovations and future technology trends for faster adoption, assimilation and development of advanced automotive technologies for a smarter and greener future.

➢ It will help in building a platform for bringing together all stakeholders in the automotive industry to understand global advancements in technologies.

➢ Track demonstrations, drive-touch-feel activity and lab demonstrations on upcoming vehicle technologies like connected mobility, electric mobility, alternate fuels, intelligent transportation systems, hydrogen fuel cell, hydrogen IC engine, vehicle dynamics, advanced materials and lightweight, end of life vehicles and recycling will be the attractions of this event.

International Centre for Automotive Technology (ICAT)

➢ ICAT provides services for testing, validation, design and homologation of all categories of vehicles and has a mission to assist the automotive industry in adopting cutting edge technologies in vehicle evaluation and component development to ensure reliability, durability and compliance to the current and future regulations in new generation mobility solutions.

➢ It is a division of **NATRIP Implementation Society (NATIS)** under the **Department of Heavy Industries**.

➢ **National Automotive Testing and R&D Infrastructure Project (NATRIP)** is the largest and most significant initiative in the automotive sector which represents a joining of hands between the Government of India, a number of State Governments and Indian Automotive Industry to create a state of the art testing, validation and R&D infrastructure in the country.

Data Users Conference on Census 2021

Recently data users conference was organised by the Registrar General of Indian on Census 2021.

Key Points

➢ For the first time in 140 years long Census exercise in India, data is proposed to be collected through a mobile app.

➢ Enumerators would be encouraged to use their own mobile phone or else there is also option to collect and record the data through paper schedules which will eventually be submitted electronically by them.

➢ Census 2021 will be conducted in **two phases**. In the first phase, **House Listing Operations** would be conducted in any two months chosen by the States between April-September 2020.

➢ In the second phase, actual **population enumeration** would be done in February 2021, followed by the Revision round in March 2021.

➢ In Jammu and Kashmir and snowbound areas of Himachal Pradesh and Uttarakhand, population enumeration would be conducted in September 2020, followed by the revision round from in October 2020.

➢ The data users conference is the first formal interaction of the census organization with various stakeholders. The results of deliberations will form the basis for finalizing the questions and the methodology for the census.

Census in India

➢ A systematic and modern population census, in its present form, was conducted non-synchronously between 1865 and 1872 in different parts of the country. This effort culminating in 1872 has been popularly labelled as the first population census of India.

➢ However, the first synchronous census in India was held in 1881. Since then, censuses have been undertaken uninterruptedly once every ten years.

➢ The responsibility of conducting the decennial Census rests with the Office of the Registrar General and Census Commissioner, India under Ministry of Home Affairs.

State of World Population-2019: UNFPA

The **United Nations Population Fund (UNFPA)** has recently released the **State of World Population-2019 Report**.

Note:

Key Points

➢ The world's population rose to 7.715 billion in 2019 with the global **average life expectancy of 72 years**.

➢ The least developed countries recorded the highest population growth, with countries in Africa registering an average of 2.7% a year.

➢ Much of the overall increase in global population till 2050 is projected to occur in high fertility countries, mostly in Africa, or in countries with large populations, such as Nigeria and India.

➢ The findings on women aged between 15-49 years were published for the first time. It includes data on women's ability to make decisions over three key areas:
  ○ Sexual intercourse with their partner,
  ○ Contraception use and
  ○ Health care.

➢ According to the analysis, the absence of reproductive and sexual rights has major and negative repercussions on women's education, income and safety, leaving them "unable to shape their own futures."

➢ Early marriage continues to remain an obstacle to female empowerment and better reproductive rights.

➢ The report also highlights the threat to women's and girls' reproductive rights posed by emergencies caused by conflict or climate disasters.

➢ **India's population grew at an average of 1.2% annually** between 2010 and 2019 which is more than double the annual growth rate of China.

➢ Around half of India's population in 24 states of India have achieved the replacement fertility rate of 2.1 children per woman. The total fertility rate per woman stood at 2.3 children in 2019.

Note:
Replacement level rate is the average number of children born per woman – at which a population exactly replaces itself from one generation to the next, without migration.

➢ India's life expectancy at birth improved to 69 years in 2019.

➢ The release of the report marks 25 years of International Conference on Population and Development (ICPD).

