VISION IAS
INSPIRING INNOVATION

PT 365

Updated Classroom Study Material

March - May 2020

DELHI   LUCKNOW   JAIPUR   HYDERABAD   PUNE   AHMEDABAD   CHANDIGARH

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Dear Students,

Hope your preparation is going well. We wish to communicate our plan, at part of PT 365, for the upcoming prelims examination. Given that Prelims examination is now scheduled for 4th October, we will be covering current affairs till the month of August in the following manner -

- *PT 365 Updation -*
  - *Coverage - Current affairs for the months of March, April and May*
- *PT 365 Extended -*
  - *Tentative date of release - 10th September*
  - *Coverage - Current affairs for the months of June, July and August*

Hope these documents help you in boosting your preparation and building up your confidence further as you wind up your preparations.

Best Wishes
Team Vision IAS

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Updated Classroom Study Material

1. POLITY AND CONSTITUTION

1.1. ISSUES RELATED TO CONSTITUTION

1.1.1. RIGHT TO PROPERTY

Why in News?

Supreme Court has reiterated that forcible dispossession of a person of his private property without due process of law is a human right violation.

Right to Property in India

- The Constitution originally provided for the **Right to Property** as a fundamental right (F.R.) under Articles 19 and 31.
  - **Art. 19(1) (f)** guaranteed to Indian citizens a right to acquire, hold and dispose of property.
  - **Article 31** stated that no person can be deprived of his property without the consent of a proper authority.
  - Also, **Article 31(2)** had put two limitations on State power of acquisition of land viz.
    - ✓ Firstly, the compulsory acquisition or requisitioning of land should be for public purpose.
    - ✓ Secondly, the law enacted in that behalf should provide for compensation.
- To narrow its scope, it was modified several times by the constitutional amendments namely **1st, 4th, 17th, 25th and 42nd Constitutional Amendment Acts.**
- However, it was continued to be seen as a roadblock in socio-economic development of the country.
- Finally, **44th Constitutional Amendment Act repealed the entire Article 31 and Article 19(1)(f) & inserted Article 300A**.
- **Article 300-A** states that no person shall be deprived of his property save by authority of law. This means that-
  - Property is no longer a Fundamental Right, i.e. the aggrieved individual would not be competent to move to Supreme Court under Article 32, for any violation of Art 300A.
  - Also, a law will be necessary to deprive a person of his property.

Right to Property as a Human Right
- In several cases, the Supreme Court of India has held that the right to property is not just a statutory right but is also a human right.
- **Universal Declaration of Human Rights 1948** under Section 17(i) and (ii) also recognizes right to property. It states that-
  - Everyone has the right to own property alone as well as in association with others,
  - No-one shall be arbitrarily deprived of his property.

1.1.2. RESERVATION IN SCHEDULED AREAS

Why in news?

Supreme Court's five-judge Constitution bench held that providing **100 per cent reservation for Scheduled Tribes in scheduled areas of a State is not permissible.**

Details

- The erstwhile State of **Andhra Pradesh** issued an order in 2000 **providing 100% reservation to the Scheduled Tribe candidates**, out of whom **33% shall be women,** for the post of teachers in schools located in the Scheduled Areas of the State.
  - Earlier, in 1986 Governor of Andhra Pradesh, in exercise of **power under 5th Schedule**, also directed the posts of teachers in educational institutions in the scheduled tribe areas of the State to be reserved for Scheduled Tribes.
- However recently, **SC held that 100% reservation is discriminatory and impermissible** as it violated Articles 14 (equality before law), 15 (discrimination against citizens) and 16 (equal opportunity) of the Constitution.
  - A 100% reservation to the Scheduled Tribes also deprives General category, Scheduled Castes and Other Backward Classes also of their due representation. **The court referred to the Indira Sawhney judgment, which caps reservation at 50%.**
  - The judgement further includes that **equality of opportunity and pursuit of choice** cannot be deprived of arbitrarily.

o It also said that the power of Governor to make 'modifications and exceptions' to any parliamentary law under **Fifth Schedule of the constitution** does not entitle him to substitute the law or make a new law altogether.

Fifth Schedule of the Constitution
- The Fifth Schedule under **Article 244** of the Constitution contains provisions regarding administration of Scheduled Areas other than in Northeast India.
- At present, Scheduled Areas have been declared in the States of **Andhra Pradesh (including Telangana), Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Rajasthan**.
- **Scheduled Area in a State is notified by order of the President,** after consultation with the Governor of that State.
- Governor submits a report, annually or whenever President requires, regarding administration of such areas.
- Each state having 'Scheduled Areas' must have a Tribal Advisory Council consisting of 20 members.
  o Three-fourths of the members have to be representatives of scheduled tribes in State Legislative Assembly.
- The Governor is empowered to direct that any particular law of parliament and state assembly is **either not applicable or can be applied with certain 'modifications and exceptions' to scheduled areas**.

1.1.3. JAMMU & KASHMIR DOMICILE RULES

Why in news?

Centre has defined domicile rules **by exercise of powers conferred by J&K Reorganization Act, 2019.**

More on news

- Earlier, the power define domicile rested with the legislative assembly of the Jammu & Kashmir.
- Under the law, the domiciles have been defined as
  o Anyone who has **resided for a period of 15 years** in the UT of J&K or has **studied for a period of 7 years** and appeared in Class 10th /12th examination.

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o **Children of Government officials** who have served in J&K for a total period of 10 years or **children of such residents of J&K who reside outside J&K** but their parents should fulfil any of the conditions provided.
- The order **provides protection to domiciles to "any post"** in the government including senior level positions in Group A and Group B category and **Group D category.**
  o Earlier, all jobs in the erstwhile state of J&K were exclusively reserved for permanent residents of the State.

1.1.4. CONSTITUTIONAL ARTICLES IN NEWS

Article	What it says
Article 124(7)	• Retired Supreme Court judge cannot "plead or act in any court or before any authority within the territory of India".
Article 80 (1)(a)	• President can **nominate 12 persons** having special knowledge or practical experience in respect of such matters as the following: Literature, science, art and social service. • Under this, President nominated the former Chief Justice of India, Ranjan Gogoi to the Rajya Sabha. • Previously, Justice Ranganath Mishra, Justice Baharul Islam, Justice Kawdoor Sadananda Hegde were also members of Rajya Sabha.
Article 171(5)	• Governor can nominate "persons having special knowledge or practical experience in respect of literature, science, art, co-operative movement and social service" to Legislative Council.
Article 164(4)	• A Minister who for **any period of six consecutive months is not a member of Legislature** of the State shall at expiration of that period cease to be a Minister.
Article 142	• It allows SC to pass any order necessary for doing complete justice in any cause or matter.

1.2. ISSUES RELATED TO FUNCTIONING OF PARLIAMENT/ STATE LEGISLATURE/LOCAL GOVERNMENT

1.2.1. RAJYA SABHA ELECTIONS

Why in news?

Election Commission of India (ECI) invoking its powers under section 153 of the Representation of the People Act, 1951 has extended the period of Rajya Sabha election beyond the prescribed term(s).

More on news

- Under, **Section 153 in The Representation of the People Act, 1951**, ECI can extend the time for the completion of any election by making necessary amendments in the notification issued.
  - o Election is extended due **to public health emergency emerging from COVID-19.**

Elections to Rajya Sabha

- At present, the Rajya Sabha has **245 members**. Of these, 12 members are nominated by the president and remaining are **representatives of States and Union Territories.**
- The **Fourth Schedule of the Constitution** deals with the allocation of seats in the Rajya Sabha on the basis of population.
- **Minimum age to be member of Rajya Sabha** is 30 years (25 years for Lok Sabha).
- **Representatives of states** in the Rajya Sabha are **elected by the elected members of state legislative assemblies.**
- **Representatives of union territory** in the Rajya Sabha are elected by members of an electoral college specially constituted for the purpose.
- Elections to the **Rajya Sabha are indirect**. The election is held in accordance with the **system of proportional representation by means of the single transferable vote.**
- The Rajya Sabha is **not subject to dissolution**. One-third of its members retire every second year. Each member has a **6-year term.**
- **Rajya Sabha polls have a system of open ballot**, but it is a limited form of openness.
  - o Each party MLA has to show his or her marked ballots to the party's authorised agent, before they are put into the ballot box.

- **None Of The Above (NOTA) does not apply** to Rajya Sabha polls**,** as Supreme Court held NOTA option is meant only for universal adult suffrage and direct elections.

1.2.2. FLOOR TEST

Why in news?

Supreme Court held that Governor can direct Floor test even while House is in Session.

More on news

- Supreme Court observed that a **Governor can call for a floor test any time** he objectively feels a government in power has lost confidence of House.
- Also, Governor **need not wait for Speaker's decision** on resignation of rebel MLAs before calling for a trust vote in the House.
  - o However, Governor to call for a trust vote **is subject to judicial review**.
- Floor test is a term **used for the test of the majority**. **If there are doubts** against the government's majority, the **governor can ask to prove majority in the House**.
- If the **government has to demonstrate its strength** on the floor of the House, it **can have a motion of confidence**.
- If **opposition parties** can **move a motion expressing want of confidence** in the Council of Ministers, it can have a **no confidence motion.**

Similar news: Adjourned sine die
- **Parliament adjourned sine die** ahead of schedule in wake of COVID-19, after passing the Finance Bill 2020.
- To adjourn a matter sine die means to adjourn it for an **indefinite period of time**.
- A legislative body that agrees to adjourn sine die agrees to adjourn without picking a date in the future on which they should get together again.
- The power of adjournment sine die lies with the **presiding officer** of the House.

1.2.3. CABINET COMMITTEES

Why in news?

Functions of two Cabinet committees were widened.

More on news

- Changes were made by amending **Governments of India Transaction of Business Rules, 1961** (1961 Rules).
- Under **Article 77(3)**, President has made 1961 Rules, for more convenient transaction of

business of Government and for allocation among Ministers of said business.

- These two committees were recently created.
  - o **Cabinet Committee on Investment and Growth:** Its key function is identifying key projects required to be implemented on a time-bound basis, involving investments of Rs 1,000 crore.
    - ✓ **Now,** Rs 1,000 crore limit has been removed and included in its ambit sector specific reforms and other measures aimed at export promotion, import substitution etc..
  - o **Cabinet Committee on Employment and Skill Generation:** Its functions include to look at **policies, programmes and schemes** for skill development and increasing employability of the workforce.
    - ✓ **Now,** consider measures to increasing workforce participation with particular emphasis on women workforce has been included.

1.2.4. VILLAGE VOLUNTEER SYSTEM OF ANDHRA PRADESH

- Under this system, a **new department of Gram Volunteers/ Ward Volunteers and Village Secretariat/Ward Secretariat** was created.
- Each **Village Secretariat** has been set up for a population of 2,000, with each one comprising close to a dozen village officials.
- Each volunteer is **paid Rs. 5,000 per month** and the person has to ensure that benefits reach the people in the **50 households** in the village. (In towns, ward volunteers have been appointed).

1.2.5. NATIONAL PANCHAYATI RAJ DAY (NPRD)

- It is celebrated on 24th April, day on which 73rd Constitution Amendment Act, 1992 came into force in 1993.
- **Two schemes were launched on NPRD**
  - o **e-GramSwaraj** helps prepare and execute **Gram Panchayat Development Plans (GPDP)**. It will ensure real time monitoring and accountability. It is a major step towards **digitization down to GP level**.
  - o **Swamitva scheme** is launched in pilot mode in 6 states to map rural inhabited lands using drones and latest survey methods.
    - ✓ It will ensure **streamlined planning, revenue collection and provide clarity** over property rights in rural areas.

- ✓ This helps in applying for loans from financial institutions by property owners and related to property related disputes settlement.

1.3. JUDICIARY

1.3.1. ONLINE JUSTICE DELIVERY

Why in news?

Supreme Court passed directions for all courts across the country to **use video-conferencing for judicial proceedings** amid COVID-19 pandemic.

Initiatives in this direction

- **eCourts Mission Mode Project**
  - o It is a **Pan-India Project**, monitored and funded by Department of Justice, Ministry of Law and Justice, Government of India for the District Courts across the country.
  - o The objective of the eCourts Project is to provide designated services to the citizens as well courts by ICT enablement of all district and subordinate courts in the country.
  - o The services being delivered to citizens include status of registration of cases, Case status, Case list, daily order sheets and final orders/judgments.
  - o **e-Courts Services Mobile application and e-Courts National Portal have also been developed.**
- **National Judicial Data Grid:** It is a **web portal** that provides data related to the number of cases pending in any court in the country.
- **Judicial Service Centre:** JSCs have been established at all computerised courts which serve as a **single window for filing petitions and applications by litigants/ lawyers** as also obtaining information on ongoing cases and copies of orders and judgments etc.
- **e-Committee of Supreme Court:** It is a body constituted by the Government of India in the Supreme Court to assist the Chief Justice of India in formulating a National policy on computerization of Indian Judiciary and advice on technological communication and management related changes.
- **Re-engineering committees in High Courts:** These have been established as per the order of the eCommittee of the Supreme Court. The role of these committees is to undertake judicial process re-engineering by streamlining and improvising current court processes, eliminating redundant processes and

designing new processes with respect to making court processes ICT enabled.

- **Legal Information Management & Briefing System (LIMBS):** It is a web-based portal developed by Department of Legal Affairs, Ministry of Law & Justice for monitoring and handling of various court cases of Govt. Departments and Ministries.
- **Interoperable Criminal Justice System (ICJS):** It is aimed at integrating the Crime and Criminals Tracking Network and Systems (CCTNS) project with the e-Courts and e-Prisons databases, as well as with other pillars of the criminal justice system such as forensics, prosecution and juvenile homes in a phased manner.

1.3.2. OFFICIAL LANGUAGE COURTS

Why in news?

Haryana Official Language Amendment Act was challenged in Supreme Court on grounds that it creates unreasonable classification between Hindi and non-Hindi speaking advocates and it violates **Articles 14, 19 and 21.**

Provisions for language in courts

- **Article 348 (1)** provides that **all proceedings in SC and in every High Court** shall be in **English Language** until Parliament by law otherwise provides.
  - Parliament has **not made any provision for the use of Hindi in SC**. Hence, SC hears only those who petition or appeal in English.
- **Article 348 (2)** provides that Governor, with consent of President, can authorize **use of Hindi or any other language in proceedings** of High Court. However, decrees, judgments or orders passed by such High Court shall be in English.
- Under **Official Language Act of 1963,** Governor, with consent of President, can authorise use of Hindi or official language of State, **for purposes of judgment, decree or order** passed by High Court. However, it shall be accompanied by a translation in English.
- According to **Code of Civil Procedure 1908:**
  - State Government can declare language of Subordinate Courts.
  - Language of High Court shall continue to be language of subordinate Court until State Government otherwise directs.

1.3.3. ALL-INDIA JUDICIAL SERVICES

Why in news?

Law ministry has decided to complete the consultation process for All India Judicial Service by March 2022**.**

All India Judicial Service (AIJS)

- After the **Swaran Singh Committee's** recommendations in 1976, **Article 312** was modified to include the judicial services.
- AIJS aims at creating a **centralized cadre of District Judges** who will be **recruited centrally through an all-India examination** and allocated to each State along the lines of the All India Services (AIS).
- Currently, the appointments of District Judges and Subordinate Judiciary are **done by the respective State governments**
- Article 312 provides that an **All India Service** can be created if **Rajya Sabha declares by a resolution supported by not less than a two-thirds majority** that it is necessary in the national interest to create one or more such All India Services.
- Presently, the **All India Services (AIS) comprises** of the Indian Administrative Service (IAS), the Indian Forest Service (IFS) and the Indian Police Service (IPS).
- A **common unique feature of the All India Services** is that the members of these services are recruited by the Centre, but their services are placed under various State cadres, and they have the liability to serve both under the State and under the Centre.

1.4. IMPORTANT LEGISLATIONS/BILLS

1.4.1. ORDINANCE TO PROTECT HEALTH WORKERS

Why in news?

The President **promulgated an Epidemic Diseases (Amendment) Ordinance, 2020 to amend the Epidemic Diseases Act, 1897** to protect healthcare service personnel and property including their living/working premises **against violence during epidemics.**

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Key features of the ordinance

- **Definition:** The Ordinance defines healthcare service personnel as a person who is at risk of contracting the epidemic disease while carrying out duties related to the epidemic. It includes
    - any public and clinical healthcare service providers such as doctors, nurses, paramedical workers and community health workers;
    - any other person empowered under the Act to take measures to prevent the outbreak of the disease or spread thereof;
    - any person declared as such by the State Government, by notification in the Official Gazette.
- **Act of violence:** It includes any of the following acts committed against a healthcare service personnel:
    - harassment impacting living or working conditions,
    - harm, injury, hurt, or danger to life,
    - obstruction in discharge of his duties,
    - loss or damage to the property or documents of the healthcare service personnel.
- **Punishment:** The violence is punishable with imprisonment between three months and five years, and a fine between Rs 50,000 and two lakh rupees, which can be **compounded by the victim with the permission of court.**
    - In case **of grievous harm**, it is punishable with imprisonment between six months and seven years, and a fine between one lakh rupees and five lakh rupees.
    - These offences are **cognizable and non-bailable.**
- **Compensation:** Persons convicted of offences under the Ordinance will also be liable to pay a compensation to the healthcare service personnel whom they have hurt.
- **Investigation:** Cases registered will be investigated by a police officer not below the rank of Inspector. The **investigation must be completed within 30 days** from the date of registration of the First Information Report.
- **Trial:** The inquiry or **trial should be concluded within one year**. If it is not concluded within this time period, the Judge must record the reasons for the delay and extend the time period. However, the time period may not be extended for more than six months at a time.
    - **The burden of proof** for the offence falls on the guilty.

1.4.2. LOKPAL (COMPLAINT) RULES, 2020

Why in news?

Lokpal (Complaint) Rules, 2020 were notified by Department of Personnel and Training under **Lokpal and Lokayuktas Act 2013**.

Key features of Rules

- Complained can be **filed electronically, by post or in person**.
- A **full bench headed by Chairperson** shall decide on **complaint filed against a sitting or former PM** at the admission stage, where at least two-third approve the inquiry.
    - If bench decides to dismiss the complaint at admission state, records of it will not be made public.
- **No complaints can be filed** against a public servant under Army Act, Navy Act, Air Force Act and Coast Guard Act.
- Complainant has to give a **valid proof of identity**. **Foreign nationals can also lodge complaints** with Passport as their identity proof.
- **Identity of complainant or accused official will be protected** by Lokpal till conclusion of inquiry or investigation.
- Any **false and frivolous complaint is punishable** with imprisonment for a term which may extend to one year and with fine which may extend to one lakh rupees.
- Complaint can be **made in any of the languages in the Eighth Schedule** to the Constitution, apart from English.

1.5. OTHER IMPORTANT NEWS

Bureau of Outreach and Communication (BOC)	• **Ministry of Information & Broadcasting** has issued **draft policy guidelines** for empanelment of social media platforms with **Bureau of Outreach and Communication** for Centre's paid outreach campaigns. • It was setup in **2017** by integration of erstwhile Directorate of Advertising and Visual Publicity (**DAVP**), Directorate of Field Publicity (**DFP**) and Song & Drama Division (**S&DD**). • It provides **communication solutions** to various agencies of the government.

	- It is engaged in **educating people,** both rural and urban, about the Government's policies and programmes to evoke their participation in developmental activities. - It is headed by **Director General (DG)** and manned by with officers of Indian Information Service and Ex-cadre personnel of erstwhile **DAVP, DFP** and **S&DD.**	
India Data Portal	It is **one-stop open data portal,** developed by Indian School of Business (ISB) which aims at **collating government data, scattered across multiple sources** for consumption of	

	- policymakers, researchers, students and journalists. - In the first phase, the **focus is on agriculture data,** and in later phases the portal will diversify to include datasets on financial inclusion, rural development etc.
World Press Freedom Index	- It is launched by **Paris-based Reporters Without Borders,** a non-profit organisation that works to **document and combat attacks on journalists around the world.** **Norway is ranked first** out of 180 countries. **India is ranked 142nd**, dropping by two places from last rankings.

2. INTERNATIONAL RELATIONS AND SECURITY

2.1. INDIA AND ITS NEIGHBOURHOOD

2.1.1. GILGIT BALTISTAN ISSUE

Why in the news?

India lodged a **strong protest against Supreme Court of Pakistan order** on the Gilgit-Baltistan region.

About Gilgit Baltistan (GB) region

- The region was a part of erstwhile **princely state of Jammu and Kashmir**
- It has **been under Pakistan's control** since **November 4, 1947,** following invasion of Kashmir by tribal militias and Pakistan army.
- It was renamed as **'Northern Areas of Pakistan'** and put under direct control of Pakistan federal government through **Karachi Agreement, 1949.**
- After **GB Empowerment and Self-Governance Order** in 2009**,** 'Northern Areas' came to be known as **Gilgit-Baltistan**. It provided for a legislative assembly and a council.
- 2009 order was replaced by **Gilgit Baltistan Order, 2018.**
- **2018 order** is aimed at incorporating GB as its **fifth province** and to integrate GB with rest of federal structure of Pakistan by legislative, judicial and administrative measures.
    - Baluchistan, Khyber-Pakhtunkhwa, Punjab and Sindh being other four provinces of Pakistan.
- However, **2018 order** grants **only limited fundamental rights** to people of GB and **does not** grant any **constitutional status** to GB region.
- India maintains that entire **Union Territories of Jammu and Kashmir and Ladakh, including areas of Gilgit and Baltistan**, are "**integral part of India**".
- **China–Pakistan Economic Corridor** passes through GB.
- **Siachen Glacier** is located in GB.
- **Recently,** China and Pakistan signed an accord to construct **Diamer-Basha Dam** in **Gilgit-Baltistan region on river Indus.**

2.1.2. INDO-NEPAL TERRITORIAL DISPUTE

Why in news?

Recently, **Nepal unveiled a new political map** that claimed Kalapani, Limpiyadhura and Lipulekh of Uttarakhand as part of its sovereign territory.

About Indo-Nepal Territorial Dispute

- The disagreements between India and Nepal over the border dispute is over the regions which includes **Kalapani, Lipulekh, Limpiyadhura (all three in Uttarakhand)** and **Susta (Bihar).**
- **Kalapani area** is the **largest territorial dispute between Nepal and India** consisting of at least 37,000 hectares of land in the High Himalayas.
    - It is a **tri-junction between** India, China and Nepal.
- **Susta** in Bihar is on the **banks of River Gandak.** The changing course of River Gandak often created issue between two countries.
- **Nepal considers the 1816 Treaty of Sugauli** (signed between Gurkha rulers of Kathmandu and the East India Company) as the only authentic document on boundary delineation.
    - Under the provisions of the Sugauli Treaty, Nepal lost Sikkim, Kumaon, Garhwal and Western Terai (Flat) area**.** River Mechi became the eastern border with India while the river Kali (called Mahakali in Nepal) was demarcated as the north-western border.
        - ✓ The Treaty of Sagauli also defined **Gandak as the international boundary** between India and Nepal.
    - Nepal considers the source of Kali river near Limpiyadhura, which is higher in altitude than the rest of the river's flow. Thus, all the three areas **Limpiyadhura, Lipulekh and Kalapani** are considered to the east of the river Kali.

- **India** on the other hand says the border begins at Kalapani which India says is where the river begins.
  - o Kali originates in springs well below the Lipulekh pass, and the Sugauli treaty does not demarcate the area north of these streams.
  - o Administrative and revenue records going back to the nineteenth century show that Kalapani was on the Indian side, and counted as part of Pithoragarh district, now in Uttarakhand.
  - o China in 2015 statement also recognised India's sovereignty over the area by agreeing to expand trade through the Lipulekh pass.

India Nepal Border
- India and Nepal share an approximately an 1,800-kilometre long open border running along **West Bengal, Uttar Pradesh, Bihar and Sikkim.**
- It was after the **Peace and Friendship Treaty of 1950** that the two countries encouraged a well-identified and formally accepted "open border" between them.
  - o An "open border" means that there is free and unrestricted movement of people from either side.
  - o Open border has led to better social and trade connectivity between the two countries leading to what is called 'roti-beti ka rishta'.

2.1.3. INDIA- CHINA BORDER DISPUTE

Why in news?

The border tensions between China and India come to the forefront once again following the ongoing standoff between India and China in the North Sikkim and Ladakh region across the Line of Actual Control (LAC).

CHINA AND INDIA'S DISPUTED BORDER

More on news

- In recent weeks, **Chinese soldiers also crossed the LAC around the Galwan River valley.**
- There have been reports of Chinese soldiers having moved into Indian territory at **multiple locations in eastern Ladakh** across the LAC. **(see the map).**

India- China Border Dispute

- The border between India and China is not clearly demarcated throughout and there is **no mutually agreed Line of Actual Control (LAC).**
- The LAC is the demarcation that separates Indian-controlled territory from Chinese-controlled territory. India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.
- The LAC is divided into three sectors, viz. Western, Middle and Eastern.
  - o The **boundary dispute in the Western Sector (Ladakh)** pertains to the **Johnson Line** proposed by the British in the 1860s that extended up to the Kunlun Mountains and put Aksai Chin in the then princely state of Jammu and Kashmir.
    - ✓ India used the Johnson Line and claimed Aksai Chin as its own. China, however, do not recognise it and instead accepts **McDonald Line** which puts Aksai Chin under its control.
  - o In the **Middle Sector (Himachal Pradesh and Uttarakhand),** the dispute is a minor one. Here LAC is the least controversial except for the precise alignment to be followed in the Barahoti plains. **India and China have exchanged maps** on which they broadly agree.
  - o The disputed boundary in the **Eastern Sector (Arunachal Pradesh and Sikkim)** is over the **McMahon Line (in Arunachal Pradesh)** decided in 1914 in a meeting of

Representatives of China, India, and Tibet in Shimla.

  - ✓ Though the Chinese representatives at the meeting initiated the agreement, they subsequently refused to accept it. The Tawang tract claimed by China was taken over by India in 1951.

Border Dispute Settlement Mechanism
- 1993 Agreement on the Maintenance of Peace and Tranquility along the LAC
- 1996 Agreement on Confidence-Building Measures in the Military Field Along the LAC
- 2005 Protocol on Modalities for the Implementation of Confidence-Building Measures in the Military Field Along the LAC
- 2012 Agreement on the Establishment of a Working Mechanism for Consultation and Coordination on India-China Border Affairs
- 2013 Border Defense Cooperation Agreement.

Other related facts
- 2020 marks **70 Years of Diplomatic Relations** between China and India.
- **2020** is also **China-India Year of Cultural and People-to-People Exchanges**.
- **Pangong Tso lake,** located in Ladakh, at a height of 4,350m, it is world's highest saltwater lake.
  o LAC between India-China passes through lake.

2.1.4. BELT AND ROAD INITIATIVE (BRI)

Why in news?

A recent report found that **economic distress caused by COVID-19 pandemic** has led several countries from Asia and Africa to seek delay or waive debt repayments for BRI.

About BRI

- BRI, announced in 2013, is made up of a "**belt**" of overland routes and a maritime "**road**", which aims to **connect Asia, Europe and Africa** by networks of roadways, railways, maritime ports, power grids, oil and gas pipelines, infrastructure projects etc.
- It aims to improve regional integration and increasing trade and economic growth.
- It **covers over 70 countries, accounting for about 65 % of world's population** and around one-third of world's GDP.
- **India has boycotted BRI,** as China-Pakistan Economic Corridor (part of BRI) passes **through Pakistan-Occupied Kashmir and Gilgit-Baltistan** and also it raised concerns over debt trap, environmental concerns, and transparency in assessment of project costs etc.

- Bhutan is the only country in India's neighborhood that has not joined the BRI.

CHINA'S PROPOSED NEW SILK ROADS

2.1.5. TRANS-BOUNDARY RIVER WATER MANAGEMENT

Why in news?

A new study highlighted **the impact of China's dams on the Mekong River** has raised questions on dams being built on Brahmaputra that originate in China.

More about news

- Study shows that six dams built since the commissioning of the Nuozhadu dam (on the upper Mekong River basin) in 2012 had **altered natural flow of the river**
- Brahmaputra (called **Yarlung Tsangpo** in Tibet) rises from **Chemayungdung glacier**.
- China has been constructing **three hydropower projects** on main stream of Brahmaputra in Tibet. Out of this **Zangmu dam has been completed** and two are under construction.
- India **does not have a water-sharing agreement** with China.

River Water Cooperation between India and neighboring countries

- **Indus Water Treaty (1960):** It is an agreement on cooperation between **India and Pakistan** providing mechanisms to resolve disputes.
- **Indo-Bangladesh Joint Rivers Commission (JRC)**: It was set up in 1972 by Treaty of Friendship, Cooperation and Peace.
- **Ganga Treaty between India and Bangladesh, 1996:** is an agreement to share surface waters at the Farakka Barrage near their mutual border.
- **India and Nepal**: Koshi Agreement (1954), Gandak Agreement (1959), Tanakpur Barrage Agreement (1991) and Mahakali Treaty 1996 **were signed.**

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- **India-Bhutan agreements:** India and Bhutan collaborated for the construction of **Chuka Dam on Wangchu River.** It helped Bhutan use low cost electricity and excess is sold to India which helped it improve its finances.
- **India-China Water Data Sharing:** In 2006, India and China had signed a pact under which China would share hydrological data from May 15 to October 15 every year for the Brahmaputra and Sutlej rivers. The two sides renewed the agreement in memorandums of understanding signed in 2013 and 2015.

Some of the international treaties and best practices

- **Berlin Rules on Water Resources:** It is result of revision of the Helsinki Rules and other International Law Association rules on uses of international water resources.
- **United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997.**
- **Treaty for Amazon Co-operation in 1978:** signed for equitable sharing in South America between Bolivia, Brazil, Columbia, Guyana, Peru, Suriname and Venezuela.
- **Mekong River Commission:** signed by Thailand, Laos, Cambodia and Vietnam.

2.1.6. SAARC

Why in news?

SAARC leaders discussed way forward to fight coronavirus pandemic on video-conference.

Key highlights

- India proposed **COVID-19 Emergency Fund** based on voluntary contributions from SAARC nations, with India making an initial offer of $10 million.
- India suggested to use **SAARC Disaster Management Centre (located in Gandhinagar, India)** to identify and popularise best practices.
- India offered **sharing India's Integrated Disease Surveillance Portal software** to help trace possible virus carriers and people they contacted.
- India proposed to create **common Research Platform** to coordinate research.
- **India proposed SAARC health e-platform**, a shared electronic platform for SAARC nations to **share and exchange information, knowledge, expertise** and best practices for jointly combating the coronavirus epidemic.

2.1.7. INDIAN OCEAN COMMISSION

Why in news?

India has become **observer** of Indian Ocean Commission.

Indian Ocean Commission

- The Indian Ocean Commission (IOC) is an intergovernmental organization **created** by the Port-Louis Declaration **in 1982**.
- The IOC was **institutionalized** in Seychelles **in 1984** by the General Agreement for Cooperation, better known as the **Victoria Agreement**.
- **Composition-** IOC is the only regional organization in Africa composed exclusively of islands, which brings together **five-member states**-
  - The Union of the Comoros
  - Réunion (French overseas territory)
  - Madagascar
  - Mauritius
  - Seychelles
- **Observer members-** China, European Union, Malta, International organization of Francophonie (is an international organization representing countries and regions where French is a lingua franca or customary language), Japan, United Nations and India.
- **Mandate-** To strengthen the ties and to support its member states in the path towards sustainable development.

The Indian Ocean Naval Symposium (IONS)

- IONS is a voluntary initiative that seeks to increase **maritime co-operation among navies of the littoral states** of the Indian Ocean Region by providing an **open and inclusive forum** for discussion of regionally relevant maritime issues.
- It has **24 member states (including India)** and **8 observers**. It was launched in 2008.
- Promote dialogue on **humanitarian assistance and disaster relief**, maritime security and information sharing and interoperability.

Security and Growth for All in the Region (SAGAR)

- SAGAR phrase was coined by Indian Prime Minister in 2015 during his Mauritius visit.
- It involves **enhancing capacities to safeguard land and maritime territories & interests**; deepening economic and security cooperation in the littoral; action to deal with natural disasters and maritime threats like piracy, terrorism.

2.2. INTERNATIONAL ORGANIZATION/INSTITUTIONS

2.2.1. UNITED NATIONS RELIEF AND WORKS AGENCY

Why in news?

India has given USD 2 million in aid to UNRWA working for the welfare of Palestinian refugees, amidst the coronavirus crisis.

United Nations Relief and Works Agency (UNRWA)

- UNRWA was **created in December 1949 by the UN,** as a relief and human development agency.
- UNRWA **provides shelter, basic food supplies, medical aid, education, and work opportunities for Palestine refugees** in its five fields of operations: Jordan, Lebanon, Syria, Gaza Strip and West Bank including East of Jerusalem.
- It is **funded almost entirely by voluntary contributions** from **UN** Member States. UNRWA also receives some **funding from the Regular Budget of the UN**, which is used mostly for international staffing costs.

2.2.2. ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS

Why in News?

Organisation for the Prohibition of Chemical Weapons (OPCW) for the first time explicitly blamed Syria for toxic attacks.

More on News

- **OPCW's Investigation and Identification Team (IIT) in its report** said that Syrian Arab Air Force used the nerve gas sarin and chlorine three times in Ltamenah, Syria in 2017.
- IIT was established in 2018 **for identifying the perpetrators** of the use of chemical weapons in the Syrian Arab Republic.

About OPCW

- It is the **implementing body for the Chemical Weapons Convention.**
- **Headquarters:** Hague**,** Netherlands**.**
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (**the Chemical Weapons Convention or CWC**) entered into force on 29 April 1997.
- CWC aims to **eliminate an entire category of weapons of mass destruction** by **prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons** by States Parties. To achieve the goal of **preventing chemistry from ever again being used for warfare**, CWC has four provisions:
  - o **Destroying all existing chemical weapons** under international verification by the OPCW.

  - o **Monitoring chemical industry** to prevent chemical weapons from re-emerging.
  - o Providing **assistance and protection to States Parties** against chemical threats.
  - o Fostering **international cooperation** to strengthen implementation of the Convention and promote the peaceful use of chemistry.
- CWC was signed and ratified by **193 countries, including India**.
  - o Israel has **signed but not ratified** the Convention.
  - o **Non-signatory states are:** Egypt, North Korea and South Sudan.
- CWC incorporated **'challenge inspection',** whereby any State Party in doubt about another State Party's compliance can request a surprise inspection.
- OPCW was awarded the **Nobel Peace Prize in 2013** for its extensive efforts to eliminate chemical weapons.

About Sarin
- Sarin is a **clear, colorless, and tasteless liquid that has no odor in its pure form**. However, sarin can evaporate into a vapor (gas) and spread into the environment.
- It is a **human-made chemical warfare agent** classified as a **nerve agent.**
- **Nerve agents cause their toxic effects** by preventing the proper operation of an enzyme that acts as the body's "off switch" for glands and muscles.
- **Sarin originally was developed in 1938 in Germany as a pesticide**. It is also known as GB.

About Chlorine gas
- It appears **to be yellow-green in color**. It does **sink and displace breathable air**, so it can asphyxiate people.

2.2.3. MULTILATERAL DEVELOPMENT BANKS

Bank	About
Asian Development Bank (ADB)	• ADB has assured India $2.2 billion in its fight against the COVID-19 pandemic. • Founded in 1966. Headquarters – Manila, Philippines. • **Has 67-member countries,** including —48 from the Asian region. • **India was a founding member** of ADB but operations in the country began only in 1986, when India opted to become a borrowing member. • **Top 5 shareholders**: Japan (15.6%), United States (15.6%), People's Republic of China

Asian Infrastructure Investment Bank (AIIB)	• AIIB has approved a $750 million loan to India under India COVID-19 Emergency Response and Health Systems Preparedness Project. • It was **established in December 2015** but commenced operation in January 2016 and is **headquartered in Beijing.** Currently it has 93 approved members with **India as a founding member.** • **India is the second largest shareholder** in AIIB with 7.5% voting shares while China holds 26.06% voting shares being the largest. • It also proposed to invest USD200 million in the National Investment and Infrastructure Fund (NIIF).
New Development Bank (NDB)	• NDB fast tracked financial assistance to BRICS countries including Emergency Assistance of one billion dollar to India to combat COVID-19. • NDB is an **initiative of BRICS countries** signed into Agreement during the sixth BRICS summit in Fortaleza in 2014 and it came into existence as a legal entity in Ufa Summit in 2015. • The 5 member states (Brazil, Russia, India, China and South Africa) have an equal share. • **Objective:** To mobilise resources for infrastructure and sustainable development projects in **BRICS and other emerging market economies and developing countries** to complement the existing efforts of multilateral and regional financial institutions for global growth. • **Headquarter:** Shanghai.

2.2.4. WHO

2.2.4.1. WORLD HEALTH ASSEMBLY (WHA)

• Recently 73rd World Health Assembly (WHA) was convened which was the first ever virtual health assembly.

Key Outcomes of WHA

• WHA adopted the **resolution for impartial, independent and comprehensive** evaluation of the WHO's response to the pandemic as well as the identification of the "zoonotic" **source of the coronavirus.**
  o It specifically mentions to evaluate the **actions of WHO and their timelines pertaining to the COVID-19** pandemic.
• Called for **universal, timely and equitable access and fair distribution** of all quality, safe, efficacious and affordable essential health technologies and products in response to COVID-19.
• Called for removal of unjustified obstacles inconsistent with agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) and the flexibilities within **Doha Declaration on TRIPS Agreement and Public Health.**

Doha declaration on the TRIPS agreement and public health
• It was **adopted in 2001, by World Trade Organization (WTO) Members** to clarify ambiguities between the need for governments to apply the principles of public health and terms of TRIPS.
• This Declaration affirms that **TRIPS Agreement does not and should not prevent Members** from taking measures to protect public health.

2.2.4.2. WHO EXECUTIVE BOARD

• Indian Health Minister took charge as the **chairman of the WHO Executive Board.**
• Executive Board is **composed of 34 technically qualified members** in the field of health are elected for three-year terms. It meets at least twice a year.
• **Primary function of the board** is to implement the decisions of WHA, advise and facilitate its work.
• **Chairman post is held by rotation** for one year among 6 regional groups Africa, Americas, South East Asia, Europe, Eastern Mediterranean and Western Pacific.

2.2.4.3. WORLD HEALTH ORGANIZATION FUNDING

• USA threatened to freeze funding to World Health Organization (WHO
• **Funding pattern of WHO:** consists of four kinds of contributions
  o **Assessed contributions:** dues countries pay in to become member of WHO- based on country's wealth and population
  o **Specified voluntary contributions:** come from members or partners and can be flexible or highly earmarked. It forms the **largest share of WHO's funds.**

- o **Core voluntary contributions:** to benefit less well-funded activities resources and ease implementation bottlenecks because of lack of immediate financing
  - o **Pandemic Influenza Preparedness (PIP) Contributions:** to strengthen human pandemic potential, and increase access of developing countries to vaccines and pandemic related supplies.
- **US** is currently WHO's **biggest contributor with 14.67%** and India's share is 0.48%.
- Out of the total funds, maximum funds are spent in Africa region ($1.2 billion) followed by Eastern Mediterranean region, South East Asia, Europe, Western Pacific, and Americas regions respectively.
- Area where maximum money allocated is **polio eradication** (26.51%), followed by essential health and nutrition services (12.04%), and preventable diseases vaccines (8.89%).

2.3. INTERNATIONAL EVENTS

2.3.1. UN75

Why in news?

UN75 Initiative released Findings from first three months of Global Dialogue titled **'Resolved to Combine Our Efforts'.**

About UN75

- To mark its 75th anniversary in 2020, United Nations has launched large and inclusive **global conversation** on the role of **global cooperation in building the future** we want, named **UN75.**
- **Anyone can join the conversation** in all 193 UN Member states, online and offline or in formal and informal dialogues.
- UN75 dwells on **three big questions**:
  - o What kind of future do we want to create?
  - o Are we on track?
  - o What action is needed to bridge the gap?
- It has **following three components**:
  - o Connecting people.
  - o Amplify their voices by creating open channels for people.
  - o Inspire action.

2.3.2. OPEN SKIES TREATY

Why in news?

Recently, U.S. announced that it will exit the **Open Skies Treaty,** stating that Russia had "continuously and flagrantly" violated the treaty.

About Open Skies Treaty (OST)

- OST is an agreement that permits each state-party to **conduct short-notice, unarmed, reconnaissance flights over the others territories** to collect data on military forces and activities.
- It is aimed at **building confidence and familiarity** among states-parties through their participation in the overflights.
- OST was **signed in 1992** and came into **effect in 2002.**
- Currently **34 states are party to the treaty** while a 35th, Kyrgyzstan, has signed but not ratified it. Majority of members include **North American and European nations** like USA, UK, Russia, Turkey.
  - o **India, China are not members** to the treaty.
- Though state-parties are allowed to **overfly all of a member's territory**, the **treaty determines specific points of entry and exit** and refuelling airfields.
- **Open Skies Consultative Commission (OSCC),** comprised of representatives of all states-parties, is responsible for implementation of OST.

2.3.3. BIOLOGICAL WEAPONS CONVENTION

Why in news?

March 26 marked the **45th anniversary** of the Biological Weapons Convention coming into **force.**

About Biological Weapons Convention (BWC)

- It was the **first multilateral disarmament treaty** banning the development, production and stockpiling of **an entire category** of weapons of mass destruction.
- It entered into force on **March 26, 1975.**
- It currently has **183 states-parties. India signed** the convention in **1973** and **ratified** it in **1974.**
- **BWC bans**
  - o The **development, stockpiling, acquisition, retention, and production** of
    - ✓ **Biological agents and toxins,** of types and in quantities, that have no justification for prophylactic, protective or other peaceful purposes.
    - ✓ **Weapons, equipment, and delivery vehicles** designed to use such agents or toxins for hostile purposes or in armed conflict.
  - o The **transfer of or assistance with acquiring** the agents, toxins, weapons,

equipment, and delivery vehicles described above.

- BWC **does not ban** the **use** of biological and toxin weapons but reaffirms the 1925 Geneva Protocol, which prohibits such use.
- It also **does not ban bio-defence programs.**

2.3.4. NUCLEAR NON-PROLIFERATION TREATY

Why in news?

Recently, **the Nuclear Non-Proliferation Treaty (NPT)** which came into force in 1970, marked its 50th anniversary.

About NPT

- **Objectives**:
  o To prevent the spread of nuclear weapons and weapons technology,
  o to promote cooperation in the peaceful uses of nuclear energy and
  o to further the goal of achieving nuclear disarmament and general and complete disarmament.
- The Treaty represents the **only binding commitment** to the goal of disarmament by the nuclear-weapon States.
- The treaty **defines nuclear-weapon states** as those that have built and tested a nuclear explosive device before **1 January 1967;** these are the United States, Russia, the United Kingdom, France, and China.
  o Four other states are known or believed to possess nuclear weapons: **India, Pakistan, Israel and North Korea.**
- **All countries** except the above four are **parties to the NPT.**
- NPT Review Conference is **held every five years** to review the operation of the treaty and consider means to strengthen it.
- India **refused to join the treaty** on the basis that it was a discriminatory because of its grouping of countries.

2.4. ISSUES RELATED TO SECURITY

2.4.1. DRAFT DEFENCE PROCUREMENT PROCEDURE (DPP) 2020

Why in News?

Ministry of Defence (MoD) released **draft Defence Procurement Procedure (DPP) 2020.**

More on News

- **DPP will cover all Capital Acquisitions** undertaken by MoD and Service Headquarters (SHQ) both from indigenous sources and ex-import, **except for medical equipment.**
- **It will supersede DPP 2016.**
- DPP was **first introduced in 2002** to provide probity, transparency and a structured procedure which would streamline the procurement of military hardware for the Armed Forces in a time bound manner.

Key features and changes in DPP 2020

- **Indigenous Content (IC) ratio hiked:** Draft proposes increasing the IC stipulated in various categories of procurement by about 10% to support the 'Make in India' initiative.
- **New Category Buy (Global – Manufacture in India)** has been introduced with minimum 50% indigenous content on cost basis of total contract value.
- **Leasing introduced as a new category** for acquisition in addition to existing 'Buy' & 'Make' categories to substitute huge initial capital outlays with periodical rental payments.

OVERALL ENHANCEMENT IN REQUIREMENT OF INDIGENOUS CONTENT (IC)

Category	DPP 2016	Proposed
Buy (Indian–IDDM)	Min 40%	Min 50%
Buy (Indian)	Min 40%	Indigenous design – Min 40%, otherwise – Min 60%
Buy & Make (Indian)	Min 50% of Make	Min 50% of Make
Buy & Make	—	Buy & Min 50% of Make
Buy (Global-Mfr in India)	—	Min 50%
Buy (Global)	—	Min 30% for Indian vendors

2.4.2. DEFENCE TESTING INFRASTRUCTURE SCHEME

Why in news?

Defence minister approved the launch of Defence Testing Infrastructure Scheme (DTIS) with an outlay of Rs 400 crore for **creating testing infrastructure** for defence and aerospace manufacturing.

About DTIS

- **The objective is to promote indigenous Defence Production,** with special focus on participation of MSMEs and Start Ups.

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- The projects under the scheme will be **provided with up to 75% government funding** in the form of 'Grant-in-Aid'.
- **Remaining 25% of the cost will be borne by the Special Purpose Vehicles** (SPV), whose constituents will be Indian private entities and State Governments.
- SPVs **will be constituted by private entities only** (Industry, Industry association, R&D/Academic institution etc) and **registered under the Companies Act, 2013**
- The SPV shall be responsible for **obtaining statutory clearances** required for testing of weapons and ammunition.
    - SPV shall also operate and maintain all assets under the scheme in a self-sustainable manner by collecting user charges.
- While majority of test facilities are expected to come up in the two Defence Industrial Corridors (DICs), one in Tamil Nadu and the other in Uttar Pradesh), **the scheme is not limited to setting up test facilities in the DICs only.**

2.4.3. BORDER INFRASTRUCTURE

Why in news?

Recently, Government accepted and implemented three recommendations of Shekatkar Committee relating to border Infrastructure.

About Border Road Organisation (BRO)
- BRO started operations in **1960** as a leading road construction agency **under the Ministry of Defence** with primary role of **providing road connectivity in border areas.**
- It executes road construction and maintenance works **along the Northern and Western frontiers.**
- BRO has also **constructed roads in friendly foreign countries** like Bhutan, Myanmar, Afghanistan etc.

About recommendations

- **Three recommendations** were:
    - **Outsourcing road construction work** beyond optimal capacity of Border Roads Organisation (BRO). Engineering Procurement Contract (EPC) mode is made mandatory for execution of all works costing more than Rs 100 crore**.**
    - Introduction of **modern construction plants, equipment and machinery** by delegating **enhanced procurement powers to BRO.**
    - **Land acquisition and all statutory clearances** like forest and environmental

clearance are made part of approval of Detailed Project Report.

About Shekatakar Committee
- It was **constituted to recommend measures to enhance combat capability and rebalance defence expenditure** of armed forces. It submitted its report in 2016.
- **Key recommendations:**
    - **Defence budget** should be **in range of 2.5 to 3% of the GDP.**
    - **Closure of military farms and army postal establishments** in peace locations
    - **Restructure civilian workforce** in a manner that the work of **Military Engineering Services** (MES) could be partly done by departmentally employed staff and other works could be outsourced.
    - ✓ Recently, Defence Minister approved a proposal for the abolition of 9,304 posts in MES.

2.4.3.1. RECENT BORDER CONSTRUCTIONS

Zojila tunnel project	• Government is planning to make **changes to project structure to avoid cost escalation.** • **Zojila tunnel aims to** provide all-year connectivity between Leh and Srinagar. • It is important because **Zojila Pass,** located on the Srinagar-Kargil-Leh National Highway at an altitude of 3,529 metres, is closed in winters due to snowfall. • It is slated to be **longest bi-directional tunnel in Asia**.
Daporijo bridge	• It is **strategic bridge in Arunachal Pradesh,** as it will allow the speedier movement of men and logistics material towards Line of Actual Control (LAC) with China. • **It is built over Subansiri river,** a right bank tributary of Brahmaputra river. • It was constructed by Border Roads Organisation (BRO), amid Covid-19 lockdown following social distancing norms.
Kasowal bridge	• Border Roads Organisation has constructed and opened **484-meter permanent bridge on river Ravi** connecting **Kasowal enclave in Punjab** to rest of the country. • Enclave of around 35 square kilometres had hither to been connected via pontoon bridge which is dismantled every year prior to monsoons. • **Ravi is major tributary of Indus river.**

2.4.4. REPORTS BY STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

Why in news?

Stockholm International Peace Research Institute (SIPRI) is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament.