International Conference on Population and Development (ICPD)

➢ ICPD was organised in Egypt in 1994 where 179 Member States agreed to lay out a far-sighted plan for advancing human well-being that places the human rights of individuals, rather than numerical population targets, at the centre of the global development agenda.

➢ The plan emphasises the value of investing in women and girls, both as an end in itself and as a key to improving the quality of life for everyone. And it affirms the importance of sexual and reproductive health, including family planning, as a precondition for women's empowerment.

➢ It calls for an end to gender-based violence and harmful traditional practices, including female genital mutilation.

United Nations Population Fund (UNFPA)

➢ United Nations Population Fund, formerly the **United Nations Fund for Population Activities** is the United Nations sexual and reproductive health agency. It was established as a **trust fund in 1967** and began operations in 1969.

➢ It strives to deliver a world in which every pregnancy is wanted, every birth is safe and every young person's potential is fulfilled.

➢ UNFPA is entirely supported by **voluntary contributions** of donor governments, intergovernmental organizations, the private sector, foundations and individuals, not by the United Nations regular budget.

➢ UNFPA works directly to achieve **Sustainable Development Goal 3** on health, Goal 4 on education and Goal 5 on gender equality.

Survey 2019: Ambitions Beyond Growth: UNESCAP

A report, **Survey 2019: Ambitions Beyond Growth was Published by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)**.

➢ The aim of the report is to find out what will it take to realize the ambitious 2030 Agenda of sustainable development goals.

Key findings

➢ An additional annual investment of $1.5 trillion would allow countries in the Asia-Pacific region to achieve the Sustainable Development Goals (SDGs) by 2030.

➢ It has urged the countries in the Asia Pacific to look beyond mere economic growth.

➢ Countries facing high and growing levels of inequality and environmental degradation will have to change course from pursuing a growth path that neglects the people and the planet.

➢ The report argues that keeping the old paradigm of prioritising GDP growth at all costs is neither feasible nor desirable.

➢ Instead, UNESCAP proposes an investment package, equivalent to 5% of the combined GDP of Asia-Pacific developing countries in 2018, that includes:

  ○ $669 billion to support basic human rights and develop human capacities

  ○ $590 billion to achieve clean energy for all and live in harmony with nature

  ○ $196 billion for improved access to transport, information and communications technology (ICT), and water and sanitation.

➢ **Emphasis on quality of education**

  ○ Significant savings could be achieved through a greater emphasis on education quality and outcomes.

  ○ It cites UNESCO estimates in 2014 that globally, $129 billion was wasted annually due to the disconnect between schooling years and the acquisition of basic skills alone.

  ○ Asia-Pacific developing countries on average could save more than 30% through efficiency gains without compromising on education performance.

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)

➢ The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is the regional development arm of the United Nations for the Asia-Pacific region.

➢ The objective of UNESCAP is to work to overcome some of the region's greatest challenges by providing results-oriented projects, technical assistance and capacity building to member States.

➢ It has 53 Member States and 9 Associate Members from Asia-Pacific Region including India.

➢ **Established**: 1947; **Headquarters:** Bangkok, Thailand

Global Measles Cases up by 300%: WHO

Recently, the **World Health Organization (WHO)** has released new measles surveillance data for 2019.

Key highlights

➢ **Measles cases rose 300% worldwide** through the first three months of 2019 compared to the same period in 2018.

➢ The current outbreak is mostly among children **in both developing as well as developed countries**.

➢ The major reasons for rising in measles cases in developed countries are the **anti-vaccine movement and Vaccine Hesitancy seen recently in many parts of Europe and the United States**. Such movements are driven by **fraudulent claims linking the vaccine against measles to the risk of autism in children**.

➢ In poorer countries, fewer people are vaccinated and a **larger portion of the population is left vulnerable to the virus**. This creates the environment for a large outbreak to occur - such as those in the Democratic Republic of the Congo, Kyrgyzstan, and Madagascar.

Vaccine Hesitancy

➢ Vaccine hesitancy refers to **delay in acceptance or refusal of vaccines despite the availability** of vaccination services.

➢ In 2019, WHO has added Vaccine hesitation to the list of ten threats to global health in 2019.

➢ **Reasons for Vaccine Hesitancy**

  ○ **Compulsory nature** of vaccines is seen as forcing by state.

Note:

○ **Temporal adverse health** outcomes due to vaccination.