Details

- **Report titled:** Trends in World Military Expenditure, 2019
- **Key highlights:**
  o **Total military spending** accounted for **2.2% of global gross domestic product (GDP)** in 2019.
  o World **military burden** (Military expenditure as a share of GDP) followed a declining trend in 2010–19, decreasing every year except for 2015 and 2019.
  o **Among the biggest spenders** in 2019 India ranked third while USA was the first.
  o **India had highest military spending in South Asia.** It grew by 37 % (2010–19).
  o However, its **military burden fell** from 2.7 % of GDP in 2010 to 2.4 % in 2019.
- **Report titled:** Trends in international arms transfers, 2019
- **Key highlights:**
  o **India is the world's second-largest arms importer,** just behind Saudi Arabia. China stood at the fifth position; Pakistan was at 11th.
  o India's **arms imports from both Russia and the US fell since 2015.** Russia (56%), Israel at 14% and France at 12% are the major sources of weapons for India.

o India ranked 23rd in Exporter list.

2.4.5. NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES (NDPS) ACT, 1985

Why in news?

- Supreme Court held that the **quantity of entire banned drug mixture and not its purity** will determine punishment for an offender under **NDPS Act, 1985.**
- Earlier, **in 2008,** SC held that in a mixture of narcotic drugs, **only weight of banned substance is relevant for purpose of determining** whether it would constitute small quantity or commercial quantity.

About NDPS Act

- It provides for control and regulation of narcotic drugs and psychotropic substances and forfeiture of property related to illicit traffic of the same.
- It **prohibits a person to produce/manufacture/cultivate,** possess, sell, purchase, transport, store, and/or consume any narcotic drug or psychotropic substance.
- It sets up **Narcotics Control Bureau (**formed in 1986), intelligence agency that coordinates actions of concerned authorities over trade of illicit narcotics from the country.
- **India is also signatory to** UN Single Convention on Narcotics Drugs 1961, Convention on Psychotropic Substances, 1971 and Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.
- **NDPS Act, 1985 has been put in place in accordance with aforesaid spirit** of UN Conventions.

2.5. PLACES IN NEWS

Kuril Islands	• A 7.2-magnitude quake hit off Russia's Kuril Islands. • **Kurils island chain** stretches north across Pacific Ocean from Japanese island of Hokkaido to southern tip of Russia's Kamchatka Peninsula. • Chain consists of 22 main islands, most of which are **volcanically active**, and around 30 smaller islets. Islands form **part of 'Pacific Ring of Fire'.** • Parallel to the chain, in Pacific floor, is **Kuril Trench.** • **Its four southernmost islands** are **disputed territories** claimed by **Russia and Japan.**
Wadi Rum	• It is a **desert that lies in far south of Jordan**. It is **also called valley of Moon.** • Wadi Rum is set on a high plateau at **western edge of Arabian Desert.** • Wadi means a bed or valley of a stream that is usually dry except during rainy season.
Green Zone (Iraq)	• Two rockets hit high-security Green Zone in Iraqi capital Baghdad. • It is also known **International Zone of Baghdad** which is 10 square kilometres area in Baghdad that was governmental center of Coalition Provisional Authority during the occupation of Iraq after the American-led 2003 invasion and remains the **center of the international presence in the city.**
Natuna Islands	• Indonesia is increasing both its security and fishing presence in the waters around the Natuna Islands, following the latest incursion into the area by Chinese vessels.

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	• Natuna Islands are a 272-island **archipelago of Indonesia,** located in the Natuna Sea between Peninsular Malaysia to the west and Borneo to the east. • China claims much of the South China Sea, including the waters near the Natunas, but that particular area is internationally recognized as part of Indonesia's exclusive economic zone.
Anak Krakatau Volcano	• It is a **volcanic island in Sunda Strait between Java and Sumatra, Indonesia** that witnessed longest eruption since its explosive collapse in 2018. • It emerged in early 20th century **from caldera** formed by **famous Krakatau volcano**. • A **caldera** is a large depression formed when a volcano erupts and collapses.
Grand Ethiopian Renaissance Dam (GERD)	• **Ethiopia, Egypt and Sudan** have disputes over GERD. • GERD is a 6,450 MW **hydropower** project nearing completion on the **Blue Nile River in Ethiopia**. • **White Nile River** and **Blue Nile River** two major **tributaries of the Nile**. The Blue Nile supplies about 80% of the water in the Nile during the rainy season. • Formerly known as the **Millennium Dam,** when completed it will be the **largest dam in Africa**. • Construction started in April **2011,** which will not only serve **Ethiopia,** but **Sudan and Egypt** as well.
Danube-Oder-Elbe (DOE) Canal project	• It is **European project** which intends to intends to connect the Danube, Oder and Elbe rivers and thus provide another navigable link from **the Black Sea to the North and Baltic Seas**. • However, several environmental organizations have raised concerns against the construction of the canal as it may increase environmental risk.
Hong Kong	• China's passed **Hong Kong National Security Law**. • The law seeks to criminalise **secession, subversion, terrorism and foreign interference in Hong Kong**. • It also says that **China could have its own law enforcement agencies in Hong Kong,** alongside the city's own to safeguard national security in accordance with the law. • It raised concerns that, it could lead to **prosecution of Hong Kongers** for criticising their or the mainland's leadership, joining protests or exercising their current rights under local laws.

2.6. OTHER NEWS

Three Seas Initiative	• Three Seas Initiative is a flexible political platform, **at Presidential level**, launched in 2015. • It includes **12 EU Member States** located between Adriatic, Baltic and Black Seas: Austria, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. • It is also known as **Baltic, Adriatic, Black Sea (BABS) Initiative**. • It is designed to accelerate development of energy, transport and digital infrastructure. • Its summit postponed due to coronavirus.
Stranded in India Portal	• **Ministry of Tourism** has launched a portal 'Stranded in India' to help foreign tourists who are stuck in various parts of the country • It is aimed to be a single window solution that grants foreign tourists access to all the information they may need and the services that they can avail in order to continue to live in India, safely.
Operation Samudra Setu (Sea Bridge)	• It has been **launched by Indian Navy** as a part of national effort to **repatriate Indian citizens** from overseas.
Vande Bharat Mission	• It is evacuation exercise to **bring home Indian nationals stranded abroad** due to the COVID-19 lockdown. • People are **brought back in flights by Air India and also by Indian Navy** (from Sri Lanka and Maldives) • More than 1.5 lakhs Indians stranded across world have been brought back.
Mission Sagar	• Under this mission, INS Kesari has departed for Maldives, Mauritius, Seychelles, Madagascar and Comoros to provide food Items and COVID-19 related medicines. • It is in consonance with PM vision of Security and Growth for All in the Region (SAGAR) and highlights importance accorded by India to relations with her neighbouring countries and further strengthens existing bond.
Uighurs	• Recently, US approved **Uyghur Human Rights Policy Act of 2020 which calls for sanctions on Chinese officials** deemed responsible for the oppression of Uighur Muslims. • **Uighurs** are a predominantly **Muslim, Turkic ethnicity** who live in China's Xinjiang Province. • They are **culturally and ethnically close** to Central Asian nations. • China is **accused of curtailing Uighurs' religious, commercial and cultural rights** and intensifying crackdown on separatists.

Global Soft Power Index	• It is released by **UK based Brand Finance**. • The index considers three parameters — **familiarity, reputation and influence**. • The top four nations were the US, Germany, the UK (despite Brexit) and Japan. • India ranked 27th — below China (5), the UAE (18) and even Saudi Arabia (26).
Permanent Commission for Serving Women in navy	• Supreme Court (SC) **ruled in favour of Permanent Commission (PC) to female officers in Indian Navy** and asked government to treat men and women equally in armed forces. • Earlier, **SC ruled in favour of PC for women in Army**. • PC entitles an officer to serve in Navy till he/she retires unlike Short Service commission in which they serve for limited time period (14 years).

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3. ECONOMY

3.1. FISCAL POLICY

3.1.1. STATUS PAPER ON GOVERNMENT DEBT

Why in news?

Recently, the Central Government released the **Ninth Edition of the Status Paper on the Government Debt**, which provides a detailed analysis of the overall Debt Position of the Government of India.

Significance of managing Government debt

Government debt has implications on investor confidence, fiscal capabilities of government, private investment, financial health of commercial banks, inflationary pressures in the market, taxation, exchange rate risks and indirectly increases vulnerability to international capital markets.

Central Government Debt (CGD) includes-

Public Debt
All liabilities of Central Government contracted against the **Consolidated Fund of India.**

Other liabilities
Liabilities in the **Public Account** such as liabilities on account of State Provident Funds, Reserve Funds and Deposits, Other Accounts, etc.

Internal Debt

Marketable Debt
It includes Government dated securities and Treasury Bills, issued through auctions.

Non-marketable Debt
It includes intermediate Treasury Bills (14-day ITBs) issued to State Governments/ UT of Puducherry and select Central Banks, special securities issued against small savings, special securities issued to public sector banks/ EXIM Bank, securities issued to international financial institutions, and compensation and other bonds.

External Debt
Article 292 of the Constitution allows the Central Government to borrow from **outside the territory of the country.**

Important related terms	• **Debt to GDP ratio**: The debt-to-GDP ratio is the ratio of a country's public debt to its gross domestic product (GDP). It indicates a particular country's ability to pay back its debts. • **Roll over risk:** It is a risk associated with the **refinancing of debt**—specifically, that the interest charged for a new loan will be higher than that on the old. Generally, the shorter-term the maturing debt, the greater the borrower's rollover risk. • **Currency or foreign exchange risk** relates to vulnerability of the debt portfolio to depreciation in the value of the domestic currency vis-à-vis the currency of denomination of external loans and the associated increase in the Government's debt servicing cost. • **Interest payment to revenue receipts (IP-RR):** It is the ratio of total interest payments made towards the debt to the revenue receipts of the government. • **Floating Rate Bonds (FRBs):** These are securities issued at variable coupon rates. • **The gross fiscal deficit (GFD)** is the excess of total expenditure (including loans net of recovery) over revenue receipts (including external grants) and non-debt capital receipts. • **Short-term debt** of the Central Government refers to the total amount of debt maturing within the next 12 months. o It includes 14-day intermediate treasury bills, regular treasury bills, dated securities maturing in the ensuing one year and external debt with remaining maturity of less than one year.
India's performance on indicators of debt sustainability	According to the status paper, presently the Government's debt portfolio is characterized by favorable sustainability indicators: • **The debt to GDP ratio** for the Central Government declined from 47.5 per cent in 2011-12 to 45.7 per cent in 2018-19. • **Gross Fiscal Deficit (GFD)** as a percentage of GDP has been on a declining trend since 2012-13. • **The share of short-term debt** is within safe limits and has stabilised after some rise during 2005 to 2012. • **The Government has adopted a conscious strategy of elongating maturity to reduce roll-over risk.** o 69.9 per cent of total securities issued during 2018-19 were in the maturity bucket of 10 years and above. • **Most of the Government debt is at fixed interest rates**, with floating internal debt constituting only 0.9 per cent of GDP in 2019, which minimises the impact of interest rate volatility on the budget. • **Low share of external debt** implies that currency risk and the susceptibility of debt portfolio to volatile international capital markets is not substantial. • **The ratio of interest payments to revenue receipts (IP-RR)** of the Central Government was 37.5 per cent in 2018-19 as compared to 35.6 per cent in 2012-13.
State Government Debt	• **The debt-GDP ratio of States has decreased** to 24.8 per cent in 2019 from 25.0 per cent in 2018. • The outstanding liabilities of the State Governments have been **consistently registering double digit growth** since 2012-13 with the **exception of 2014-15 and 2018-19.**

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	- **The share of public debt increased within the overall debt portfolio** of the State Governments and constituted 19.1 per cent of their GDP. - Within the public debt, the **share of market borrowings increased** while that of **borrowings from the National Small Savings Fund (NSSF) exhibited a steady decline** to 9.4 per cent in 2019 from a high of 24.4 per cent in 2012. - **Loans from the Centre** have been decreasing over the years and accounted for 3.7 per cent of total liabilities in 2019.
Public Debt Management cell (PDMC)	- It is a **specialized independent agency** that **manages internal and external liabilities of Central Government** and advises on such matters in return for a fee. - PDMC plans borrowings of the Government, including market borrowings; Manages Central Government's liabilities; Monitor cash balances of the Government, improve cash forecasting and promote efficient cash management practices. - It is **an interim arrangement** before setting up a statutory Public Debt Management Agency (PDMA). - In its latest quarterly report PDMC found that total liabilities of the government at the end of December 2019 were up 3.2 per cent as compared to the previous quarter.

3.1.2. FULLY ACCESSIBLE ROUTE FOR G-SECS

Why in news?

Reserve Bank of India has introduced a **separate channel** called **Fully Accessible Route (FAR)** to enable **non-residents** to invest in **specified Government of India dated securities.**

About Fully Accessible Route (FAR)

- Under this route, **non-resident investors** can invest in specified government securities without any **investment ceilings**.
- These securities attract **no foreign portfolio investor (FPI) limits**. FPI limit in Central **Government securities**, State Development Loans (SDLs) and corporate bonds is 6%, 2%, and 9% of outstanding stocks of **securities**, respectively.
- Domestic investors can also invest in these.
- There are other two mechanisms for foreign investors:
  - **Medium-Term Framework** where FPI limit on G-sec is 6% and on SDLs is 2%.
  - **Voluntary Retention Route**, which allows investors easier rules in return for a commitment to remain invested for a longer period. It encourages Investors to undertake **long-term investments** in Indian debt markets.

Government Security (G-Sec)
- A G-Sec is a **tradable instrument** issued by the **Central** Government or the **State** Governments. It acknowledges the **Government's debt obligation.**
- Such securities are either
  - **short term** (called **treasury bills**): Have maturities of **less than one year**.
    - ✓ They are presently issued in three tenors, namely, 91-day, 182 day and 364 day.
    - ✓ There are also **cash Management Bills (CMBs) which have a maturity of less than 90 days.**
  - **long term** (called Government bonds or **dated securities**): Have maturities of **one year or more.**
- In India,
  - the **Central** Government issues **both treasury bills and bonds or dated securities** while,
  - the **State** Governments issue **only bonds or dated securities,** which are called the State Development Loans (SDLs).
- G-Secs carry practically n**o risk of default** and, hence, are called **risk-free gilt-edged** instruments.
- Major players in the G-Secs market include commercial banks Primary Dealers, insurance companies, co-operative banks, regional rural banks, mutual funds, provident and pension funds.
- Retail investors including individuals are allowed participation on "non-competitive" basis in select auctions of dated Government of India (GoI) securities and Treasury Bills.

3.1.3. OTHER IMPORTANT NEWS

Public Financial Management System (PFMS)	- PFMS is the management information system used by officers of the Indian Civil Accounts Service to maintain the accounts of the government. - It acts as a financial management platform for government schemes as well as a payment cum accounting network. It is further integrated with the core banking system and has an interface with 170 Banks across the country including the RBI.

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	• The government has saved nearly Rs 1 lakh crore because of efficiency improvements through the use of the PFMS.
Post Devolution Revenue Deficit (PDRD)	• Centre has released Rs 6,195.08 crore to 14 States as the second equated monthly instalment of the PDRD Grant as recommended by the 15th Finance Commission. • PDRD Grants is a mechanism provided by the Finance Commission **for compensation of any loss incurred by states from the Centre.** • It forms **2nd largest chunk of Finance Commission transfers after the assistance to local rural bodies.** • **Other FC grants are:** Grants for rural local bodies, Grants for urban local bodies, Assistance to State Disaster Relief Funds (SDRF).
LLP settlement Scheme, 2020 launched	• Ministry of Corporate Affairs (MCA) has launched this scheme for **condonation of delays in filings of documents** by limited liability partnership (LLP) firms. • LLPs are a flexible legal and tax entity that allows partners to benefit from economies of scale by working together while also reducing their liability for the actions of other partners. • LLP can **continue its existence** irrespective of changes in partners and no partner is liable on account of the independent or un-authorized actions of other partners. • LLP **contains elements of both 'corporate structure' as well as 'partnership firm structure', hence called as hybrid** between company and partnership. • A difference between LLP and joint stock company is that, the internal governance structure of a company is regulated by statute (i.e. Companies Act, 1956) whereas for LLP by contractual agreement between partners.

3.2. BANKING AND FINANCIAL SECTOR

3.2.1. BASEL III NORMS

Why in news?

Implementation of Basel-III were deferred by a year to January 2023, due to Covid-19 pandemic.

The Basel III accord

• **Basel III accord** is a set of **financial reforms** that was developed by the **Basel Committee on Banking Supervision (BCBS)**, with the aim of **strengthening regulation, supervision, and risk management** within the banking industry.

• They were introduced due to the impact of the **2008 Global Financial Crisis on banks. Basel III norms were finalised in 2017.** Its implementation date has been postponed several times.

• The guidelines focus on four banking parameters: **capital, leverage, funding and liquidity.**

• **Basel-III norms:**
  o **Minimum capital requirements** for banks is 4.5% of common equity, as a percentage of the bank's risk-weighted assets. (Currently 2% under Basel II).
  o **Leverage Ratio**: It is ratio of **Tier 1 capital by the average total consolidated assets of a bank**. Under this, banks are required to hold a leverage ratio in excess of 3%. It was introduced under Basel-III.

  o Basel III introduced two liquidity ratios: **Liquidity Coverage Ratio and the Net Stable Funding Ratio**.
    ✓ The **Liquidity Coverage Ratio** requires banks to hold sufficient highly liquid assets that can withstand a 30-day stressed funding scenario as specified by the supervisors.
    ✓ **Net Stable Funding Ratio** (NSFR) requires banks to maintain stable funding above the required amount of stable funding for a period of one year of extended stress.

Related Information
AT-1 Bonds
• AT-1 bonds are a type of **unsecured, perpetual bonds** that banks issue to shore up their core capital base to **meet the Basel-III norms.**
• These bonds are perpetual and carry no maturity date. Instead, they carry call options that allow banks to redeem them after five or 10 years. But banks are **not obliged to use this call option** and can opt to pay only interest on these bonds for eternity.
• Banks issuing AT-1 bonds **can skip interest payouts** for a particular year or even reduce the bonds' face value, provided their capital ratios fall below certain threshold levels.
• If the RBI feels that a bank is tottering on the brink and needs a rescue, it can simply **ask the bank to cancel its outstanding AT-1 bond**s without consulting its investors.

3.2.2. SARFAESI ACT

Why in News?

A five-judge Constitution Bench of the Supreme Court (SC) recently held that **cooperative banks can use the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI Act)** for recovery of debts from its defaulters and can seize and sell their assets to recover dues.

More on news

- SC Case pertained to applicability of **SARFAESI Act, 2002** to co-operative banks (including multi-state cooperatives (MSC)) and **Competency of Parliament** to prescribe recovery procedures for cooperative banks governed by State laws. In 2003, Centre allowed Cooperative Banks to proceed under SARFAESI Act.
  - o SARFAESI Act allows banks to seize, take control, manage and sell assets of defaulting borrowers without intervention of any court/tribunal.
- **Constitution Bench held that**
  - o **Cooperative banks** established under a State law or multi-State level societies come within ambit of the **Act.**
  - o Cooperative banks are **bound by provisions of Banking Regulation Act, 1949,** and all the other legislation applicable to banks under **RBI Act**.
  - o **Recovery of dues** is an essential function of any banking institution and activity of banking done by cooperative banks is within purview of **Entry 45 of Union List.** (Petitioners argued that **Entry 45 of Union List** under subject Banking **cannot apply to cooperative banks.** Instead, **they will be covered under Entry 32 of State List** which covers Cooperative Societies.)

About SARFAESI Act, 2002

- The act was framed in order to address the problem of **Non-Performing Assets (NPAs) or bad assets** of banks/financial institutions through different mechanisms.
- It allows **only secured creditors** (lenders whose loans are backed by a security such as mortgage) to take possession over a collateral security if the debtor defaults in repayment.
- The act provides procedure for registration and regulation of **asset reconstruction company (ARC)** and allows them to carry out the business of-

- o **Asset reconstruction:** It is the activity of converting a NPAs or bad assets into performing assets. The ARCs can acquire financial assets (NPAs) from banks and try to recover dues through measures such as:
  - ✓ the proper management of the business of the borrower, by changing or taking over the management
  - ✓ the sale or lease of a part or whole of the business
  - ✓ rescheduling of payment of debts payable etc.
  - o **Securitization:** It is the process of conversion of existing loans into marketable securities by ARCs through issue of security receipts.
- **Enforcement of Security interests by lenders without the intervention of the Court**: After giving a notice period of 60 days to the defaulting borrower, banks/financial institutions can-
  - o take possession of the pledged assets of the borrower,
  - o take over the management of such assets,
  - o appoint any person to manage them or
  - o ask debtors of the borrower to pay their dues too, with respect to the asset.
- **Creation of a Central Registry**: by the Central Government for the purposes of registration of transaction of securitization and reconstruction of financial assets and creation of security interest.
- **Application against measures to recover secured debts**: can be filed by borrowers/lenders with **Debt Recovery Tribunal** (with appeal to **Debts Recovery Appellate Tribunal**) established under Recovery of Debts due to Banks and Financial Institutions Act, 1993.
- **Provisions of this Act not applicable to:**
  - o any security interest created in **agricultural land**
  - o any case in which the **amount due is less than twenty per cent** of the principal amount and interest
  - o any security interest for securing repayment of any **financial asset less than one lakh rupees**.

Cooperative banks
- They are **customer owned financial entities** established on a co-operative basis which provide a wide range of regular banking and financial services.
- They are registered under the **States Cooperative Societies Act** or **MSCS Act, 2002**.
- They also come under the regulatory ambit of the Reserve Bank of India (RBI) under two laws,

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namely, the **Banking Regulations Act, 1949**, and the **Banking Laws (Co-operative Societies) Act, 1955**.

Differences between IBC and SARFAESI Act
- SARFAESI Act, 2002 covers **only secured financial creditors** while IBC protects the rights and interests of **both secured and unsecured creditors**.
- **Section 14(1) (c)** of the IBC, 2016 provides that during the insolvency resolution process as defined in the Code, the Code takes precedence over the SARFAESI Act.
- IBC provides for **separate adjudication authorities** for companies and Limited Liability Partnerships (LLP) (dealt by the National Company Law Tribunal (NCLT)) and individuals and unlimited partnership firms (under jurisdiction of DRT).
  - While the SARFAESI Act assigns **DRT as the adjudication authority** on matters pertaining to the act.

3.2.3. SPECIAL LIQUIDITY FACILITY FOR MUTUAL FUNDS (SLF-MF)

Why in news?

To ease liquidity pressures on mutual funds, Reserve Bank of India recently announced a special liquidity facility of ₹50,000 crore for mutual funds.

Mutual Funds

A mutual fund is a type of financial instrument made up of a **pool of money collected from many investors** to invest in securities like stocks, bonds, money market instruments, and other assets.
- They are **operated by professional money managers**, who allocate the fund's assets.
- They **give small investors access to professionally managed portfolios** of equities, bonds, and other securities.

Features of the Special Liquidity Facility for Mutual Funds (SLF-MF)

- The SLF-MF is **on-tap** and **open-ended** and will be available to **all LAF (liquidity adjustment facility) eligible banks**.
  - **On-tap** is a term used to describe a feature where something is available whenever needed as against during a particular period.
  - **Open-ended** implies that there is no restriction on the amounts that banks are allowed to borrow.
  - **LAF eligible banks:** All the Scheduled Commercial Banks are eligible to participate in LAF auctions except the Regional Rural Banks.
- Under it, the RBI shall conduct **repo operations of 90 days tenor** at the fixed repo rate.

- Funds availed under the SLF-MF must be used by banks **exclusively for meeting the liquidity requirements of MFs** by following methods:
  - Extending loans to MFs.
  - Undertaking outright purchase of repos against the **collateral** of investment grade corporate bonds, commercial papers (CPs), debentures and certificates of Deposit (CDs) **held by MFs**.
- **Benefits of the scheme:**
  - It will **ease pressure and help mutual funds to finance the redemption** using this facility rather than selling its existing commercial papers at a discount and denting its Net Asset Value.
  - This will **stabilize the performance of short-term debt funds** and improve investor sentiment.

Reasons for Liquidity stress in the Mutual Funds (MFs) market
- Heightened **volatility in capital markets** in reaction to COVID-19.
- **Redemption pressures** related to closure of some debt MFs. E.g. Franklin Templeton Mutual Fund recently decided to shut several schemes.
- The stress is more pronounced in the mutual fund schemes with **large exposures to higher-yielding, lower-rated credit securities.**

3.2.4. PRIORITY SECTOR LENDING

Why in News?

Recently, RBI stated that bank credit to registered NBFCs towards agriculture, MSMEs and housing sector up to prescribed limits will be treated as priority sector for FY2020-21.

More about Priority Sector Lending (PSL)

- Under PSL norms, Domestic scheduled commercial banks and foreign banks with 20 branches and above have to **lend 40% of Adjusted Net Bank Credit** or Credit Equivalent Amount of Off-Balance Sheet Exposure, whichever is higher, to priority sectors as identified by RBI and Government.
- **Priority Sector Lending Certificates (PSLCs):**
  - Under the PSLC mechanism, the seller sells fulfilment of priority sector obligation and the buyer buys the obligation with no transfer of risk or loan assets.
  - PSLCs enable banks to achieve the priority sector lending target and sub-targets by purchase of these instruments in the event of shortfall.

Priority Sector includes the following categories:
(i) Agriculture
(ii) Micro, Small and Medium Enterprises

(iii) Export Credit (iv) Education (v) Housing	(vi) Social Infrastructure (vii) Renewable Energy (viii) Others

3.2.5. OTHER IMPORTANT NEWS

Government notifies International Financial Services Centers Authority-IFSCA	• IFSCA has been set under IFSCA Act, 2019 with its headquarters in Gandhinagar (Gujarat). • It will consist of **nine members**, appointed by central government. Members will include a Chairperson, one member each to be nominated from RBI, SEBI, IRDAI, PFRDA, two members from Ministry of Finance and Two members to be appointed on the recommendation of a Search Committee. o All members of the IFSC Authority will have a term of three years, subject to reappointment. • **Main function of IFSCA** will be to **regulate financial products** such as securities, deposits or contracts of insurance, financial services, and financial institutions which have been previously approved by multiple regulators (RBI, SEBI, IRDAI, and PFRDA) **in an IFSC.** • It will also regulate any other financial products, financial services, or financial institutions in an IFSC, which may be **notified by the central government.** • It may also **recommend to the central government** any other financial products, financial services, or financial institutions, which may be permitted in an IFSC.

Standing Deposit Facility	• RBI is considering standing deposit facility (SDF) to manage extra liquidity with banks.
	• SDF allows RBI to **absorb liquidity (deposits) from commercial banks** without giving government securities in return to banks as collateral.
	   o It is offered at **lower Interest rate** than reverse repo rate (RR).
	   o It was first proposed by **Urjit Patel Monetary Policy Committee report in 2014** and was institutionalized by an amendment to RBI Act in 2018.
	   o This was envisaged as collateral may become a constraining factor if **RBI runs out of securities to absorb liquidity under Reverse Repo operations.**
	• **Difference between SDR and RR:**
	   o RR is rate at which RBI borrows money from commercial banks to control money supply in country.
	   o Under RR (which is part of **Liquidity Adjustment Facility**), banks will **get government securities** in return when they give excess cash to RBI.
	   o RR and other liquidity absorption through open market operations and cash reserve ratio is at RBI discretion, while **SDF is at banks discretion.**
	• SDF is being considered because banks are **unlikely to lend in a risk-averse environment** thereby providing an alternate liquidity absorption mechanism.

Long-Term Repo Operations (LTROs)	• LTRO is a tool under which RBI provides one-year to three-year money to banks at the prevailing repo rate, accepting government securities as the collateral. Its objective is to provide banks durable liquidity at reasonable cost. • **Repo:** A repurchase agreement (*repo*) is a form of short-term borrowing for dealers in government securities. In the case of a *repo*, a dealer sells government securities to investors, usually on an overnight basis, and buys them back the following day at a slightly higher price. Rate at which repo operations are undertaken is termed as repo rate.
Bancassurance agreements	• Bancassurance is an **arrangement between a bank and an insurance company allowing the insurance company to sell its products to the bank's client base.** • This allows banks to earn additional revenue by selling insurance products, and insurance companies to expand their customer bases.
Consolidated Sinking Fund (CSF)	• Recently, **RBI decided to relax rules governing** withdrawal **from CSF.** Also, State Governments can avail of Special Drawing Facility from RBI against collateral of funds in CSF. • It was **set up in 1999-2000 by RBI** to meet redemption of market loans of the States. • This fund is **maintained outside consolidated fund of the States and public account** and should not be used for any other purpose, except for redemption of loans. o State governments contribute 1-3 % of their outstanding market loans to CSF each year.
OBICUS survey	• Recently, RBI launched latest round of **Order Books, Inventories and Capacity Utilization Survey** (OBICUS). It has been providing input of the manufacturing sector on a quarterly basis since 2008.
Ind-AS	• RBI came out with regulatory guidelines for implementation of **Indian Accounting Standards (Ind-AS)** by NBFCs and asset reconstruction companies (ARCs) while preparing their financial results.

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	• Guidelines are aimed at promoting **high quality and consistent implementation** of Ind-AS as well as **facilitate comparison and better supervision**.
	• Ind-AS are accounting standards that have been **harmonized** with the **globally accepted International Financial Reporting Standards (IFRS)** to make reporting by Indian companies more globally accessible.
	• **National Advisory Committee on Accounting Standards (NACAS) recommended** these standards to the Ministry of Corporate Affairs.
PAi	• PAi is an **artificial intelligence (AI) based chatbot**, to create awareness around **National Payment Corporation of India's** products like FASTag, RuPay, UPI, AePS on a real time basis. o It was developed by Bengaluru based startup CoRover Private Limited.
Share swap ratios	• Following the footsteps of State Bank of India and Bank of Baroda, the boards of 10 public-sector banks approved mergers and **issued share-swap ratios to create four large banks in the economy.** • Share swap ratios is an exchange ratio used in case of mergers and acquisitions. It is the ratio in which the **acquiring company offers its own shares in exchange** for the target company's shares.
Stock market circuit breakers (CB)	• Trading in Indian stock markets was halted for 45 minutes for a second time in 10 days after Sensex hit lower circuit. • A **circuit filter or CB** is **band of upper and lower limits** within which a benchmark market index can fluctuate on a particular day. • These are **regulatory mechanisms** put in place in stock markets to temporarily halt trading on an exchange to curb panic-selling. **Circuit breakers are a form of market curbs**. • Market-wide CB system of BSE and NSE applies at three stages of index movement, i.e., stock trading is halted if index zooms or falls 10%, 15% and 20%.
Serious Fraud Investigation Office (SFIO)	• Government is set to **more than double the manpower at the SFIO** to nearly 350. • SFIO is a **statutory, multi-disciplinary organization** under **Ministry of Corporate Affairs** for detecting and prosecuting or recommending for prosecution white collar crimes/frauds. • **White-collar crime** refers to **financially motivated, nonviolent crime** committed by businesses and government professionals.

3.3. FOREIGN TRADE

3.3.1. REVISED FDI POLICY

Why in News?

Recently, India's Department for Promotion of Industry and Internal Trade revised its FDI policy in order to curb the possibility of predatory foreign investment exploiting the financial distress of COVID-19-hit Indian companies.

Changes in FDI Policy

- The **present policy** states that a non-resident entity can invest in India, subject to the FDI Policy except in those sectors/activities which are prohibited.
  - o **Additional Provision**: A citizen of **Bangladesh and Pakistan** or an entity registered in both countries can only invest under the government route.
  - o Additionally, for **Pakistan** sectors/activities such as **defense, space and atomic energy are prohibited** for investment in addition to the sectors/activities already prohibited.
- The **amended policy** states that an entity of a country, which **shares a land border with India** or where the beneficial owner of investment into India is situated in or is a citizen of any such

country, can invest **only under the Government route.**

- Additionally, the amendment also states that the **transfer of ownership** of an existing or future FDI in an entity in India, **directly or indirectly,** resulting in the beneficial ownership falling within the restrictions imposed by the above rule will also **require government approval.**

FDI in Automatic vs. Government Route
- Under the **government route,** foreign investor has to take prior **approval** of respective **ministry/department.**
  Through **automatic route,** the investor just has to **inform the RBI after the investment** is made. Also, Proposals involving **FDI exceeding Rs 50 billion** are placed before the **Cabinet Committee on Economic Affairs** irrespective of sector or country.

Sectors in which FDI is prohibited
- Lottery businesses.
- Gambling and betting.
- Chit funds.
- Nidhi Company.
- Trading in Transferable Development Rights (TDRs).
- Real estate business excluding construction and REITs
- Manufacturing of cigars, cheroots, cigarillos and cigarettes

- Sectors not open to private sector investment such as atomic energy, railway operations etc.

3.3.2. NEGATIVE OIL PRICES

Why in news?

US oil markets created history on 22nd April 2020 when prices of West Texas Intermediate (WTI) crude fell to "minus" $40.32 a barrel in New York which is lowest crude oil price ever known.

How global oil prices are determined?

- Crude oil prices like any other commodity are **determined by global supply and demand.**
- **Growing economies** are engines which **generate demand for oil** in general and especially for transporting goods and materials from producers to consumers.
- On the other hand, **supply** of crude oil in majorly controlled by a selected countries or groupings such as **OPEC (Organization of the Petroleum Exporting Countries).**
- Thus, the stability of oil prices and its seamless operations depends on-
  - **Predictability** of the **global demand of oil.**
  - The ability of the **oil-producing countries** to **act in consort** for maintenance of supplies.
- The fall in prices was triggered by the expiry of May futures contracts for US West Texas Intermediate (WTI) crude.

Gains for India

- India Imports 80% of its oil needs.
- $1 fall in crude saves Rs. 10,000 crore a year.
- Cheaper crude will help lower Inflation.
- Savings on fuel may boost consumer spending.
- Lower subsidies would help govt. budget.

India's Crude Oil Profile

- India is the world's **third-largest consumer of oil**, **fourth-largest oil refiner** and net exporter of refined products.
- Growth rate of India's oil consumption is expected to surpass China in the mid-2020s and India's energy demand is set to **double** by 2040.
- India is heavily dependent on crude oil and LNG imports with **greater than 80% import dependence for crude oil** and 45.3% for natural gas/LNG.
- **70 per cent** of India's imported energy needs come from **West Asia** and The **GCC** alone accounts for 34 percent of India's **oil imports.**
- The top 5 crude oil exporters to India (by import bill) are **Iraq, Saudi Arabia, Iran, Nigeria and UAE** in decreasing magnitude of exports.

Crude pricing mechanism in India

- Over a period of time the **APM (administered pricing mechanism)** was established for crude pricing. APM followed a pooled pricing mechanism under which the weighted average of international prices and the domestic cost of production was used to arrive at the administrated price.
- Starting from **2002, APM** were officially **dismantled.**
- With the dismantling of APM, **the price of indigenous crude** has been **linked to international prices,** which implies that the price received by domestic crude oil producers is linked to international prices.
- After dismantling of APM, **Petrol & Diesel prices** were finally **deregulated** by Indian Government in 2010 and 2014 respectively.
- But the international price does not directly reflect in the local prices because the price of fuel at the retail station comprises the additional costs like **central government excise and taxes**, **State government taxes** and **operating costs**, **margin of the retailer** and **subsidies given by the government.**
- These subsidies are provided to protect consumers from volatility in international prices.
- Government then compensates companies for any loss from selling fuel products at lower rates. These losses are called **under-recoveries.**

Related Information
Future Contract

- A futures contract is a standard contract to **buy or sell a specific commodity** of standardized quality at a certain **date in the future.**
- For example, if oil producers want to sell oil in the future, they can lock in their desired price by selling a futures contract today. Alternatively, if consumers need to buy crude oil in the future, they can guarantee the price they will pay at a future date by buying a futures contract.

Organization of the Petroleum Exporting Countries (OPEC)

- OPEC is a permanent, intergovernmental Organization, created at the **Baghdad Conference** in 1960.
- OPEC has **13 members** including Iran, Iraq and Venezuela.
- OPEC members control **about 82%** of total world proved **oil reserves.**
- In 2018, OPEC members **accounted for 41%** of total world **crude oil production.**
- OPEC and non-OPEC oil producing nations (10 other countries including Russia, Kazakhstan and Mexico) formalized an agreement in 2016 to jointly cut production for stabilization of prices.

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This grouping is informally known as 'OPEC+' or 'Vienna Group'.

Related news

Bombay Stock Exchange has introduced trading in negative prices for commodity derivatives segment as crude oil derivatives went in negative territory.

3.3.3. WTO PEACE CLAUSE

Why in news?

India has **invoked the peace clause of WTO** for exceeding the ceiling on support it can offer farmers for rice, marking the first time any country that has used this clause.

More details

- India informed WTO that the value of its rice production was $43.67 billion in 2018-19 and it gave subsidies worth $5 billion which is **11.46% of the value of production.**
- However, **the Agreement on Agriculture (AoA) under WTO** has a limit pegged at **10% for developing countries,** which is a **de-minimis level.**
  o De minimis level is **minimal amount of domestic support** that is allowed even though they distort trade.
- Hence, **India used peace clause** and reasoned that:
  o The government does not undertake exports on a commercial basis from public stockholdings.
  o Further, the stocks under the programme are acquired and released in order to meet the domestic food security needs of India's poor and vulnerable population, and not to impede commercial trade or food security of others.

Background

- After Uruguay Rounds of WTO in 1994, the **Agreement on Agriculture came into existence** which provided guidance on domestic support commitments and general disciplines on domestic support.
  o **Under the agreement, to limit trade distorting support** measures, members agreed to curb their policies by quantifying and gradually reducing all domestic support measures through the **Aggregate Measurement of Support (AMS) or Amber box.**
    ✓ Further, this subsidy should not exceed 10% de minimis level for developing countries and 5% for developed countries.

  o Also, an important provision of the AoA was the **Due Restraint or 'Peace Clause' under Article 13,** which temporarily shielded countries providing domestic support measures in accordance with the AoA provisions from being challenged at the WTO.
- Peace clause was to remain in effect for a period of nine years and it lasted till 2003. However, G33 containing developing countries led by India found it hard to fulfill food security commitments and hence **revived the Peace Clause temporarily (interim Peace Clause) for 4 years in Bali Ministerial Conference in 2013.**
- The **Nairobi Ministerial Conference of the WTO held in 2015 reaffirmed,** with consensus, the Interim Peace Clause would remain in force until a permanent solution is agreed and adopted.

Peace clause

- The **peace clause protects a developing country's** food procurement programmes against action from WTO members in case subsidy ceilings are breached.
- It also provides that **Green Box domestic support measures cannot be the subject of countervailing duty action** or other subsidy action under the WTO Agreement on Subsidies and Countervailing Measures.
- Hence, **under the present 'Peace Clause', developing countries can provide WTO-prohibited subsidies to farmers without inviting any dispute under the Agreement on Agriculture.**

Types of subsidies under WTO
- **Green Box:** It is domestic support measures that doesn't cause trade distortion or at most causes minimal distortion.
  o They are implemented as programmes aimed at income support to farmers without influencing the current level of production and prices. They comprise of two support groups:
    ✓ **Public services programmes** such as research, training, marketing, promotion, infrastructure, domestic food aid or public food security stocks etc.
    ✓ **Direct payments to producers** which are fully decoupled from production such as income guarantee and security programmes, regional development programmes etc.
- **Blue box:** The Blue box subsidies **aim to limit production** by imposing production quotas or requiring farmers to set aside part of their land.
  o It covers payments directly linked to acreage or animal numbers.

- o The blue box measures **are exempt from reduction commitments.**
- **Aggregate Measurement of Support (AMS) or Amber box:** It represents trade distorting domestic support measures. These supports **are subject to limits: "de minimis"** minimal supports are allowed.
  - o It consists of two parts:
    - ✓ **Product-specific subsidy:** Total level of support provided for each individual agricultural commodity **such as MSP.**
    - ✓ **Non-product specific subsidy**: Total level of support to the agricultural sector as a whole, i.e., subsidies on inputs such as fertilizers, electricity, irrigation, seeds, credit etc.

Related News

Scheme for "Remission of Duties and Taxes on Exported Products (RoDTEP)" approved by cabinet

- RoDTEP will **replace the Merchandise Export from India Scheme (MEIS)** that was found to violate the World Trade Organization rules as it was export focused. MEIS will be phased out.
  - o The MEIS was introduced in 2015 under the Foreign Trade Policy to incentivize merchandise exports.
  - o Earlier a dispute settlement panel of WTO had ruled that **India's export-related schemes** are in nature of **prohibited subsidies** under the Agreement on **Subsidies and Countervailing Measures (SCM)** and are inconsistent with WTO norms.
  - o **These Schemes include** Merchandise Exports from India Scheme, Export Oriented Units Scheme, Special Economic Zone Scheme and Export Promotion Capital Goods Scheme etc.
  - o **SCM Agreement** addresses two issues- multilateral disciplines regulating the provision of subsidies and use of countervailing measures to offset injury caused by subsidized imports.
- RoDTEP is a **WTO-consistent scheme** under which **indirect taxes on inputs are consumed in the production process.**
  - o Under WTO rules, certain duties like state taxes on power, oil, water, and education cess are allowed to be refunded.
- Under the scheme, **an inter-ministerial committee will determine the rates** and items on which the reimbursement of taxes and duties would be provided.
- Remission, under the RoDTEP scheme, along with refunds, such as drawback rates and integrated GST (IGST), would **be a step towards zero-rating of exports**.
  - o Zero rating refers to zero taxes on inputs of final products.

3.3.4. TRIPS FLEXIBILITIES

Why in news?

India has called upon **G-20 nations for an agreement to enable use of TRIPs (Trade Related Intellectual Property Rights) flexibilities** to ensure access to essential medicines at affordable prices to fight COVID-19 pandemic.

About TRIPS Flexibilities

- TRIPS flexibilities are **'policy spaces' for countries to mitigate the impact of patents** (i.e., the excessively high price of patented medicines due to lack of competition).
- TRIPs agreement and subsequent **Doha Declaration on TRIPS and Public Health of 2001** provide some flexibilities in this regard.
- Flexibilities aim to **permit developing and least-developed countries to use TRIPS-compatible norms** in a manner that enables them to pursue
  - o their own public policies, either in specific fields like access to pharmaceutical products or protection of their biodiversity,
  - o in establishing macroeconomic, institutional conditions that support economic development.
- **Some major flexibilities under TRIPs are**:
  - o **Compulsory Licensing:** Compulsory licensing enables a competent government authority to license the use of a patented invention to a third party or government agency without the consent of the patent-holder.
  - o **Parallel importation:** It is importation without the consent of the patent-holder of a patented product marketed in another country either by the patent holder or with the patent-holder's consent.
    - ✓ It enables access to affordable medicines because there are substantial price differences between the same pharmaceutical product sold in different markets.
  - o **Exemptions from patentability:** The agreement does not require the patenting of new uses of known products including pharmaceuticals and permits countries to deny protection for such uses of lack of novelty, inventive step or industrial applicability.
  - o **Limits on Data Protection:** As a condition for permitting the sale or marketing of a pharmaceutical product, drug regulatory authorities require pharmaceutical

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companies to submit data demonstrating the safety, quality and efficacy of the product.

- ✓ The TRIPS Agreement requires that WTO Members protect undisclosed test data, submitted to drug regulatory authorities for the purposes of obtaining marketing approval, against unfair commercial use.
- ✓ However, some limits are allowed to use the data for the generation of generic drugs for public health.

- o **Extension of transition period for Least-Developed Countries (LDCs):** The amendment to Doha Declaration extended the transition period for LDCs for implementation of the TRIPS obligations to 2021.

About TRIPS Agreement
- The TRIPS Agreement, which came into effect in 1995, is the most comprehensive **multilateral agreement on intellectual property.**
- It was negotiated between 1986 and 1994 **during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT),** which led to the establishment of the World Trade Organization (WTO).
- It sets out the **minimum standards of protection to be provided by each Member.**
  - o Agreement is in line with the main conventions of the WIPO, the Paris Convention for the Protection of Industrial Property **(Paris Convention)** and the Berne Convention for the Protection of Literary and Artistic Works **(Berne Convention).**
- It contains **provisions on civil and administrative procedures and remedies, provisional measures,** special requirements related to border measures and criminal procedures.
- The Agreement makes disputes between WTO Members about the respect of the TRIPS obligations subject to the WTO's dispute settlement procedures.
- The **areas of intellectual property** that it covers are:
  - o copyright and related rights,
  - o trademarks,
  - o geographical indications,
  - o industrial designs,
  - o new varieties of plants;
  - o layout-designs of integrated circuit,
  - o trade secrets and test data.
- Membership in the WTO includes an **obligation to comply with the TRIPS Agreement.**

3.3.5. SPECIAL DRAWING RIGHTS

Why in news?

Recently, a proposal for the **International Monetary Fund (IMF)** to issue additional 500 billion **Special Drawing Rights (SDR)** was blocked by India and USA.

About Special Drawing Rights (SDR)

- SDR is an **international reserve asset, created by IMF in 1969** to supplement official reserves of member countries.
- The value of the SDR is calculated from a **weighted basket of 5 major currencies,** including the **U.S. dollar, the Euro, Japanese yen, Chinese Renminbi, and British pound.**
  - o SDR basket is **reviewed every five years,** or earlier if warranted, to ensure that the basket reflects the relative importance of currencies in the world's trading and financial systems.
- Technically, the SDR is **neither a currency nor a claim on the IMF** itself. Instead, it is a potential claim against the currencies of IMF members.
- SDR **augments international liquidity** by supplementing the standard reserve currencies.
- SDR serves as the **unit of account of the IMF** and some other international organizations like African Development Bank (AfDB), Bank for International Settlements (BIS) etc.
- SDRs **can only be held by IMF member countries** and not by individuals, investment companies, or corporations.
- An SDR allocation is a **low-cost method of adding to member nations' international reserves,** allowing members to reduce their reliance on more expensive domestic or external debt.

How are SDRs used?
- Under the **Articles of Agreement,** when certain conditions are met, the **IMF may allocate SDRs to members in proportion to their quotas (known as a general allocation).**
- Once allocated, **members can hold their SDRs as part of** their international reserves or sell part or all of their SDR allocations.
- Members can **exchange SDRs** for freely usable currencies among themselves and with prescribed holders; such exchange can take place under a voluntary arrangement or under designation by the Fund.
- IMF members can also use SDRs in **operations and transactions involving the IMF,** such as the payment of interest on and repayment of loans, or payment for future quota increases.

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International Monetary Fund (IMF)
- It is an organization of 189 countries, working to **foster global monetary cooperation, secure financial stability, facilitate international trade**, promote high employment and sustainable economic growth, and reduce poverty around the world.
  - Its mandate was updated in 2012 to include all macroeconomic and financial sector issues that bear on global stability.
- IMF was created in **Bretton Woods Conference** of 1944 and came into operation in 1945.
- **Headquarters:** Washington, D.C.
- It acts as a specialized agency of United nations. (UN specialized agencies are international organizations that coordinate their work with the United Nations through negotiated agreements.)

Other Financing methods used by IMF apart from SDR

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- **Rapid Credit Facility (RCF)** provides rapid concessional financial assistance with **limited conditionality to low-income countries (LICs) facing an urgent balance of payments need**.
  - It was created under the **Poverty Reduction and Growth Trust (PRGT)**.
  - It places emphasis on the country's **poverty reduction and growth** objectives**.**
- **Rapid Financing Instrument (RFI)** provides support to meet a broad range of urgent needs, including those arising from **commodity price shocks, natural disasters, conflict and post-conflict situations, and emergencies resulting from fragility**.
- **Catastrophe Containment and Relief Trust (CCRT)** allows the IMF to provide grants for debt relief for the poorest and most vulnerable countries hit by **catastrophic natural disasters or public health disasters**.
  - It was **established in February 2015 during the Ebola outbreak** and modified in March 2020 in response to the COVID-19 pandemic.

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3.3.6. OTHER IMPORTANT NEWS

Certificate of origin (CO)	• Commerce ministry has designed an **online platform for issuance of a key document "Certificate of origin"** required for exports to those countries with which India has trade agreements, with a view to facilitate shipments during the COVID-19 crisis.
	• CO is a document declaring in which country a commodity or good was manufactured.
	• Required by many treaty agreements for cross-border trade, CO is important because it can help determine whether certain goods are eligible for import, or whether goods are subject to duties.
	• There are two types of COs:
	  ○ **Non-Preferential COs** which certify that the goods are subject to no preferential treatment. They are also known as "Normal COs".
	  ○ **Preferential COs**, which certify that goods are subject to reduced tariffs or exemptions when they are exported to countries extending these privileges.