○ **Unfamiliarity** with vaccine-preventable diseases.

○ **Lack of trust** in corporations and public health agencies.

➢ **Steps to Address Vaccine Hesitancy**

○ **Detecting** and **addressing** vaccine-hesitant subgroups.

○ **Educating** all **health care providers** involved with immunization on best practices.

○ **Educating children, youth** and **adults** on the importance of immunization for health.

India and Measles

➢ India has one of the **highest incidences of Measles in the world**. According to WHO Data, in 2018, **more than 68,000 confirmed cases of measles** were reported in India.

➢ However, India has made important gains in recent years. **Measles deaths have declined by 51% from an estimated 100,000 in the year 2000 to 49 000 in 2015.**

Government Initiatives

➢ **Measles-Rubella (MR) vaccination:** The **Ministry of Health and Family Welfare** launched the **Measles-Rubella (MR) vaccination** programme in 2017.

○ The MR campaign **targets around 41 crore children across the country**, the largest ever in any campaign.

○ All children aged between 9 months and less than 15 years will be given a **single shot of Measles-Rubella (MR) vaccination irrespective of their previous measles/rubella vaccination status or measles/rubella disease status**.

➢ Other Initiatives include **Universal Immunization Programme (UIP), Mission Indradhanush and Intensified Mission Indradhanush**.

Index of Cancer Preparedness

The **Economist Intelligence Unit (EIU)** has recently released the Index of Cancer Preparedness (ICP).

Key Key highlights

➢ **Australia** tops the ICP, followed by the Netherlands and Germany.

➢ **Saudi Arabia,** Romania, and Egypt face at the bottom in Index.

➢ **India's** overall rank is 19th.

➢ The highest scores on average are found in policy and planning, but the countries' performances get weaker when moving from policy to implementation to overall health system readiness and governance.

Index of Cancer Preparedness (ICP)

➢ The objective of the ICP is to allow benchmarking of national efforts and identify best practice in addressing the cancer challenge.

➢ It draws on a wide range of data relevant to cancer policy and control from 28 countries.

➢ The ICP explores the issue of cancer preparedness through three broad domains: policy and planning; care delivery; health systems and governance.

➢ According to the index, the four essentials of cancer preparedness are **essential investment** (appropriate spending and resources), **roadmap** (effective planning), **foundation** (functioning health systems), and **intelligence** (availability and quality of cancer-related data).

Cancer

➢ Cancer is a generic term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade adjoining parts of the body and/or spread to other organs.

➢ Cancer is the second leading cause of death globally.

➢ World Cancer Day is observed on 4th Feb every year.

World Homoeopathy Day 2019

Every year, 10 April is celebrated as 'World Homoeopathy Day' all over the world to commemorate the birth anniversary of the founder of Homoeopathy, Dr Christian Friedrich Samuel Hahnemann.

Key Points

➢ A two-day international convention was organized by the Central Council for Research in Homoeopathy (CCRH) in New Delhi.

➢ **"Linking Education and Clinical Practice with Research: Advancing Scientific Collaborations"** was the theme of the conference.

Note:

- Discussions were held on a wide range of topics like Linking education and clinical practice with research, Homoeopathic Education: Research component, Utilisation of existing research by clinicians, Drug Development & Validation, Research initiatives by students, etc.

Homoeopathy

- The word 'Homoeopathy' is derived from two Greek words, Homois meaning similar and pathos meaning suffering.

- It simply means treating diseases with remedies, prescribed in minute doses, which are capable of producing symptoms similar to the disease when taken by healthy people.

- It is based on the natural law of healing – **"Similia Similibus Curantur"** which means **"likes are cured by likes"**.

- It was given a scientific basis by Dr Samuel Hahnemann (1755-1843) in the early 19th century.

Central Council for Research in Homoeopathy (CCRH)

- Central Council for Research in Homoeopathy (CCRH) is an apex research organization under Ministry of AYUSH which undertakes, coordinates, develops, disseminates and promotes scientific research in Homoeopathy.

- The Central Council for Research in Homoeopathy (CCRH), formally constituted in 1978, was set up as an autonomous organization and registered under the Societies Registration Act, 1860.

- **Headquarters:** New Delhi.

World Health Statistics Overview, 2019

The **World Health Organisation (WHO)** has released its **annual World Health Statistical Overview, 2019**.