Bill of Lading (BOL)	• Government is fast tracking a plan to **implement electronic Bill of Lading (eBOL).** • Move is aimed at **removing hurdles in trade documentation process** in a post-coronavirus world. • **BOL** is a legal document issued by a carrier to a shipper that details the type, quantity, and destination of the goods being carried.
Mutual Agreement Procedure (MAP)	• MAP is an **alternative dispute resolution** process under tax treaties, under which **competent authorities of two countries enter into discussions to resolve tax-related disputes.** • Central Board of Direct Taxes has amended Income Tax rules as per which disputes under **MAP would be resolved within a timeframe of 24 months.** • This is aimed at speedy settlement of cases of multinational corporations that have opted the alternative dispute resolution process.
India remains on the US Priority Watch List	• Office of USTR released its annual **Special 301 Report** on adequacy and effectiveness of trading partners' protection of **intellectual property (IP) rights.** • Trading partners that currently present the most significant concerns regarding IP rights are placed on the Priority Watch List. • **India continues to be on the 'Priority Watch List'** for lack of adequate IP rights protection. • It highlighted concerns regarding restrictions in pharmaceutical sector, high custom duties on medical devices, absence of centralized IP enforcement agency etc.
Invest India	• Recently, **Invest India held a virtual panel discussion for global investors** with focus on emerging trends and opportunities in electronics system design and manufacturing sector. • Invest India is the **National Investment Promotion and Facilitation Agency** that helps investors looking for investment opportunities and options in India. • It was set up in 2009, as a non-profit venture **under Department for Promotion of Industry and Internal Trade (DPIIT).**

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3.4. AGRICULTURE AND ALLIED ACTIVITIES

3.4.1. MINOR FOREST PRODUCE

Why in news?

Recently, Centre **revised the minimum support price (MSP) for minor forest produce,** offering much-needed support to tribal gatherers in view of the coronavirus pandemic.

More about news

- Ministry of Tribal Affairs increased the MSP of 49 products which are collected by tribals from forests.
- This is done under a Centrally Sponsored scheme known as **"Mechanism for marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and development of value chain for MFP."**
- **Tribal Cooperative Marketing Development Federation of India (TRIFED),** the nodal agency for the scheme, had recommended the increase.
- MSP for MFPs is revised once in every 3 years by Pricing Cell constituted under the Ministry of Tribal Affairs.

Tribal Cooperative Marketing Development Federation of India (TRIFED)
- It is a national-level apex organization functioning under the administrative control of Ministry of Tribal Affairs.
- Its objective is **socio-economic development of tribal people** by marketing of their products.
- It came into existence in 1987.

What is Minor Forest Produce (MFP)?

- MFP is defined under **The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006,** popularly known as the **Forests Rights Act (FRA).**
- **Minor Forest Produce (MFP)** includes all non-timber forest produce of plant origin and includes **bamboo, canes, fodder, leaves, gums, waxes, dyes, resins and many forms of food including nuts, wild fruits, Honey, Lac, Tusser** etc.
- The definition of MFP includes bamboo and cane, thereby changing the categorization of bamboo and cane as **"trees"** under the Indian Forest Act 1927.
- **Panchayat (Extension to Scheduled Areas) Act, 1996 and FRA** confer ownership of MFP on forest dwellers.

Mechanism for marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and development of value chain for MFP
- Launched in 2014, the scheme is designed as a **social safety net for improvement of livelihood of MFP gatherers** by providing them fair price for the MFPs they collect and ensure sustainable harvesting of MFPs.
- These tribals then sell the MFPs in village marketplaces.
- If the market prices fall below MSP, the state government agencies move in to procure the produce.
- **Ministry of Tribal Affairs** is the nodal ministry for this scheme.

Calculation of Minimum Support Price (MSP)
- Government fixes MSP on recommendations of **Commission for Agricultural Costs and Prices (CACP).**
  - CACP considers various factors while recommending MSP, including cost of cultivation, supply and demand situation for commodity, market price trends (domestic and global) and parity vis-à-vis other crops and implications for consumers (inflation), environment (soil and water use) and terms of trade between agriculture and non-agriculture sectors.
- 2018-19 Budget announced that **MSPs would henceforth be fixed at 1.5 times** of production costs for crops as a "pre-determined principle".

3.4.2. RICE EXPORT PROMOTION FORUM

Why in news?

Recently, government set up **Rice Export Promotion Forum (REPF)** under the aegis of the **Agricultural and Processed Foods Export Promotion Development Authority (APEDA).**

About REPF

- Its objective is to identify, document particulars and reach out to stakeholders across the **entire production/ supply chain of export of rice** for increasing these exports significantly to the global market.
  - It will monitor, identify and anticipate developments pertaining to rice production and exports and **recommend necessary policy measures.**
  - It will be in touch with **rice producers, exporters and other relevant stakeholders and** hear their problems, and facilitate, support and provide solutions to them.
- It will **comprise representatives** from the rice industry, exporters, officials from APEDA,

Commerce Ministry, Agriculture Ministry and Directors of Agriculture from major rice producing states such as West Bengal, Uttar Pradesh, Punjab, Haryana etc.

Rice production in India

- India is the **second largest producer of rice in the world** and has been the **largest exporter** of rice after the shipments of the non-basmati were allowed from 2011.
- Major share of rice is cultivated during **Kharif season** while a small share of rice is grown in rabi /summer season with assured irrigation.
- **India's rice production has grown by 22%** from 2010-11 to 2019-20 as per Second Advance Estimates

> **Related information**
> **APEDA**
> - APEDA was established under **the Agricultural and Processed Food Products Export Development Authority Act, 1985.**
> - It is under **Ministry of Commerce and Industry**.
> - It is mandated with the **responsibility of export promotion and development of products** such as Fruits, Vegetables, Meat, Poultry, Dairy Products, Floriculture, Alcoholic and Non-Alcoholic Beverages etc.
>   - Under '**Agriculture Export Promotion Scheme of APEDA**', APEDA provides financial assistance to the registered exporters under sub-components of the Scheme - Market Development, Infrastructure Development, Quality Development and Transport Assistance.

> - APEDA has also been entrusted with the responsibility **to monitor the import of sugar as well.**
>
> **Related news**
> **Direct seeding of rice (DSR)**
> - **Punjab and Haryana could face a shortage of labourers** to undertake transplantation of paddy in upcoming kharif season.
>   - This now has **encouraged them to adopt DSR** in place of conventional transplanting.
>
> **About DSR**
> - DSR refers to process of establishing a rice crop from seeds sown in field rather than by transplanting seedlings from nursery.
>   - In transplanting, farmers prepare nurseries where paddy seeds are first sown and raised into young plants. These seedlings are then uprooted and replanted 25-35 days later in main field **with standing water.**
>   - ✓ It ensures a uniform plant stand and gives rice crop a head start over emerging weeds.
> - In DSR, water is replaced by real chemical herbicides. In transplanting, **standing water acts as herbicide** and prevents growth of weeds by denying them oxygen in submerged stage.
> - **Advantages:** Saving irrigation water, labour, energy, time and reduces emission of greenhouse-gases.
> - **Disadvantages:** High weed infestation, Evolution of weedy rice, Increase in soil borne pathogens (nematodes), Nutrient disorders, Exposure to birds and rats incidence, Rice blast, Brown leaf spot etc.

3.4.3. OTHER IMPORTANT NEWS

Decrease in size of Agricultural Holdings	• As per Agriculture Census, the average size of operational holdings has decreased from **2.28 hectares in 1970-71** to **1.08 hectares in 2015-16**. • **Department of Agriculture, Co-operation and Farmers Welfare conducts agriculture census** every **five years** to collect data on structural characteristics of agricultural sector.
"Interest subvention on Working Capital Loans for Dairy sector" Scheme	• Ministry of Fisheries, Animal Husbandry and Dairying has introduced this new scheme for **supporting Dairy Cooperatives and Farmer Producer Organizations engaged in dairy activities** for implementation during 2020-21. • It provides **interest subvention of 2% per annum**, with an additional incentive of 2% per annum interest subvention to be given in case of prompt and timely repayment. • It is applicable to **working capital loan** taken from scheduled Commercial Banks/RRBs/ Cooperative Banks/Financial Institutions between 2020 and 2021 by Cooperatives/FPOs for conversion of milk into conserved commodities and other milk products.

New Features of National Agriculture Market (E-NAM) Platform Launched	• e-NAM is a **pan-India electronic trading portal** which networks existing APMC mandis to create a unified national market for agricultural commodities.
	  o It provides for **contactless remote bidding** and **mobile-based any time payment**.
	  o **Small Farmers Agribusiness Consortium (SFAC)** is the lead agency for implementing e-NAM.
	• **New features**:
	  o **Small & marginal famers** can **now directly trade their stored produce from selected registered warehouses.**
	  o **Farmer Producer Organizations** can **upload the picture of their produce and quality parameters** from their premises to help distant bidders to visualise the produce before bidding.

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		✓ FPOs have the option for **delivery of produce either from their premises or by bringing to mandi premise** after successful bidding • Provision has been made **for linking large logistic aggregator platforms**, which will provide choices to users. Traders would be able to use the link to navigate to logistics provider's website and select appropriate services.
Kisan Rath Mobile App		• It will **facilitate farmers and traders in identifying right mode of transportation** for movement of farm produce ranging from food grains to fruits, vegetables etc, during lockdown. • It has been developed by National Informatics Centre (NIC).
Kisan Rail Scheme		• Centre has formed a panel, to look into the implementation of the **Kisan Rail scheme**. • Kisan Rail was proposed under Union Budget 2020-21 to build seamless national cold supply chain for perishable goods like milk, meat and fish. Also, there shall be **refrigerated coaches** in Express and Freight trains. • **Indian Railways has planned to set up a "Kisan Rail"** through **PPP arrangements**. • In accordance to the scheme, **temperature-controlled centres** have been set up in **Uttar Pradesh, Delhi and Maharashtra** under **Kisan Vision project** of the Container Corporation of India.
Open Market Sale Scheme (OMSS)		• Amidst CoVID-19 outbreak, **government has directed Food Corporation of India (FCI) to provide Wheat and Rice to NGOs and Charitable Organizations at the Open Market Sale Scheme (OMSS) rates** without going through the e-auction process. • Open Market Sale Scheme (OMSS) **refers to selling of foodgrains by Government / Government agencies at predetermined prices in the open market** from time to time **to enhance the supply of grains especially during the lean season** and thereby to moderate the general open market prices especially in the deficit regions. • The FCI conducts a weekly auction to conduct this scheme in the open market using the platform of commodity exchange NCDEX (National Commodity and Derivatives Exchange Limited). • Earlier, **only state governments and registered bulk users like Roller Flour Mills were allowed** to buy stock from FCI under OMSS rates.

3.5. ENERGY SECTOR

3.5.1. ENERGY TRANSITION INDEX REPORT

Why in news?

Recently, the World Economic Forum released the **Energy Transition Index 2020**.

About Energy Transition Index (ETI)

- The **ETI** is a fact-based ranking intended to enable policy-makers and businesses to plot the course for a successful energy transition.
  - It is a composite score of 40 indicators which benchmarks 115 countries on the **speed and direction of their energy transition** and identifying opportunities for improvement.
- An **effective energy transition** is a timely transition towards a more inclusive, sustainable, affordable and secure energy system that provides solutions to global energy-related challenges, while creating value for business and society, without compromising the balance of the energy triangle.
- ETI is a part of the **World Economic Forum's Fostering Effective Energy Transition Initiative.**
  - It is a continuation of the annual energy system benchmarking series, previously published as the **Energy Architecture Performance Index** (EAPI) series from 2013 to 2017.
- The ETI framework consists of two parts i.e. the **current energy system performance** and the **enabling environment for the energy transition.** (Refer the infographics).
- **ETI 2020 Rankings-** Sweden (1), Switzerland (2), Finland (3), India (74), China (78).
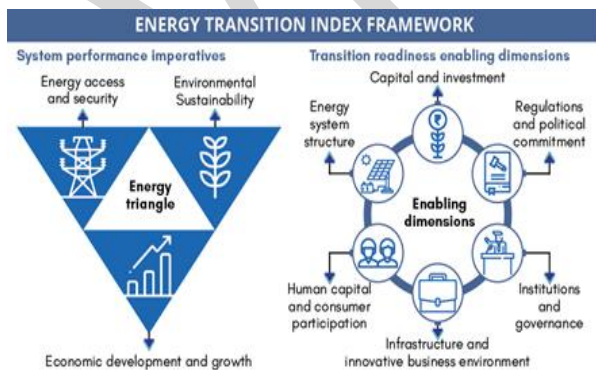
Fostering Effective Energy Transition Initiative
- It aims to accelerate the speed of the global energy transition by promoting the adoption of effective policies, corporate decisions and public-private collaboration.

- It offers a platform to establish a common understanding among all stakeholder groups.

3.5.2. IMPACT OF ENERGY EFFICIENCY MEASURES FOR THE YEAR 2018-19 REPORT

Why in news?

Bureau of Energy Efficiency released the Report titled "Impact of energy efficiency measures for the year 2018-19".

Key Findings

- With a total energy consumption of 553.9 Million tons of Oil Equivalent in 2017-18, India stood the **3rd largest energy consumer** after USA and China.
- In terms of **growth rate of energy consumption, India ranks highest** in the world.
- Earlier, BEE in association with **Alliance for an Energy-Efficient Economy** launched **State Energy Efficiency Index 2019** to track progress of energy efficiency initiatives in states and union territories
- **Various energy efficiency schemes have led to reduced energy intensity of economy by 20% from 2005 levels**.
  - **Energy intensity** is amount of energy required to produce one unit of GDP.
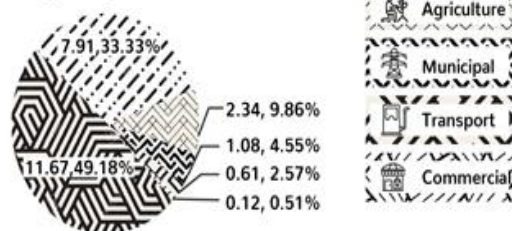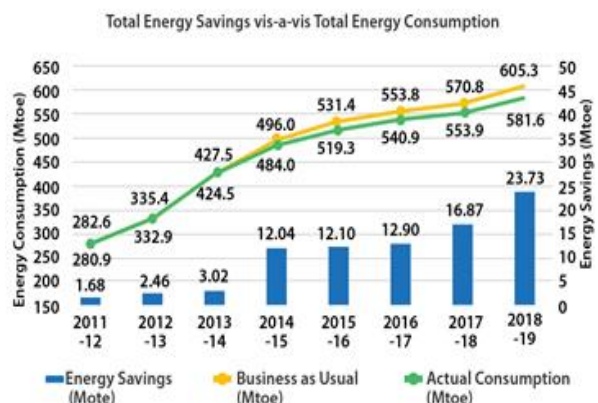
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Related information
UNlocking NATional Energy Efficiency potential

UNNATEE is a national strategy document for accelerating energy efficiency in India. It describes a plain framework and implementation strategy to establish a clear linkage between energy supply-demand scenarios and energy efficiency opportunities. It does so by clearly delineating the energy efficiency targets for the respective demand sectors upto the state levels.

Bureau of Energy Efficiency (BEE)
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BEE is a statutory body under Ministry of Power, setup under the provisions of the Energy Conservation Act, 2001.
Its mission is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001 with the primary objective of reducing energy intensity of the Indian economy.

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3.5.3. OTHER IMPORTANT NEWS

Trade in Electricity	- India is **3rd largest producer of electricity** in world and it ranks 106th in terms of per capita consumption in 2017. - Presently, **India exports electricity** to Nepal, Bangladesh and Myanmar, while India **imports power from Bhutan**. However, India also exports power to Bhutan during lean hydro season. - Power Ministry has issued **Guidelines for Import/Export (Cross Border) of Electricity-2018** to promote electricity trade with neighbouring countries. - India has **regional power system integration** with Bangladesh, Bhutan and Nepal through high voltage AC and High Voltage DC connections.
IEX introduces real-time trading of electricity	- Under this, **auctions will be held 48 times a day**, once every half an hour. **Indian Energy Exchange (IEX) is first and largest energy exchange in India** providing a nationwide, automated trading platform for physical delivery of electricity, Renewable Energy Certificates and Energy Saving Certificates. **Benefits:** It allows electricity producers to sell surplus energy, consumers to buy in case of shortage, better utilization of renewable energy (which is prone to fluctuations), enhance overall grid security etc.
Country's first round-the-clock (RTC) solar power tender closes at Rs 2.9/unit	- A RTC tender was floated by **Solar Energy Corporation of India (SECI) to supply power from hybrid solar power plant all around the day. SECI is nodal tendering agency** under the Ministry of New and Renewable Energy (MNRE). - Under this, project developer will have the option of building a **hybrid plant with wind and hydropower** or have **energy storage systems** to ensure 24×7 supply (RTC supply). - Earlier, MNRE also proposed a **scheme of bundling Renewable Energy (RE) with thermal (coal/gas) based power** and sell them together **to ensure RTC supply.** - Proposed scheme provides for reverse bundling, wherein high-cost thermal power is to be bundled with cheaper RE. - It is aimed at bringing down the overall cost of power, improve penetration of RE, reduce **intermittency issues (random generation of energy** from RE) and facilitate fulfilment of **renewable purchase obligatio**ns.
District Mineral Foundation (DMF) funds	- Recently, Centre instructed that **state governments should use DMF funds for response and preparedness to fight COVID-19 pandemic.** - DMFs are a **non-profit trust set up in the country's mining districts** to work for interest and benefit of people and areas affected by mining-related operations. - Trusts were set up under **Mines and Minerals (Development and Regulation) Amendment Act, 2015.** It is funded through contributions from miners. - DMF funds are **non-lapsable funds** and can be used for both immediate and long term investments. They are treated as extra-budgetary resources for the State Plan. - Its manner of operation comes under jurisdiction of relevant State Government but the fund is collected at district level.
Project Monitoring Unit (PMU)	- Recently, Ministry of Coal launched PMU for **facilitation of early operationalization of coal mines** allocated by the Central Government. - It will aim to **promote Ease of Doing Business** as it will hand-hold and support Coal mines allocatees in obtaining timely approval/permissions to operationalize the mines. - This move is also expected to go a long way in **attracting bidders** for the ensuing auction round of commercial blocks. - This measure will **improve production and business environment in the coal industry**.
PRAAPTI	According to the **Payment Ratification And Analysis in Power procurement for bringing Transparency in Invoicing of generators** (PRAAPTI) portal, states are yet to clear dues of Rs 92,891 crore to power generating companies, both of the Centre and privately owned.

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	• PRAAPTI App and web portal **has been developed under Ministry of Power to bring transparency in power purchase transactions** between Generators and Distribution companies (Discoms). • It **will enable consumers to evaluate financial performance of their Discoms** in terms of payments being made to generation companies.
Renewable Energy Certificates (RECs)	• Sales of RECs **fell by 35 %** in April 2020 compared to April 2019. • RECs are a type of **market-based instrument to provide an economic incentive** for electricity generation from renewable energy sources. o One REC is created when **one megawatt hour of electricity** is generated from an eligible **renewable energy resource**. • Generators can sell electricity from renewable sources just like conventional electricity and offer RECs separately to obligated entities to fulfil their **renewable purchase obligation.** • RECs are traded on **Indian Energy Exchange and Power Exchange of India.**
Methodology for auction of coal and lignite mines/blocks	• Cabinet recently approved methodology for auction of coal and lignite mines/blocks for sale of coal / lignite on **revenue sharing basis** and **increasing the tenure of coking coal linkage**. • Bidders would be required to bid for a percentage share of revenue payable to the Government. • There shall be **no restriction on the sale and/or utilization of coal** from the coal mine. • It also **permits commercial exploitation of the Coal Bed Methane** present in mining lease area.

3.6. INDUSTRY AND INFRASTRUCTURE

3.6.1. NATIONAL INFRASTRUCTURE PIPELINE (NIP)

Why in news?

Recently, the Ministry of Finance released the **Report of the Task Force on National Infrastructure Pipeline** for **2019-2025** in the public domain.

CONSTITUENTS OF NIP
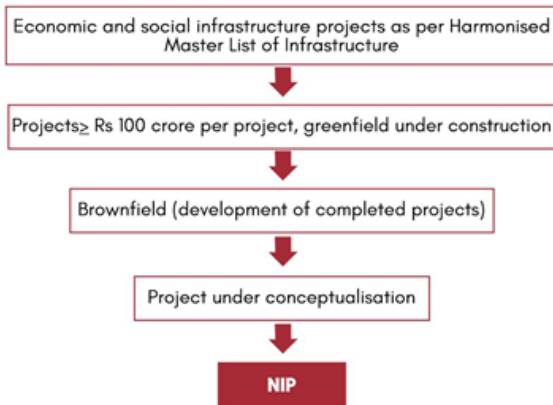
More on National Infrastructure Pipeline (NIP)

• India needs to spend **$4.5 trillion** on infrastructure by **2030** to sustain its growth rate.
 o The government has announced that infrastructure projects worth Rs **102 lakh crores** will be implemented by 2025.
• The **NIP** seeks to implement and streamline this in an efficient manner.
 o To draw the NIP, all the **economic and social infrastructure projects** as per the **Harmonised Master List of Infrastructure** was taken up and the projects have been identified.
• This, **first of a kind exercise**, is expected to be followed up by a periodical review process.

INDIA'S INFRASTRUCTURE INVESTMENT TREND SINCE FISCAL 2013 (Rs LAKH CORE)

Source: Appraisal documents for five-year plans, CRIS estimates (Investments mentioned are at current prices)

3.6.2. OTHER IMPORTANT NEWS

India To Seek $70 Million From World Bank For EWACTG Project	• **Eastern Waterways Connectivity Transport Grid (EWaCTG)** project aims to
	 o **provide seamless connectivity** between National Waterway-1 (NW-1) and NW-2 through Indo-Bangladesh Protocol (IBP) routes:
	  ✓ **NW1** start from **Allahabad to Haldia**.
	  ✓ **NW2** stretch on Brahmaputra river **from Sadiya to Dhubri in Assam**
	 o **Develop an economic corridor** of 4,200 km of waterways and coastal shipping for Uttar Pradesh, Bihar, Jharkhand, West Bengal and North-Eastern States.
	• Its objective is to **pave the way for the regional in/tegration of five countries** — India, Nepal, Bhutan, Bangladesh and Myanmar — in the South Asian region.

	• World Bank had earlier approved **grant to develop NW1 under 'Jal Marg Vikas' Project** on Ganga which seeks to develop and improve navigational infrastructure.

National Investment and Infrastructure Fund	• NIIF is a **collaborative investment platform** for international and Indian investors with a mandate to invest equity capital in domestic infrastructure.
	• These funds are registered as Alternative Investment Fund (AIF) with SEBI.
	• The three different funds managed by NIIF are
	  ○ **Master Fund:** It primarily invests in operating assets in core infrastructure sectors such as roads, ports etc.
	  ○ **Fund of funds:** It was established in 2018 with objective of creating a vehicle to provide India focused Private equity (PE) fund managers to raise large scale fund from international investors.
	    ✓ Reason being domestic institutions such as Indian pension funds and insurance companies have not been significant investors in PE funds.
	  ○ **Strategic Fund:** It aimed at growth and development stage investments in projects that are of economic and commercial importance and are likely to benefit from India's growth trajectory.

India Investment Grid (IIG)	• It is an **initiative of Department for Promotion of Industry & Internal Trade,** Ministry of Commerce **and Invest India,** the National Investment Promotion and Facilitation Agency. • IIG **showcases a menu of investment options** across India **on a single interactive platform.** • IIG **connects potential investors to project promoters** across India. • The **National Infrastructure Pipeline (NIP) project database** would be hosted on IIG.
Bank of Schemes, Ideas, Innovation & Research Portal on MSMEs	• It was recently launched by **Ministry of Micro, Small & Medium Enterprises.** • Portal gives access to all Schemes of Union, State and UT Governments. It has the **provision for uploading Ideas, Innovations & Researches** in the sector. • It has unique features of not only **crowd sourcing of Ideas,** but also **evaluation and rating the ideas by crowd sourcing.** • It can also facilitate inflow of venture capital, foreign collaboration etc.
CHAMPIONS Portal	• It is **Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength Portal (CHAMPIONS).** • It is a **technology driven Control Room-Cum-Management Information System launched by** Ministry of Micro, Small and Medium Enterprises (MSME). As part of the system a network of control rooms is created in a Hub & Spoke Model. • It is aimed at **assisting Indian MSMEs** march into big league **as National and Global CHAMPIONS** by solving their grievances and providing handholding to them. • It is fully **integrated with** Centralized Public Grievance Redress and Monitoring System (**CPGRAMS**) portal and MSME's other web based mechanisms.
Industry status to sports	• Mizoram became the **first state** to grant industry status to sports. • It is expected to **increase investments in sports** and generate employment among others.
New series of Consumer Price Index (CPI) for Industrial Workers (CPI-IW)	• A government **panel approved a new base year of CPI-IW,** revising it to 2016 from 2001. • CPI-IW measure a change over time in prices of a fixed basket of goods and services consumed by Industrial Workers. It is **compiled by Labour Bureau.** • It is **used for wage indexation** and **fixation of dearness allowance (DA)** for govt. employees. • **Expected benefits from new series:** Wages of around 30 million workers might increase. Also, it is expected to benefit 4.8 million central government employees receiving DA.
Institutional Mechanism for National Technical Textile Mission	Ministry of Textiles plans to implement National Technical Textiles Mission (NTTM) through a 3-tier institutional mechanism: • **Tier- I: A Mission Steering Group led by the Textiles minister-** It would be responsible to approve all financial norms in respect of all Schemes, Components and Programme of the NTTM. In addition, all scientific / technological research projects under the NTTM shall require its approval. • **Tier II: An Empowered Programme Committee led by textiles secretary-** It will monitor the implementation of various components of the mission. It will also approve all projects within the financial limit of each programme as approved by the Mission Steering Group except research projects. • **Tier III: A Committee on Technical Textiles on Research, Development & Innovation chaired by a NITI Aayog member-** It will identify and recommend all research projects related to strategic sectors such as defence, para-military, security, space, and atomic energy.
World Bank Releases April Commodity	• Report provides detailed market analysis for major commodity groups, including energy, agriculture, fertilizers, metals, and precious metals. It is **published twice in a year.** • COVID-19 is projected to bring most commodity prices down substantially in 2020. • **Energy and metals commodities** are **most affected** by sudden stop to economic activity.

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Markets Outlook Report	• **COVID's long-term impact on commodity markets:**
	   o **Increasing transport costs** due to enhanced border checks.
	   o **Unwinding supply chains** (companies might prefer to source from closer by for instance).
	   o **Changing consumer behavior**. E.g. choosing to work remotely, increased use of greener transport etc.

3.7. EMPLOYMENT AND SKILL DEVELOPMENT

3.7.1. ATAL INNOVATION MISSION

Why in news?

Recently, Various initiatives were launched under Atal Innovation Mission (AIM) amid COVID-19.

About the new initiatives

'Tinker from Home' campaign	CollabCAD	Game Development module
Launched under Atal Tinkering Labs (ATLs) program **amid COVID-19 lockdown,** to ensure that the children across the county have access to useful **easy-to-learn online** resources to keep themselves **fruitfully occupied.**	It is a **collaborative network** and **computer aided design (CAD)** software system providing a total engineering solution from 2D drafting & detailing to 3D product design.	It is an online platform where **students can learn to create their own games** and also share it with others.
Aim: To **harness the creativity and innovativeness** of children by encouraging learning through self-initiation.	**Aim**: to provide a platform to **students of ATLs** across the country to create and modify 3D designs with free flow of **creativity and imagination.**	It envisages to make students transition from **'game players' to 'game makers.'**
CollabCAD, Game Development module are part of this.	Jointly launched by AIM and National Informatics Centre (NIC).	Launched by AIM in partnership with DELL Technologies and Learning Links Foundation.

Atal Innovation Mission (AIM)

- It is Government of India's (NITI Aayog) flagship initiative to **promote a culture of innovation and entrepreneurship i**n the country.
- **Objectives**
  - o To develop new **programmes and policies for fostering innovation** in different sectors of the economy,
  - o provide **platform and collaboration opportunities** for different stakeholders,
  - o create **awareness and an umbrella structure** to oversee innovation ecosystem of the country.
- **Major initiatives under AIM**
  - o **Atal Tinkering Labs**-Creating problem-solving mindset across schools in India.
  - o **Atal Incubation Centers-** Fostering world class startups and adding a new dimension to the incubator model.
  - o **Atal New India Challenges-** Fostering product innovations and aligning them to the needs of various sectors/ministries.
  - o **Mentor India Campaign-** A national Mentor network in collaboration with public sector, corporates and institutions, to support all the initiatives of the mission.
  - o **Atal Community Innovation Center-** To stimulate community centric innovation and ideas in the unserved /underserved regions of the country including Tier 2 and Tier 3 cities.
  - o **Atal Research & Innovation for Small Enterprises (ARISE)** -To stimulate innovation and research in the MSME industry.

Atal Tinkering Labs (ATL)
- ATLs are setup in schools across India with a vision to **'Cultivate one Million children in India as Neoteric Innovators.'**
- ATL is a **work space** where young minds can give shape to their ideas through hands on do-it-yourself mode; and learn innovation skills.
- **Aim**: to foster curiosity, creativity and imagination in young minds; and inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc.
- **Financial support**: AIM will provide grant-in-aid of Rs. 20 Lakh to each school that includes a one-time establishment cost of Rs. 10 lakh and operational expenses of Rs. 10 lakhs for a maximum period of 5 years to each ATL.
- **Eligibility**- Schools (minimum Grade VI - X) managed by Government, local body or private trusts/society to set up ATL.

3.7.2. OTHER IMPORTANT NEWS

Prime Minister's Employment Generation Program (PMEGP)	• Ministry of Micro, Small & Medium Enterprises (MSME) has **done away with the role of District Level Task Force Committee (DLTFC)** headed by district collectors in recommending proposals under PMEGP.
	• As of now, proposals were scrutinized by DLTFC that often led to inordinate delays in sanctioning of projects. Now, **Khadi and Village Industries Commission (KVIC) will directly clear proposals/ applications** of prospective entrepreneurs and will forward it to banks for taking credit decisions.
	• **PMEGP** is a **credit-linked subsidy programme** aimed at **generating self-employment** opportunities through **establishment of micro-enterprises** in rural as well as urban areas.
	  o **Loans** are being provided by all Public Sector Banks, selected Private Sector Banks and Co-operative Banks with subsidy being given by Ministry of MSME through KVIC.
	  o **Maximum cost of projects** can be Rs. 25 lakh in manufacturing sector and Rs. 10 lakh in service sector.
	  o Benefit can be availed under PMEGP for setting up of **new units only**.
	  o It is being **implemented by KVIC**, State Khadi and Village Industries Board and District Industries centres.

National Career Service (NCS)	• Ministry of Labour and Employment under NCS project has started **free online "Career Skills Training"** in partnership with TCS ION for **registered job-seekers**. • NCS is a **one-stop solution** (launched in 2015) that provides a wide array of employment and career related services.
Facebook Pragati	• Facebook India recently launched its **CSR initiative**, Facebook Pragati. • The initiative will **incubate and accelerate early-stage women-led non-profits** that are working to drive women entrepreneurship and to spread awareness and adoption of technology among women in India.

3.8. COVID RELATED NEWS

3.8.1. ECONOMIC IMPACTS OF COVID-19

Economic Impact of COVID-19	
Microeconomic impacts	**Macroeconomic impacts**
It is the study of the behaviour of individual economic agents (individuals and businesses) in the market.	It is concerned with large-scale or aggregate and is dependent on general economic factors.

• **Demand**
  o **Of essentials:** Stockpiling of essential commodities like rice, lintels etc. was noticed.
  o **Of non-essential goods:** out-of-home, impulse consumption in sectors like electronics, jewellery etc. has been **crashing**.
• **Supply:** Restrictions have **affected the supply chains of big companies** and only the **bare essential is produced** and distributed.
  o **Supply of agri-produce has been affected** because of no or little activity in Mandis, reduced labour, transportation problems and farmers' own reluctance, leading to low wholesale prices.
  o E-tailers are struggling to get permits.
• **Price:** because of rapid changes in market conditions, prices have been very volatile. Overall, there has been a **steep drop in commodity prices** in emerging markets.
• **Microeconomic effects of government policy:** as economic activity declines, so will taxes leading to greater fiscal deficit.
  o **Direct taxes** cannot be raised since profits and incomes are already badly hit and **Indirect taxes** will be inflationary and further burden the poor and reduce demand.
  o **Non-tax revenue**, too, cannot be expected to contribute more since the public sector is also under stress.
	• **Balance of payment:**
	  o **Current account:** Lower crude oil prices, slowdown in gold and other imports can reduce trade deficit. However, overseas remittances (mainly from West Asia) will also reduce.
	  o **Capital account:** Foreign investors pulled out $14-15 billion from Indian debt and equity markets in March.
	• **Inflation:** The RBI has forecasted **inflation to collapse in FY21** amid a pronounced slump in demand. Reasons cited are fall in demand because of reduced profits and income and distress in rural economy.
	• **Economic Growth:**
	  o IMF has confirmed that world's economy is in recession that will be worse than 2009.
	  o Value of stalled projects has reached record-highs of around Rs. 14 trillion till Mar 2020. This may **further deteriorate the asset quality of banking sector**.
	  o Services PMI (Purchasing Managers Index) fell to 49.3 in March after rising for 5 consecutive months.
	• **Unemployment:**

o So, government is increasingly using **Government Securities (G-secs) and some underused funds** for resource mobilization. o Meanwhile, **yield differential** (Differences in the yields of different securities) between Central and State government bonds has increased because investors are only seeking **pure sovereign backed funds** amid rising pandemic related uncertainties.	o As per latest (**Centre for Monitoring India Economy) CMIE survey**, labour participation rate fell to 39% in April. o According to **ILO report**, COVID-19 crisis has the potential to push around 40 crore informal sector workers in India deeper into poverty by affecting jobs/working hours and earnings.

Government and Regulatory Response	
Objectives	**Steps taken**

• Facilitate domestic **supply of essential goods** and services
• **Ease liquidity** to spur demand and investments
• **Help rural economy** including farming community to tackle the economic distress
• **Plug production losses** and prevent spillover effects onto corporate balance sheets (more defaults) and the labour market (job losses)
• **Address trade and supply chain disruptions** especially for firms dependent on foreign supplies
• **Credit ratings** should not fall
• **Financial intermediaries** should remain competitive and asset quality should not deteriorate
• Enhanced **investor participation** in Indian markets and **improve confidence in State bonds** so as to reduce bond yields
• **Stabilize the rupee** as if rupee continues to weaken, firms dependent on foreign loans could struggle
• Reduce/**manage fiscal deficit**
• **Maintain exports** to key trading partners such as the EU
	• **Relief to exporters:**
	  o India has urged the countries, with which it has free trade agreements (FTAs), to allow imports of goods without **certificate of origin** temporarily. An online portal has also been launched recently to ease the process.
	  o **Export promotion schemes:** Remission of Duties and Taxes on Exported Products (RoDTEP) has been approved and India has appealed against a WTO ruling that prohibited export related subsidies.
	• **Farmers:**
	  o States have been advised to **issue direct marketing licenses to corporates/ food processing** firms to enable them to buy raw food items from farmers directly so that crowds at mandis are controlled.
	  o **Centre has** asked states to relax some provisions of Agriculture Produce Market Committee **(APMC) Acts** to allow farmers to sell their harvest from multiple locations and to any buyer.
	  o New features of **National Agriculture Market (e-NAM) Platform** were announced to reduce farmer's need to physically come to wholesale mandis for selling their harvested produce.
	• **Banking sector:**
	  o **RBI asked Banks and other financial institutions** to assess impact on their balance sheets, asset quality, liquidity and to promote digital banking among customers.
	  o **Emergency Credit Lines** are being extended by some PSBs at concessional terms to borrowers whose operations are hit by the coronavirus pandemic.
	  o **Recapitalization of Regional Rural Banks (RRBs)** by providing minimum regulatory capital up to 2020-21 to maintain minimum Capital to Risk weighted Assets Ratio (CRAR) of 9% has also been approved.
	  o RBI deferred the implementation of the **Capital Conservation Buffer (CCB) by a year.**
	• **Invest India business immunity platform** has been launched to help businesses and investors get real-time updates on various central and state government initiatives related to COVID-19.
	• **Ministry of Corporate Affairs (MCA)** has said spending of CSR funds for promoting preventive care healthcare infrastructure and disaster management for COVID-19 would be treated as eligible CSR activity.
	• India declared **COVID19 as "notified disaster"** for purpose of providing assistance under **State Disaster Response Fund**.
	• **Major steps taken by RBI to infuse liquidity:**
	  o Conducting a **sell/buy swap auction** worth $2 billion to arrest depreciation of Rupee.
	  o RBI announced **Open Market Operations** to the tune of Rs. 10000 crores.
	  o Adopting **easy money policy by loosening policy rates** such as repo rate, reverse repo rate, MSF and CRR. This has also **widened the monetary policy rate corridor** that will make it attractive for banks to lend rather than to keep money with central bank **(reduction in Reverse RR is larger than RR).**
	  o **Targeted Long-term repo operations (TLTROs):** under this, RBI conducts auctions of term repos of up to three years' tenure for a maximum Rs 1 lakh crore at a floating rate linked to repo rate. This liquidity is deployed in investment-grade corporate bonds, commercial papers and non-convertible debentures.
	  o **Fully accessible route (FAR)** has been introduced as a separate route, to issue certain series of (or special) government securities (G-secs) which will attract no foreign portfolio investor (FPI) limits until maturity (overall FPI limit in G-secs is 6% presently, which may also be revised soon)

	o **Ways and Means Advances (WMA) limit has been raised** by 30% for all states and UTs. (WMA facility enables government to take temporary short-term loans from RBI). RBI constituted an **Advisory Committee under Sudhir Shrivastava** to review the Ways and Means limits.

3.8.2. ATMANIRBHAR BHARAT: WHAT, WHY AND HOW?

Why in news?

Recently, the Prime Minister outlined Rs.20 lakh crore stimulus package which was accompanied with large scale structural reforms.

What does Atmanirbhar Bharat mean?

- Prime Minister in his address stated that India's self-reliance **does not advocate self-centric arrangements.** It is ingrained in the happiness, cooperation and peace of the world.
- It has been clearly specified that this idea of self-reliance is **not about a return to the era of import substitution** or isolationism.
- Elements essential to the proposed concept of Atmanirbhar Bharat are **active participation in post-COVID-19 global supply chains, socio-economic resilience, decentralized localism** through local brands, and developing a **System of Social Trust**.

Atmanirbhar Bharat v/s Import Substitution

Import substitution relied **extensively on imposing high import tariffs** and discouraging foreign trade, while **Atmanirbhar Bharat focuses on reforms and improving ease of doing business,** including for foreign firms in the country.

The Import Substitution model advocated a **centralized, top-down model** whereas Atmanirbhar Bharat emphasizes on **freeing Indian entrepreneurship and innovation** from bureaucratic hurdles.

3.8.3. MEASURES TAKEN FOR HEALTH AND EDUCATION IN THE PACKAGE

Overview

Health and education play a critical role in human development. In the light of this, the package has taken several measures to minimize the damage and simultaneously initiate efforts for capacity building.

Reforms and Enablers announced for the Health Sector

- Leveraging Information Technology**: Rolling out of e-Sanjeevani Tele Consultation Services, capacity building through Virtual learning modules namely iGOT platform and Arogya Setu app for self-assessment and contact tracing.**

- Amendment to Epidemic Diseases Act **to protect Health Workers from public harassment.**
  - o **According to the amendment,** violence against health personnel is a cognizable and non-bailable offence (**It can cause the perpetrator up to 7 years in jail**). Additionally, it has provisions to provide compensation for injury to healthcare service personnel or for causing damage or loss to the property.

Reforms and Enablers announced for Education System

Online Education systems operating during COVID-19

- 12 new SWAYAM PRABHA DTH channels **to be added (in addition to 3 channels that were already earmarked for school education) to support and reach those who do not have access to the internet.**
- 200 new textbooks **have been added to** e-Paathshaala.
  - o E-Paathshaala is a portal/app **developed by NCERT. It** hosts educational resources **including textbooks, audio, video, periodicals, and a variety of other print and non-print materials** for teachers, students, parents, researchers and educators.

Future plan for Technology Driven Education with Equity

- PM eVIDYA: **A programme for multi-mode access to digital/online education is to be launched. Its constituents will be:**
- **DIKSHA portal for school education in states/UTs: Digital content and QR coded Energized Textbooks for all grades (enabling the idea of one nation, one digital platform).**
- **Manodarpan:** It is an initiative for psychosocial support of teachers, students and their families with regard to their mental health and emotional wellbeing in these times.
- **National Foundational Literacy and Numeracy Mission will be launched by December 2020 for ensuring that every child attains Learning levels and outcomes in grade 5 by 2025.**

3.8.4. MEASURES ANNOUNCED FOR MIGRANTS AND URBAN POOR

Overview

The Economic Package tries to ameliorate the hardships faced by poor in general and migrants in particular. This will be effected through measures like credit lines, direct benefit transfers among others.

One Nation One Ration Card Initiative	• **It aims at** creating technology systems **which will be used for** enabling Migrants **to access Public Distribution System (Ration) from** any Fair Price Shop in India **using the same ration card.** • **According to the scheme, all States/UTs will complete full Fair Price Shop automation** (100% National portability) by March, 2021.
Affordable Rental Housing Complexes (ARHC)	• It will be launched under the **Pradhan Mantri Awas Yojana (PMAY)** by converting government funded housing in the cities into ARHC **under PPP mode** through concession based arrangements.
Measures in relation to Self-help groups (SHGs)	• **Disbursal of Revolving Fund (RF)** to SHGs was on-boarded on **PAiSA Portal** on a pilot basis in Gujarat and is now being rolled out across all the States.

	o **Portal for Affordable Credit and Interest Subvention Access (PAiSA):** It is a centralized electronic platform for processing interest subvention on bank loans to beneficiaries under Deendayal Antyodaya Yojana.

3.8.5. MEASURES ANNOUNCED FOR RURAL DEVELOPMENT, AGRICULTURE AND ALLIED SECTORS

Overview

The package aims to mitigate the challenges faced by farmers through measures like direct assistance, opening credit lines etc. But simultaneously it also initiates structural reforms such as infrastructure development, encouraging Micro Food Enterprises etc. to make the sector more robust and resilient.

Agri Infrastructure Fund for farm-gate infrastructure	• The fund would emphasize on development of **farm-gate & aggregation point infrastructure** and also affordable and financially viable **Post Harvest Management infrastructure.** • **Farm-gate infrastructure** refers to infrastructure which is **accessed by the primary producers** of agricultural commodities e.g. temporary storage facility. In this case, it benefits Primary Agricultural Cooperative Societies, Farmers Producer Organisations and Agriculture entrepreneurs among others.
Scheme for Formalisation of Micro Food Enterprises (MFE)	• The Scheme aims to **help almost 2 lakh MFEs** who are facing **multiple issues** like limited access to capital, lean workforce, vulnerability to sudden market changes, low-risk appetite and high dependency on supply chains. • MFEs refer to food based organizations which lie in the micro category of MSME definition. For example, Farmer Producer Organisations, Self Help Groups and Cooperatives.
From 'TOP' to TOTAL	• **Operation Greens** which was earlier limited to **Tomatoes, Onion and Potatoes (TOP)** will be expanded to **All fruits and vegetables (TOTAL).** o Operation Greens is a project which aims to **stabilise the supply of TOP crops in India**, as well as to ensure their availability around the country, year-round **without price volatility.** • **Scheme will have following features:** o **50% subsidy on transportation** from surplus to deficient markets. o **50% subsidy on storage,** including cold storages. o The scheme will be implemented as a **pilot for 6 months,** post that it will be expanded and extended. • **Expectations from the scheme:** o **Rekindle the disrupted supply chains** and as a result address the dormancy of the agricultural markets post COVID-19. o **Preventing distress sale** and reduction of price of perishable fruits and vegetables at the farm level. • In the long term, it may lead to **better price realisation** to farmers, **reduced wastages** and **increased affordability of products** for consumers.
Pradhan Mantri Matsya Sampada Yojana (PMMSY)	• The scheme aims to **bring about Blue Revolution** through sustainable and responsible development of fisheries sector in India. o **Rs 11,000 Crore** has been allocated for activities in **Marine, Inland fisheries and Aquaculture** whereas **Rs. 9000 Crore** for **Infrastructure** - Fishing Harbours, Cold chain etc. • **Objectives of PMMSY-** Enhancing fish **production,** export **earnings,** productivity in **aquaculture,** domestic **fish consumption** and reduction of **post-harvest losses.** • **Intended Beneficiaries of the scheme:** Fishers, Fish farmers, Fish workers, Fish vendors, SCs/STs/Women/Differently abled persons, Fisheries cooperatives/Federations, FFPOs, Fisheries Development corporations, Self Help Groups (SHGs)/Joint Liability Groups (JLGs) and Individual Entrepreneurs. • **Implementation strategy of the scheme:**

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	o The PMMSY will be implemented as an **umbrella scheme** with two separate Components namely **(a) Central Sector Scheme** (CS) and **(b) Centrally Sponsored Scheme (CSS).** o **'Cluster or area-based approach'** would be followed with requisite forward and backward linkages and end to end solutions. o **Collectivization of fishers and fish farmers** through Fish Farmer Producer Organizations (FFPOs) to increase bargaining power of fishers and fish farmers. • **Insurance coverage for fishing vessels** has been **introduced for the first time**. Annual Livelihood support for fishers during ban/lean period would be provided.
	Governance and Administrative Reforms
Amendments to Essential Commodities Act, 1955 (ECA, 1955)	• Agriculture food stuffs including **cereals, edible oils, oilseeds, pulses, onions and potato** to be removed from ambit of EC Act and thus deregulated. • **Stock limits will not be imposed on these commodities** except in case of national calamity or famine or an extraordinary surge in prices. However, these limits will not apply to processors or value chain participant or any exporter subject to the export demand.
Agriculture Produce Price and Quality Assurance	• A **facilitative legal framework** is to be created to enable farmers for engaging with processors, aggregators, large retailers, exporters etc. in a fair and transparent manner. • **Risk mitigation** for farmers, **assured returns and quality standardisation** are envisaged to be an integral part of the framework. • **Need for this such a framework:** Generally, farmers **don't have an enforceable standard mechanism** to ensure predictability in the prices of commodities before sowing.

Other Initiatives Announced in the Package

National Animal Disease Control Programme	• **It was launched for** Foot and Mouth Disease (FMD) **and** Brucellosis. • **More about the Programme:** o **It ensures** 100% vaccination of cattle, buffalo, sheep, goat and pig population **(total 53 crore animals) for aforesaid diseases.** o **Till date, about** 1.5 crore cows & buffaloes **have been vaccinated and tagged.**
Animal Husbandry Infrastructure Development Fund	• The fund aims to **support private investment** in **Dairy Processing**, **agricultural value addition** and **cattle feed infrastructure**. • Under the scheme, incentives will also be given for **establishing plants for export of niche products** within the animal husbandry sector.
Promotion of Herbal Cultivation	• Government envisages to cover 10,00,000 hectares of land under Herbal cultivation in next two years with outlay of Rs. 4000 crore. • Other steps for promoting herbal cultivation: o **National Medicinal Plants Board (NMPB)** has supported **2.25 lac hectare area** under cultivation of medicinal plants. o NMPB will bring 800 hectares area under herbal cultivation by developing a **corridor of medicinal plants along the banks of Ganga.** o NMPB also aims at creation of a **network of regional Mandis for Medicinal Plants.**

3.8.6. INDUSTRIAL SECTORAL REFORMS ANNOUNCED IN THE PACKAGE

Overview

Policy and structural Reforms have been announced For Fast-Track Investments and upgrading infrastructure to boost growth and create jobs in the country.

Significant Measures Announced

Sectors	Measures Taken
Coal	• **Introduction of Commercial Mining in Coal Sector** o The objective is to **reduce the import of substitutable coal** and **increase self-reliance in production of coal.** o To achieve these, government has envisaged following reforms: ✓ Changing **partnership pattern** with private sector to **revenue sharing mechanism** from the regime of fixed Rupee/tonne. > Earlier, only captive consumers with end use ownership could bid for a coal block. Post these reforms, **any party can bid for a coal block and sell in the open market.** ✓ **Entry Norms** for the sector will be **liberalized.** ✓ Opening of an **Exploration-cum-production regime for partially explored blocks:** > **Private sector participation in exploration** has also been allowed.