Key Points

- World health statistics 2019 summarises recent trends and levels in **life expectancy** and **causes of death**, and reports on the health and health-related **Sustainable Development Goals (SDGs)** and associated targets.

- The life expectancy of Women is higher than men. For men and women combined, average life expectancy has increased by 5.5 years to 72 years in 2016 since the turn of the century.

- Healthy life expectancy (the number of years lived in full health) increased to 63.3 years in 2016.

- The life expectancy gap is narrowest where women lack access to health services. Maternal deaths contribute "more than any other cause" to reducing female life expectancy.

Five Coffee Varieties got GI Tag

The **Department for Promotion of Industry and Internal Trade (DPII),** under the **Ministry of Commerce and Industry,** has recently awarded GI tag to five varieties of Indian coffee.

Key Points

- **Coorg Arabica, Chikmaglur Arabica, Bababudangiris Arabica** coffee from Karnataka, **Wayanad Robusta** coffee from Kerala and **Araku Valley Arabica** coffee from Andhra Pradesh were awarded the tag.

- The move is expected to help the growers get the maximum price for their premium produce.

- **The Araku valley coffee** is produced by the tribals, who follow an organic approach in which they emphasise management practices involving substantial use of organic manures, green manuring and organic pest management practices.

- **Bababudangiris Arabica coffee** is selectively hand-picked and processed by natural fermentation.

- **Coorg Arabica coffee** is specifically grown in Kodagu district of Karnataka.

- **Wayanad Robusta coffee** is grown specifically in Wayanad district of Kerala.

- **Chikmagalur Arabica coffee** is grown in Chikmagalur district which is situated in the Deccan plateau, falling under the Malnad region of Karnataka.

- **Karnataka** is the largest coffee producing state in India followed by **Kerala, Andhra Pradesh** and **Tamil Nadu**.

- India is the only country in the world where the entire coffee cultivation is grown under shade, hand-picked and sun-dried.

Note:

Arabica

➢ This variety of coffee has a delicate flavour and balanced aroma coupled with a sharp and sweet taste.

➢ Arabicas are harvested between November to January and are typically grown on higher altitudes ranging from 600 to 2000 metres in cool, moisture-rich and subtropical weather conditions.

➢ It has about half the amount of caffeine compared to Robustas.

Robusta

➢ It has a very strong taste, a grainy essence and an aftertaste somewhat similar to that of peanuts.

➢ It is harvested from December to February and is grown in a hot and humid climate with temperature ranging from 20 degree Celsius to 30 degree Celsius.

Coffee Board of India

➢ It is a statutory organization constituted under the Coffee Act, 1942.

➢ It functions under the Ministry of Commerce and Industry.

➢ The Board mainly focuses its activities in the areas of research, extension, development, market intelligence, external & internal promotion for coffee.

➢ **Headquarters:** Bangalore.

Alexandrine Parakeet

District administration of Jhalawar in Rajasthan is using the **Alexandrine Parakeet**, as the mascot of voter awareness program for the 2019 Lok Sabha polls.

Alexandrine Parakeet

➢ Apart from focusing on the upcoming polls, the administration is concentrating on the conservation of parakeet

➢ The district administration has made a cartoon series under **Systematic Voters' Education and Electoral Participation (SVEEP) programme** which is based on Gagroni parakeet.

Systematic Voters' Education and Electoral Participation (SVEEP)

➢ Started in 2009, SVEEP is the flagship programme of the **Election Commission of India for voter education, spreading voter awareness** and promoting voter literacy in India.

➢ SVEEP is designed according to the **socio-economic, cultural and demographic profile of the state** as well as the history of electoral participation in previous rounds of elections and learning thereof.

Alexandrine Parakeet

➢ Also known as **Gagroni parakeet,** it derives its name from the Gagron fort of Jhalawar.

➢ It is protected under the **Schedule 1 (B) of the Wildlife protection act (WPA) 1972**. It is **native to South and South East Asia**.

➢ It is **'Near Threatened' in the Red list of the IUCN** and in **Appendix II of CITES**.

➢ The male parakeet has a **red ring on its neck** and **red spots on wings**.

➢ **Poaching** and **habitat destruction** have led to a sharp decline in the population of the bird.

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Note:

Key Points

Details

Summary

Key Points

Details

Summary