	• **Diversified Opportunities in Coal Sector**
	  o **Coal Gasification/Liquefaction will be incentivised** through rebate in revenue share.
	• **Liberalization of Coal Sector**
	  o **Coal Bed Methane (CBM) extraction rights** will be **auctioned from Coal India Limited's (CIL)** coal mines.
	  o **Reserve price in auctions for non-power consumers has been reduced**, credit terms have been eased, and lifting period has been enhanced.
	    ✓ The **reserve price** is the lowest **price** at which a seller is willing to sell an item. If at the close of **auction**, the bidders have not met the **reserve price**, the seller is not obligated to sell.

Mineral	• **Enhancing Private Investments** in the Mineral Sector by:
	  o Introduction of a **seamless composite exploration-cum-mining-cum-production regime.**
	  o Introduction of a **new mechanism for joint auction of Bauxite and Coal** mineral blocks to enhance competitiveness of Aluminium Industry. This will help aluminium industry in reduction of electricity costs.
	• Other Policy Reforms:
	  o **Removal of distinction between captive and non-captive mines** to allow transfer of mining leases and sale of surplus unused minerals. This will lead to improved efficiency in both mining and production.

Civil Aviation	• **Efficient Airspace Management**
	  o The primary aim of this reform is to **Reduce Flying cost.**
	  o Currently, only **60% of the Indian airspace is freely available. Now, restrictions on utilisation of the Indian Air Space will be eased** so that civilian passenger flying becomes more efficient and affordable.
	• **Airports:** The reform measures aim to create **more World class Airports in India** through PPP mode.
	• **Maintenance, Repair and Overhaul (MRO)**
	  o India aims to become a **global hub for Aircraft MRO operations.**
	  o To enable this, **tax regime for MRO ecosystem** in India has been **rationalized** and also **convergence between defence sector and the civil MROs will be established to create economies of scale.**

Housing	• **Extension of Registration and Completion Date of Real Estate Projects under RERA**
	  o The primary objective of this measure is to **de stress real estate developers** and **ensure timely completion of projects**, keeping the ultimate consumer in mind.
	  o To ensure this, the Ministry of Housing and Urban Affairs will advise States/UTs and their Regulatory Authorities to the following effect:
	    ✓ Treating COVID-19 as an **event of Force Majeure** by Real Estate Regulatory Authority (RERA).
	
	Force majeure is a **common clause in contracts that essentially frees both parties** from liability or obligation when an extraordinary event or circumstance beyond the control of the parties, such as a war, strike, riot, crime or epidemic occurs.

DISCOMs	• **Liquidity Infusion for Power Distribution Companies (DISCOMs)**
	  o This infusion will be done by Power Finance Corporation/Rural Electrification Corporation.
	• **Policy Reforms Recommended for Power Distribution Companies (DISCOMs)**
	  o **Tariff Policy** laying out the following reforms will be released:
	    ✓ **Protecting Consumer Rights** by stating of Standards of Service and associated penalties for DISCOMs.
	    ✓ **Promoting Industry** by progressive reduction in cross subsidization of commercial and residential supply and time bound grant of open access to the grid.
	    ✓ **Ensuring sustainability of the sector** by ensuring that there are minimal Regulatory Assets, timely payment to Power Generating Companies and installation of Smart prepaid meters.
	  o **Privatization of Distribution in Union Territories (UTs)**

Banking	• **Special Liquidity Scheme for NBFCs/HFCs/MFIs**
	  o Under this scheme **investment will be made in both primary and secondary market transactions** in investment grade debt paper of Non-banking Financial Corporations (NBFCs)/ Housing Finance Corporations (HFCs)/Micro-finance Institutions (MFIs).
	• **Partial Credit Guarantee Scheme (PCGS) 2.0 for NBFCs**
	  o The government had **launched the PCGS** for public sector banks (PSBs) (**in 2019**) to purchase high-rated pooled assets from financially sound NBFCs and HFCs.
	  o **Operational details of PCGS 2.0:**
	    ✓ The existing **PCGS scheme is to be extended** to **cover borrowings** such as primary issuance of Bonds/ Commercial Papers (liability side of balance sheets) of such entities.
	    ✓ **The first 20% of loss** on default will be **borne by the Guarantor** i.e. Government of India.
	    ✓ **AA rated commercial paper and below** including unrated commercial paper will be eligible for investment (which is especially relevant for many MFIs).

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Policy Reforms Announced for Other Sectors

Social Infrastructure	• Boosting private sector investment **in Social Infrastructure through revamped Viability Gap Funding (VGF) Scheme.** • **Under it, government will** enhance the quantum of VGF to upto 30% **each by Centre and State/Statutory Bodies of the Total Project Cost.**

Defence Production	• **Enhancing Self Reliance in Defence Production**
	• Other Policy Reforms
	  o **Foreign Direct Investment (FDI) limit** in the defence manufacturing sub-sectors under automatic route has been **raised from 49% to 74%.**
	  o Time bound defence procurement process and faster decision making will be ushered in.

Space Activities	• **Boosting private sector participation** in Space activities by:
	  o Provide **level playing field** for private companies in satellites services, launches and other space based services.
	  o **Allow Private sector players to use ISRO facilities** and relevant assets to improve their capacities.
	  o **Open Future projects** for planetary exploration, outer space travel etc. to private sector.
	  o Provide a **liberal geo-spatial data policy** for providing remote sensing data to tech entrepreneurs.

Atomic Energy	• Establishing a research reactor in PPP mode for **production of medical isotopes** in order to promote welfare of humanity through affordable treatment for cancer and other diseases. • Establishing facilities in PPP mode to use **irradiation technology** for food preservation to compliment agricultural reforms and assist farmers. • Link India's robust start-up ecosystem to nuclear sector - **'Technology Development cum Incubation Centres'** will be set up for fostering synergy between research facilities and tech entrepreneurs emerging from new start-up ecosystem.

3.8.7. MEASURES ANNOUNCED FOR BUSINESSES IN GENERAL (INCLUDING MSMES)

Overview

The package tries to increase liquidity among businesses by measures like collateral free loans and simultaneously pushes for long overdue economic reforms like increasing the Ease of doing business.

Significant Measures Announced

Measures relating to Employee's Provident Fund (EPF)	

EPF contribution reduced for Business & Workers for 3 months	• The primary aim of the scheme is to **provide Liquidity Support to businesses and workers** who are **not eligible for EPF support under PMGKP** and its extension.
	• **Under it:**
	  o **Statutory PF contribution of both employer and employee** will be reduced to 10% each from existing 12% each for all establishments covered by EPFO for June, July and August 2020.
	  o **CPSEs and State PSUs** will however **continue to contribute 12%** as employer contribution.

Reforms and Enablers Announced for Ease of Doing Business

Sub-sector	Specific reforms and Enablers
Reforming Governance	• Government is working in mission mode towards the **next phase of Ease of Doing Business.** o It includes **easy registration of property, faster disposal of commercial disputes** and a **simpler tax regime.**
Corporate Law measures	• As part of decriminalization of Company Law defaults in 2018, **16 compoundable offences such as** shortcomings in CSR reporting, inadequacies in board report, filing defaults, delay in holding Annual General Meeting (AGM) **have been decriminalized.** • Adoption of an Integrated Web based Incorporation Form namely **Simplified Proforma for Incorporating Company Electronically Plus (SPICe+)** which extends 10 services of different Ministries and one State Government service through a single form.
Insolvency and Bankruptcy Code (IBC) related measures	• Minimum **threshold to initiate insolvency proceedings has been raised** to Rs. 1 crore (from Rs. 1 lakh, which indirectly insulates MSMEs). • **Special insolvency resolution framework** for MSMEs. • Accounting the distress created by COVID-19, **fresh initiation of insolvency proceedings** up to one year **has been suspended** depending upon the pandemic situation. • Central Government has been empowered to **exclude COVID-19 related debt from the definition of "default"** under the Code for the purpose of triggering insolvency proceedings.

Other measures	• **Direct listing of securities** by Indian public companies has been made permissible in **foreign jurisdictions.** • **Private companies** which list **Non-convertible Debentures (NCDs)** on stock exchanges will **not be regarded as listed companies.** This will indirectly ease the compliance issues faced by private firms when classified as listed companies. o NCDs are a **debt instrument** with a **fixed tenure** and people who invest in these receive **regular interest at a certain rate.**

3.8.8. MEASURES ANNOUNCED EXCLUSIVELY FOR MSME SECTOR

Overview

The MSME sector has been **disproportionately affected by the pandemic due to its informal nature**. In the light of this, various measures have been taken **to increase liquidity** and provide **long term reforms**.

Significant Measures Announced

Subordinate Debt for Stressed MSMEs	• **This scheme aims to support to stressed** MSMEs which have Non-Performing Assets (NPAs). • **Under the scheme,** promoters of MSMEs will be given debt from banks, **which will be infused into the MSMEs as equity.** • **The government will facilitate Rs 20,000 crore of subordinate debt to MSMEs. For this purpose, it will provide** Rs 4,000 crore to the Credit Guarantee Fund Trust for Micro and Small Enterprises, **which will provide partial credit guarantee support to banks providing credit under the scheme.** **About CGTMSE** Government of India launched **Credit Guarantee Scheme (CGS)** to strengthen credit delivery system and facilitate flow of credit to the MSE sector. To **operationalize this scheme**, Government of India and SIDBI set up the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE). **What is Subordinate debt?** Capital distribution of any entity can be broadly divided in 5 categories as shown in the image. In the case of liquidation of the entity, subordinated debt is the loan that's paid after all other corporate debts and loans are repaid.
Equity infusion for MSMEs through Fund of Funds	• The scheme aims to create a **fund of funds** with a **corpus of Rs. 10,000 crore** for long-term equity infusion in MSMEs. • **Operational Mechanism:** o The Fund of Funds will be operated through **a Mother Fund and few daughter funds.** o This fund structure will help **leverage Rs. 50,000 crore of funds** at daughter funds level. • The scheme will help to **expand MSME size as well as capacity and** it may also encourage MSMEs to **get listed on Stock Exchanges.**
Revised Definition of MSMEs	• **Changes announced in the definition:** o Introduction of **additional criteria of turnover.** o **Distinction** between **manufacturing and service** sector to be **eliminated.**

3.8.9. GENERAL POLICY REFORMS ANNOUNCED AS PART OF THE ECONOMIC PACKAGE

Significant Measures Announced

Support provided to State Governments
• **Centre has extended fiscal support to states in the form of devolution of taxes, revenue deficit grants, advance release of SDRF and amount released from Health Ministry for direct anti COVID-19 activities.**
• Increase in borrowing limits: **The borrowing limits of state governments will be** increased to 5% **of Gross State Domestic Product (GSDP)** from 3% **(prescribed in Fiscal Responsibility and Budget Management (FRBM) Act) for the year 2020-21.**
o **There will be** unconditional increase of up to 3.5% of GSDP **followed by 0.25% increase linked to reforms on -** universalisation of 'One Nation One Ration card', Ease of Doing Business, power distribution and Urban Local Body revenues**.**
o **Further, there will be an increase of 0.5% if three out of four reforms are achieved.**
<table><tr><td>**Requirements of Conditional transfer** • **One nation one ration card:** Aadhaar seeding of all ration cards and installation of Point-of-sale machine in all fair price shops. • **Ease of Doing Business (EoDB):** District-level assessment of EoDB as per DPIIT norms, automatic renewal of State industrial and commercial licenses to businesses and making inspections randomized with prior notice and full transparency. • **Power Sector:** Reduce Aggregate Technical & Commercial (ATC) losses, Reduce Average Cost of Supply (ACS)-Average Revenue Realized (ARR) gap and provide power subsidy to farmers through DBT. • **Urban local bodies:** Notification of property tax floor rates in consonance with circle property rates and notification of water and sewerage charges.</td></tr></table>
Taxation measures announced to ease the liquidity situation
• Tax Deducted at Source (TDS)/ Tax Collected at Source (TCS) rate reduction
o **This measure aims to** increase liquidity (estimated at Rs. 50,000 crore) **by indirectly increasing the in-hand income.**
<table><tr><td>**TDS vs. TCS** • **TDS** refers to **deduction of tax by the payer.** E.g. Employer cutting a certain amount as TDS before making salary payment and then paying it to the Income Tax (IT) department. TDS deductions are made on payments including salary, rent, brokerage, professional fees, commission, interest etc. and are applicable on payments above a specified limit. • On the other hand, **TCS** refers to the **tax collected by payee** or receiver. E.g. A jeweller selling jewellery would collect TCS and pay it to the IT department. It is applicable on sale of certain goods (barring those used for manufacturing or production).</td></tr></table>

Other Policy Measures

Public Sector Enterprise Policy for a New, Self-reliant India	• **Government will announce a new policy whereby:**
	  o List of strategic sectors **requiring presence of PSEs in public interest will be notified.**
	  o In strategic sectors, at least one PSE will remain **in the public sector, but private sector will also be allowed.**

Policy Reforms to fast track Investment	• **Fast track Investment Clearance** will be provided to projects through **Empowered Group of Secretaries (EGoS).** o Prime Minister has created **11 empowered groups as quick response teams** to tackle coronavirus outbreak. • Creation of **Project Development Cell in each Ministry** to prepare investible projects, coordinate with investors and also with Central/State Governments. • **Ranking of States on Investment Attractiveness**, thus creating healthy competition for new investments. • **Incentive schemes for Promotion of New Champion Sectors** will be launched in sectors such as Solar PV manufacturing, advanced cell battery storage etc.
Upgradation of Industrial Infrastructure	• A scheme will be **implemented in States** (through Challenge mode) to effect **Industrial Cluster Upgradation of common infrastructure** facilities including connectivity. • Increasing availability of **Industrial Land/ Land Bank** for promoting new investments. • **Making information** relevant to industries **available** on the **Industrial Information System (IIS)** along with accurate GIS mapping. o 3376 industrial parks/estates/SEZs in 5 lakh hectares mapped on **Industrial Information System (IIS).**

3.8.10. REPORTS RELATED TO COVID-19

Why in news?

Recently, the United Nations Secretary General, released a report **titled "Shared Responsibility, Global Solidarity: Responding to socio-economic impacts of Covid-19",** for the immediate health response required to tackle the many social and economic dimensions of crisis.

More on news

- Along with the report the United Nations also established a new **Multi-Donor Trust Fund for COVID19** Response and Recovery to support low- and middle-income countries.

About the Multi-Donor Trust Fund
- The Fund will complement the **World Health Organization (WHO)'s** Strategic Preparedness and Response Plan, and the **UN Office for the Coordination of Humanitarian Affairs** (OCHA)'s Consolidated Global Humanitarian Appeal for COVID-19.
- The Fund has **three aims,** with a finance window for each one: stop transmission of the virus, protect the most vulnerable from its socio-economic impacts, and make countries more resilient to future health crises.
  - o Window 1, **'Enable governments and communities to tackle the emergency,'** will support countries to fully implement their National Action Plans for Health Security (NAPHS).
  - o Window 2, **'Reduce social impact and promote economic response,'** will support immediate social protection measures including cash transfers and food security.
  - o Window 3, **'Recover better,'** focuses on national preparedness measures such as maintenance of key services and workforces during crises, and laboratory capacity.
- The Fund's **contribution will be monitored,** with real-time information on activities **made available online.**

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4. ENVIRONMENT

4.1. POLLUTION

4.1.1. SUPREME COURT BARS SALE, REGISTRATION OF BS IV VEHICLES

Citing the COVID-19 pandemic, Supreme Court (SC) had extended the March 31, 2020 deadline for the sale and registration of BS-IV emission norm-compliant vehicles. It has now completely barred any sale or registration of BS IV vehicles.

Evolution of emission norms

- The **first stage of mass emission norms** came into force for petrol vehicles in **1991 and in 1992** for diesel vehicles.
- In 2000, passenger cars and commercial vehicles were met Euro I equivalent **India 2000 norms (Bharat Stage)**.
  - **Bharat Stage Norms** are the **standards set up by Central Pollution Control Board (CPCB)** to regulate the output of air pollutants from internal combustion engines and spark-ignition engine equipment, including motor vehicles.
  - **The exhaust gases now covered under the norms are:** Carbon monoxide, Hydrocarbons, oxides of nitrogen (NOx) and Particulate matter.
  - These norms are based on the European standards.
- Due to drastic rise in air pollution specially in Delhi and other parts of North India, **India in 2016 decided to skip the BS-V norms altogether and adopt BS-VI norms by 2020**.
- Further in 2018, SC had ruled that **no BS-IV vehicle would be sold or registered in India from April 1, 2020.**

Major standards under BS VI

- BS VI requires **both automobile manufacturers as well as oil marketing companies** to tweak their respective products.
  - A vehicle with BS-VI compliant engine will require BS-VI fuel. If a BS-VI vehicle uses BS-IV-grade fuel, it won't be able to adhere to the BS-VI emission norms. Similarly, if a BS-IV vehicle uses BS VI-grade fuel, its engine will increase emissions.

How is BS-VI better than BS- IV?

- **Nitrogen oxide** level for BS VI-grade diesel engines and petrol engines will be brought down by 70% and 25%, respectively.
- BS VI also reduces the **particulate Matter (PM) limit by 80% from BS IV for diesel vehicles** and introduces PM limit for petrol vehicles.

- In addition to emission standards for new vehicles, the regulations provide specifications for reference and commercial fuels.
  - **The sulphur traces** in BS VI fuel is five times lower (10 ppm) as compared to sulphur traces in BS IV fuel (50 ppm), which is a **reduction of 80%.**
- **Diesel Particulate Filter (DPF)** and **Selective Catalytic Reduction (SCR)** are being introduced with the roll-out of BS VI norms, which were not a part of BS IV.
  - SCR **converts NO and NO2 to molecular nitrogen and oxygen** by reacting the NOx with ammonia in the presence of a catalyst. It thus reduces the harmful NOx emission.
- **Real Driving Emission (RDE)** will be introduced in India for the first time with the implementation of Bharat Stage VI emission norms.
  - It will measure a vehicle's emission in real-time conditions against laboratory conditions.
- **Onboard Diagnostics (OD)** has been made mandatory for all vehicles which will give the vehicle owner or repair technician access to the status of the various vehicle sub-systems.

4.1.2. BLACK CARBON LEVELS SPIKE AT HIMALAYAN GLACIERS

- Study conducted on black carbon (BC) concentration near Gangotri Glacier revealed that BC concentration in the region **increased by 400 times during summer**.
  - This is due to emissions resulting from **agriculture burning** (in western part of the country), **forest fires** (along the Himalayan slopes) **in summer** and long-range transport of pollutants in winter.
- This concentration **accelerates melting of glaciers** in the Himalayas and Tibet.
  - Himalaya-Hindu-Kush and Tibetan Plateau, which are collectively referred to as the Third Pole (TP), contain the largest ice mass on the planet outside of the polar regions.

About Black Carbon

- It is a solid particle or aerosol (and not a gas). It results from **incomplete combustion** of fossil fuels and biomass. They absorb light and about a million times more energy than CO_2.

- It is said to be **second largest contributor** to climate change after CO2. It is **short-lived** and remains in the atmosphere only for days to weeks, before it descends as rain or snow.
- When it falls to earth, it darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow and hastening melting.

Overview of The Hindu Kush Himalaya

Total Area	4.2 Million Sq. km
Countries	Afghanistan, Pakistan, India, China, Nepal, Bhutan, Myanmar, Bangladesh
Major River Basins	Amu Darya, Indus, Brahmaputra, Irrawaddy, Ganga Salween, Tarim, Yangtze, Yellow River, Mekong

Estimated number of People at disaster risk in India 337.8 Million

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Brown Carbon
- "Brown carbon" (light-absorbing organic carbon) has attracted interest as a possible cause of climate change. This class of organic carbon, known for its light brownish color, **absorbs strongly in the ultraviolet wavelengths** and less significantly going into the visible.
- **Types of brown carbon** include **tar materials** from smoldering fires or coal combustion, breakdown products from biomass burning, a mixture of organic compounds emitted from soil, and volatile organic compounds given off by vegetation.
- Black Carbon (BC) is emitted mainly by high-temperature combustion processes (diesel engines, etc.) and Brown Carbon (BrC) mainly by biomass combustion.

4.1.3. URANIUM CONTAMINATION IN GROUNDWATER

Why in news?

A new study conducted by the University of Manchester, UK and Mahavir Cancer Institute and Research Centre, Patna has found **uranium contaminating the groundwater in 10 districts of Bihar.**

More about news

- This is the first time that uranium content has been detected in groundwater in Bihar.
- Uranium concentrations are elevated mostly in the North West-South East band along and to the east of Gandak river and running south of the Ganga river towards Jharkhand.

Uranium contamination in India

- The permissible limit according to the **World Health Organization (WHO) is 30 microgram per litre.**
- However, unlike the limits for arsenic and other toxic or heavy metals specified in the Bureau of Indian Standards' Drinking Water Specifications, there is **no limit maintained for uranium.**
- Uranium can cause serious ailments such as thyroid cancer, chronic kidneys disease, blood cancer, depression and other serious ailments.
- The source of uranium is **naturally occurring**, but human activities like over pumping enhance the uranium problem.
  - o In many parts of India, **aquifers** are composed of **sediment carried down** from the Himalayas by streams or from **uranium-rich granitic rocks**.
  - o **Overuse of these aquifers for human use reduces the water level** and creates oxidising conditions, which enhance the uranium's solubility in water.
  - o Interaction of the uranium with other chemicals in the groundwater, such as bicarbonate, can further enhance its solubility.
  - o Similarly, Nitrate pollution due to overuse of nitrogenous fertilizers is also thought to enhance uranium mobilisation.

Solutions

- **Ex situ Treatment** of radioactive contaminants in ground water such as:
  - o **Adsorption or ion exchange**: The water soluble contaminants are captured by sorption (absorption and adsorption considered as a single process) onto a solid support that can be natural or synthetic material.
  - o **Precipitation**: This is mostly practiced above ground and involves addition of alkali to raise the pH & precipitate the oxide or hydroxide.
- Remedial strategies based on **in-situ chemical stabilization** such as:
  - o **Redox Technologies**: These technologies attempt to manipulate oxidation-reduction conditions of the subsurface to reduce uranium to uranous (uranium IV) forms.
  - o **Flushing Technologies**: This group of remediation technologies uses a variety of leaching solutions to dissolve solid-phase uranium and hydraulic extraction techniques to remove the solubilized uranium.

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HIGH on URANIUM

Studies in 2018 have found uranium traces in the groundwater of 79 districts in 16 states.

JAMMU & KASHMIR
HIMACHAL PRADESH
HARYANA
UP
PUNJAB
RAJASTHAN
GUJARAT
MAHARASHTRA
KARNATAKA
TAMIL NADU
WB
JHARKHAND
ODISHA
CHHATTISGARH
TELANGANA
ANDHRA PRADESH

Number of districts with uranium traces in groundwater
States and boundaries are shown as in 2018
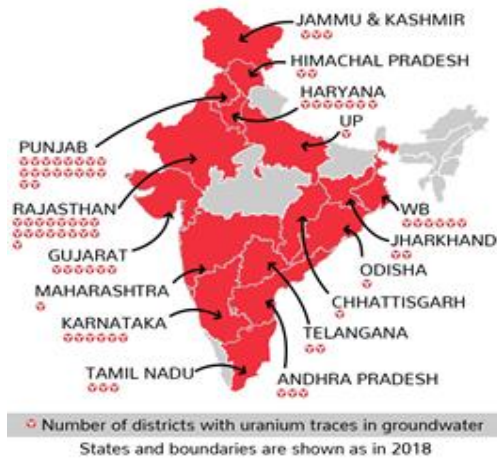
4.2. CLIMATE CHANGE

4.2.1. ARCTIC OZONE HOLE

Why in news?

A rare hole that had opened up in the ozone layer above the Arctic got closed recently. Similar low ozone levels occurred in the Arctic in 1997 and 2011.

More on news

- An analysis of data from the **Copernicus Sentinel-5P satellite** show that ozone levels reached their **lowest point at 205 Dobson units**.
- Later on, **Polar Vortex split** due to rising temperature with onset of summer, allowing ozone-rich air into the Arctic led to healing of the ozone hole.

- **Dobson Unit** is the most common unit for measuring ozone concentration. One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 degrees Celsius and a pressure of 1 atmosphere.
- Over the Earth's surface, the **ozone layer's average thickness is about 300 Dobson Units** or a layer that is 3 millimeters thick.

Why did the Arctic ozone hole form this year?

- A major reason for the 2020 Arctic ozone hole is that **polar vortex** during winter was **"incredibly strong and persistent"** this year.
  - o The polar vortex is a **large area of low pressure and cold air** surrounding both of the Earth's poles. It always exists near the poles but **weakens in summer** and **strengthens in winter**.

- o Term **"vortex"** refers to **counterclockwise flow of air** that helps keep colder air near the Poles.
- This led to **frigid Arctic air** staying mostly locked in the Arctic, rather than wobbling around and spilling extremely cold air into places like the U.S.
- This stable, profoundly cold air (below -78°C) allowed formation of **Polar Stratospheric clouds (PSCs).** PSCs create conducive environment for chlorofluorocarbons (CFCs) to react with sunlight, which then makes **chlorine, the chemical that ultimately destroys ozone**.
- Moreover, robust **polar vortex prevented ozone-rich air from other regions from washing into the Arctic,** which kept ozone levels depleted.

Why Arctic Ozone hole is rare compared to Antarctic Ozone Hole?

- While ozone holes developing over the Antarctic every year are common during Southern Hemisphere spring, the conditions needed for such strong ozone depletion are not normally found in the Northern Hemisphere.
- The Arctic stratosphere is usually **less isolated than its Antarctic counterpart** because the presence of nearby land masses and mountain ranges disturbs the weather patterns more than in the Southern Hemisphere.
- This explains why the **polar vortex in the Northern Hemisphere is usually weaker** and **more perturbed** than in the Southern Hemisphere, and temperatures do not fall so low.
- Arctic ozone hole is thus unusual in that we only have events like this **about once per decade. On the contrary, the Antarctic ozone hole is being recorded** annually over the last 35 years.

Related news

- A research published in journal Nature notes that **ozone layer is continuing to heal and could recover completely**.
- The recovering ozone hole might have been a result of the **1987 Montreal Protocol**. Montreal Protocol is a global agreement to protect the **stratospheric ozone layer** by phasing out **ozone-depleting substances (ODS)** such as chlorofluorocarbons.
- **Ozone depletion cools the stratospheric air** (when it's intact, the ozone layer absorbs UV light, which warms the stratosphere), strengthening the winds of polar vortex and affecting winds down to lowest layer of Earth's atmosphere.
- Ultimately, ozone depletion has **shifted the mid-latitude jet stream and dry regions** at the edge of tropics toward South Pole.
- **Since 2000, circulation of Southern Hemisphere stopped expanding** poleward - a pause or slight reversal of earlier trends.

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- Ozone layer in stratosphere **keeps out harmful ultraviolet radiation from sun**.

4.2.2. ANTARCTICA EXPERIENCES FIRST KNOWN HEAT WAVE

Why in news?

Scientists have recorded Antarctica's first documented heat wave. The heat wave event was recorded in East Antarctica during the 2019-2020 southern hemisphere summer.

- **Heatwaves are classified as three consecutive days** with both extreme maximum and minimum temperatures.

What caused the heatwave?

- During the spring of 2019 a strong warming of the stratosphere over Antarctica significantly reduced the size of the ozone hole. This helped to support a more **"negative" state of the Southern Annular Mode (SAM)**. This led to ingress of warm air from the lower latitude.
  - The SAM, also known as the Antarctic Oscillation (AAO), refers to the (non-seasonal) north-south movement of the strong westerly winds that blow almost continuously in the mid- to high-latitudes of the southern hemisphere.
- **Other factors in late 2019 may have also helped** to warm Antarctica.
  - The **Indian Ocean Dipole** was in a strong "positive" state due to a late retreat of the Indian monsoon. This meant that water in the western Indian Ocean was warmer than normal.
  - Air rising from this and **other warm ocean patches in the Pacific Ocean** provided energy sources that altered the path of weather systems and helped to disturb and warm the stratosphere.

Why is it significant?

- Antarctica may be isolated from the rest of the continents by the Southern Ocean but has **worldwide impacts**. It drives **the global ocean conveyor belt**, a constant system of deep-ocean circulation which transfers oceanic heat around the planet, and its melting ice sheet adds to global sea level rise.
- Based on experiences from previous anomalous hot summers in Antarctica, a multitude of biological impacts can be expected to be reported in coming years, illustrating how **climate change is impacting even the most remote areas of the planet**.

Arctic Heat Wave
- Recently, Arctic Circle has recorded temperatures reaching over 38 degrees Celsius in the Siberian town of Verkhoyansk, likely an all-time high.
- Siberia has been recording higher-than-average surface air temperatures since January. In the last decades, there has been an increase of heat wave occurrences over the terrestrial Arctic.
- Rising temperatures are being attributed to large-scale wind patterns that blasted the Arctic with heat, the absence of sea ice, and human-induced climate change, among other reasons.
- Heat wave occurrences in this region have already started to threaten local vegetation, ecology, human health and economy.

4.2.3. PEATLANDS

Why in news?
- Water loss in northern peatlands threatens to intensify fires, global warming
- The observation was made by scientists studying **distinct effects of climate change on boreal forests and peatlands.**

About Peatlands
- **They are a heterogeneous mixture of plant material** (mosses, humus etc.) that had accumulated **in a water-saturated area** and are only **partially decomposed due to absence of oxygen.**
- Peatland **covers 3% of global land surface** and are **largest natural terrestrial carbon store.**
- **They are found in** permafrost regions towards the poles and at high altitudes, in coastal areas, beneath tropical rainforest and in **boreal (taiga) forests**.
- Peatlands serves as **natural firebreaks** between sections of forest.
  - **Dehydration exposes** their dense carbon stores **to accelerated decomposition** and turns them **from firebreaks into fire propagators**.
  - **Damaged peatlands** are a major **source of greenhouse gas emissions,** annually releasing almost 6% of global anthropogenic CO_2 emissions.

4.2.4. PETERSBERG CLIMATE DIALOGUE

Why in the news?

11th session of Petersberg Climate Dialogue was held via **video conferences** for the **first time** due to COVID-19 pandemic.

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About Petersberg Climate Dialogue

- It was **launched in 2010 by Germany** after failed climate negotiations at the 2009 Copenhagen Summit.
- It is an **informal annual meeting** of the high-level ministers and representatives of various countries that enables them to have constructive exchanges on the issues of **international climate actions.**
- The **co-chair of the Climate Dialogue i**s the country presiding over the next conference of **United Nations Framework Convention on Climate Change (UNFCCC).**

Highlights of 11th edition of Petersberg climate dialogue

- This edition saw the participation of around **30 countries along with India.**
- It was **co-chaired by Germany and United Kingdom (UK). UK** is the incoming **Presidency** of 26th Conference of Parties to **UNFCCC (COP 26).**

COP26
- It was scheduled to be held in **Glasgow, Scotland** in November 2020, now **postponed to 2021**, due to COVID-19 pandemic.
- This conference was set to have been the **first "global stocktake"** that was outlined in the Paris Agreement.
  - **'Global stocktake'** refers to a proposed review of the impact of countries' climate change actions.

Related News
European Union (EU) unveils European Climate Law
- Climate Law is **in pursuance of European Green Deal** presented last year. Deal aims to make EU **first climate-neutral bloc** in world by 2050.
- Under Climate law **EU's 2050 net zero emissions target** is to be **legally binding.**
- It proposes a new **2030 EU target for greenhouse gas (GHG)** emission reductions.

4.2.5. CLIMATE ADAPTATION AND RESILIENCE FOR SOUTH ASIA (CARE) PROJECT

Why in news?

The World Bank Board of Executive Directors approved a $39.5 million CARE Project **to bolster climate action in South Asia.**

About CARE Project

- The Project will **build resilience to climate threats and disasters** by sharing regional data and knowledge.
  - It will help in **developing regional standards and guidelines** for

infrastructure, and promoting climate-resilient policies and investments.

- It will fund a public domain platform known as **Regional Resilience Data and Analytics Service**, with information about weather hazards, climate variability, and sector-specific data to help policymakers assess climate risks.
- It will also **assess climate impacts** in districts across Bangladesh, Nepal, and Pakistan to support agriculture, livestock, water, and transport.
- The $39.5 million CARE project includes a $36 million grant from the **International Development Association** and **$3.5 million** from the **Program for Asia Resilience to Climate Change.**
- CARE will work with two regional organizations, the **Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)** and **the Asian Disaster Preparedness Center (ADPC).**

International Development Association (IDA)
- IDA is the **part of the World Bank** that helps the world's poorest countries.
- It aims to **reduce poverty by providing loans (called "credits") and grants** for programs that boost economic growth, reduce inequalities, and improve people's living conditions.
- IDA provides significant levels of debt relief through the **Heavily Indebted Poor Countries (HIPC) Initiative** and the **Multilateral Debt Relief Initiative (MDRI).**

Program for Asia Resilience to Climate Change (PARCC)
- It is a trust fund supported by the **United Kingdom's Department for International Development** and **administered by the World Bank.**
- It was launched in 2018 to strengthen disaster and climate resilience in **Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka.**

Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)
- It is an intergovernmental institution **for the generation and application of early warning information.**
- RIMES evolved from the efforts of countries in Africa and Asia, in **the aftermath of the 2004 Indian Ocean tsunami.**
- RIMES **build capacity of its Member States** in the end-to-end early warning of tsunami and hydro-meteorological hazards.
- It operates from its regional early warning center located at the campus of the **Asian Institute of Technology in Thailand.**
- **India is a founding member** and currently chairs RIMES Council.

Asian Disaster Preparedness Center (ADPC)
- It is an **intergovernmental organization that works to build the resilience of people and institutions to disasters** and climate change impacts in Asia and the Pacific.
- **Established**: 1986, **Headquarter**: Bangkok, Thailand.
- It provides comprehensive technical services to countries in the region to support sustainable solutions for risk reduction and climate resilience.
- ADPC is governed by its nine founding member countries: **Bangladesh, Cambodia, China, India, Nepal, Pakistan, the Philippines, Sri Lanka, and Thailand.**

4.3. DISASTER MANAGEMENT

4.3.1. COALITION FOR DISASTER RESILIENT INFRASTRUCTURE

Why in News?

Recently, **UK was confirmed as the first co-chair of the Governing Council** on the India-led global Coalition for Disaster Resilient Infrastructure (CDRI).

About CDRI

- It was **announced by India's PM** at the **UN Climate Action Summit 2019** held in USA and first mooted as an idea in November 2016, while inaugurating an **Asian ministerial conference on Disaster Risk Reduction**.
  - Its other founding members include Australia, Bhutan, Fiji, Indonesia, Italy, Japan, Maldives, Mexico, Mongolia, Rwanda, Sri Lanka, and the UK.
- It is a **voluntary international grouping,** linking governments, UN agencies, banks, private sector groups, and academia to develop the resilience of infrastructure systems to climate and disaster risks.
- It is second **major coalition launched by India outside the UN**, after the International Solar Alliance. Its **secretariat is in New Delhi.**
- CDRI will set **targets for member countries to bring down disaster deaths, economic losses** and strive to achieve the **Sustainable Development Goal.**
  - It will also work at the intersection of the **Sendai Framework for Disaster Risk Reduction** and **the Paris Climate Agreement.**
- **Governing Council** is the **highest policy-making body** of CDRI.
  - It is **co-chaired by India** and a representative of another national government nominated by rotation **every two years.**

- CDRI **will uphold the UN Agenda 2030 principle** of leaving no one, no place, and no ecosystem behind, focusing on the most vulnerable regions and populations, while enabling inclusive and deliberative processes that recognize national and local efforts as primal.

What is Disaster Resilient infrastructure?
- Infrastructure that can stand any huge damage from any kind of natural disaster is known as Disaster Resilient Infrastructure. It encompasses **structural and non-structural measures.**
  - **Structural Measures** involve adjusting engineering designs and standards to reflect disaster risk such as flood control systems, protective embankments, seawall rehabilitation, and retrofitting of buildings.
  - **Non-structural measures** refer to risk-sensitive planning, enabling institutional frameworks, hazard mapping, ecosystem-based management, and disaster risk financing.

4.3.2. COVID-19 AND DISASTER MANAGEMENT

Why in news?

The countrywide spread of COVID-19 led to discussions about better ways to tackle similar nature of disasters.

COVID-19 and Disaster Management: A Perspective

- COVID-19 is the **first pan India biological disaster** being handled by the legal and constitutional institutions of the country.
- It is for the **first time** that a **pandemic** has been recognised as a **'notified disaster'** in the country by the Ministry of Home Affairs (MHA).
- Subsequently the **Disaster Management (DM) Act has also been invoked for the first time in India** to effectively manage this crisis. The current lockdown has been imposed under the DM Act, 2005.

Disaster Management (DM) Act, 2005

DM Act, 2005 is enacted to provide for the effective management of disasters and for matters connected therewith or incidental thereto.

Key Provisions of the Act

- It provides for National Disaster Management Authority (NDMA), State DMA (SDMA) and District DMA (DDMA).
- The **NDMA is the nodal central body** for coordinating disaster management, with the **Prime Minister as its Chairperson**. The NDMA lays down policies, plans and guidelines for management of disaster.
- Act also provides for the **National Executive Committee (NEC) to be headed by Home secretary** and having secretaries from various other departments. NEC is charged with assisting and implementing the policies and plans of NDMA and also to ensure the compliance of directions issued by the Central Government for effective management of disasters.
- **SDMA is chaired by the Chief Minister** and consists of not more than 8 other members. SDMA will lay down the state disaster management policy.
- **DDMA is chaired by DM/Collector**. Elected representative of the local authority shall be the ex officio co-chairperson.
  - In tribal areas under Sixth Schedule, Chief Executive Member of the District Council of autonomous district shall be the ex officio co-chairperson.
- Act provides for **National Institute of Disaster Management** for development of training modules, and to undertake research and documentation in disaster management.
- It also provides for **National Disaster Response Force** for the purpose of specialist response to a disaster.
- Act provides for **National Disaster Response Fund (NDRF) and SDRF and DDRF**. Also, Central government may constitute a fund named **National Disaster Mitigation Fund** for the exclusive mitigation projects. Similar funds may be created at State and District level.

- Every Ministry or department shall make a **provision for disaster management in its annual budget**.
- Act also has **penal provisions** for the violations of its provisions or activities being performed under it.
- Act also **provides for international cooperation** such as with UN in times of disaster.
- Notwithstanding anything contained in any law, **Centre can issue such directions as necessary** to tackle the disaster and every official of the Centre and the **state government shall be bound to comply with such directions.**

The Epidemic Diseases Act

- The Act was applied by states to impose lockdowns.
- The Act **came into effect amidst the outbreak of the bubonic plague in Bombay.**
- It is **India's solitary law** that has been historically used as a framework for containing the spread of various diseases including cholera and malaria.
- The law **authorises the Central and state governments to take "exceptional measures and prescribe regulations"** to be observed by the citizens to contain the spread of a disease.
  - **Section 2 of the Act** states that State Government may take measures and prescribe regulations for the inspection of persons travelling.
- It **also specifies consequences that will be faced by those violating the Act.**
- However, it **does not define** "dangerous", "infectious", or "contagious diseases", and an "epidemic".

4.3.3. CYCLONE MANAGEMENT IN INDIA

Why in news?

Recently, Cyclone 'Amphan' wreaked havoc in the eastern coastal states - West Bengal and Odisha.

More on news

- The storm is only the **second super cyclone to form in the Bay of Bengal** since 1999.
  - According to Indian Meteorological Department (IMD), tropical cyclone with **wind speed more than 222 km/hr** is a super cyclone (highest in Classification).
- The rapid intensification of Amphan is an indication of warming of Bay of Bengal which registered maximum surface temperatures of 32-34°C. This is a **consequence of anthropogenic global warming.**

Cyclone Management in India

- **Institutional Framework in India**
  - **National Disaster Management Authority (NDMA):** It is apex body for disaster management, headed by the Prime

Minister. It has responsibility of formulating **National Guidelines for Management of Cyclones**.
- o **India Meteorological Department (IMD):** It is the nodal agency for **providing cyclone warning services and communicate cyclone warnings** from IMD to communities and important officials in affected areas.
- **National Guidelines for the Management of Cyclones:** These guidelines have been evolved due to paradigm shift from earlier rescue and relief centric approach to holistic approach. It suggests-
  - o **Non – Structural Measures** such as Early Warning Systems (Automatic Weather Stations, Doppler radars etc.), Communication and Dissemination Systems (cellular telephone network, Disaster Warning System terminals) and Management of Coastal Zones (Mangrove forests and shelterbelts).
  - o **Structural Measures** such as adequate numbers of shelters, community centres/school buildings, Construction of 'saline embankments' etc.
- **National Cyclone Risk Mitigation Project (NCRMP):** Government has drawn up NCRMP to be implemented with World Bank assistance of $300 million.
  - o Its objective is to **strengthen the structural and non-structural cyclone mitigation efforts and reduce the risk and vulnerability of the coastal districts** which are prone to cyclones.
  - o **NDMA implements the Project** in coordination with participating State Governments and the National Institute for Disaster Management (NIDM).
  - o NCRMP consists of the following **four components**
    - ✓ **Component A**: Improvement of early warning dissemination system of cyclone warnings.
    - ✓ **Component B**: Cyclone risk mitigation investment like construction of cyclone shelters.
    - ✓ **Component C**: Technical assistance for hazard risk management and capacity building.
    - ✓ **Component D**: Project management and institutional support.

4.3.4. NAMING OF TROPICAL CYCLONES

Why in news?

India Meteorological Department (IMD) released a **list of 169 new names** for tropical cyclones in the north Indian Ocean region.

Naming of tropical cyclones

- Worldwide there are six regional specialised meteorological centres (RSMCs) and five regional Tropical Cyclone Warning Centres (TCWCs) mandated for **issuing advisories and naming of tropical cyclones.**
- **IMD is one of the six RSMCs** and is responsible to name the Tropical Cyclones developing over the **north Indian Ocean** including the Bay of Bengal and the Arabian Sea.
- The new names were contributed by **13 member countries** of **WMO/ESCAP panel on tropical cyclones (PTC) (see box).**
- **Names of cyclones provided by India** are Gati, Tej, Murasu, Aag, Vyom, Jhar, Probaho, Neer, Prabhanjan, Ghurni, Ambud, Jaladhi and Vega.
- Naming for tropical cyclones over **north Indian Ocean commenced** from **September 2004.**
- Naming of cyclone in North Indian Ocean takes place whenever a tropical storm in the north Indian Ocean region **surpasses a wind speed of 62 km/hr.**

About WMO/ESCAP Panel on Tropical Cyclones
- It is an **inter-governmental regional body** jointly established by the World Meteorological Organisation (WMO) and the United Nations Economic and Social Commission for Asia-Pacific (ESCAP) in **1972.**
- It is associated with the Tropical Cyclone Programme of WMO that aims at assisting Members in monitoring and forecasting tropical cyclones to reduce disaster-related losses of life and infrastructure.
- **Objective**:
  - o to promote **measures to improve tropical cyclone warning** systems in the Bay of Bengal and the Arabian Sea
  - o **dissemination of technical information** on tropical cyclone research and forecasting operations.
- **Member countries: India**, Bangladesh, Maldives, Myanmar, Oman, Pakistan, Sri Lanka, Thailand, Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.

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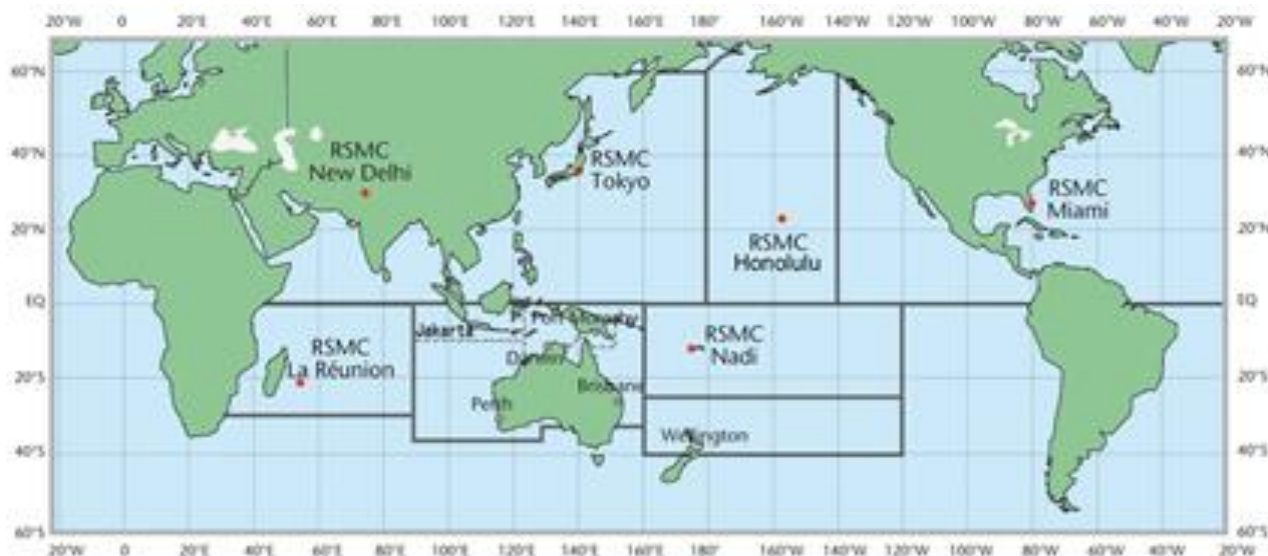
4.3.5. GAS LEAK AT VIZAG

Why in news?

Styrene gas leaked from Vishakhapatnam based LG Polymers India Pvt Ltd. Factory causing multiple deaths.

More on news

NGT has invoked the **principle of Strict Liability** to impose a fine on the LG Polymers India for Vizag Gas leak which was being termed to be in contravention of the **principle of Absolute Liability**. NGT later held that LG Polymers India has absolute liability for the loss of life caused by a gas leak at its factory in Visakhapatnam.

- **Doctrine of Absolute Liability:** This concept evolved in India after the case of **M.C Mehta vs Union of India (1986),** famously known as **Oleum Gas Leak case**.
  - o According to this doctrine as defined by the Supreme Court, the **enterprise owes an absolute and non-delegable duty** to the community to ensure that no harm results to anyone on account of hazardous or inherently dangerous nature of the activity which it has undertaken.
- **The rule of strict liability:** Till the MC Mehta case, India also followed the concept of 'strict liability'. Under the "strict liability principle", a party is not liable and need not pay compensation if a hazardous substance escapes his premises by accident or by an "act of God'" among other circumstances.

What is styrene? How toxic is it?
- Styrene is an **organic compound** used in the manufacture of polymers/plastic/resins. It is manufactured in petrochemical refineries. It is a **likely carcinogenic substance**.

- It is actually a **colourless liquid, and not a gas**. It can react with oxygen in the air to mutate into styrene dioxide which is more lethal.
- Styrene exists as a single molecule, but is unstable and has a **high propensity for autopolymerisation**, meaning it tries to combine with itself to make long chains, especially at temperatures over 65°C. This process is exothermic and can become uncontrollable. For these reasons, **styrene is always stored at relatively low temperatures** (between 15°C and 20°C).
- According to India's Manufacture, Storage and Import of Hazardous Chemical Rules 1989, **styrene is classified as a 'hazardous and toxic chemical'**.
- **Acute (short-term) exposure** to styrene in humans results in mucous membrane and eye irritation and gastrointestinal effects.
- **Chronic (long-term) exposure** results in impacts on the central nervous system (CNS), leading to headaches, fatigue. If the amount of styrene goes beyond 800 ppm, then the person exposed to it can go into a coma.

4.3.6. EARTHQUAKE

- Multiple low magnitude shallow earthquakes hit the Delhi-NCR with their **epicenter in Delhi-NCR.**
  - o **Epicentre** is the point on the earth's surface **vertically above the hypocentre (or focus),** point in the crust where a seismic rupture begins.
- Earthquake is sudden shaking of the ground **caused by the passage of seismic waves** through Earth's rocks.
  - o Seismic waves are produced when some form of energy stored in Earth's crust is suddenly released, usually when masses of rock straining against one another suddenly fracture and "slip."

- Bureau of Indian Standards **has grouped the country into four seismic zones, viz. Zone II, III, IV and V.**
  - These **zones are based on seismicity, earthquakes occurred in the past and tectonic setup of the region.**
  - Zone V is the most seismically active region, while zone II is the least.
    - ✓ Delhi lies in Zone-IV.
- Earthquake can occur anywhere between Earth's surface and about 700 km below the surface divided into three zones: **shallow** (0 – 70 km deep), **intermediate** (70 – 300 km deep), **and deep** (300 – 700 km deep).
  - Shallow quakes tend to be more damaging than deeper quakes.
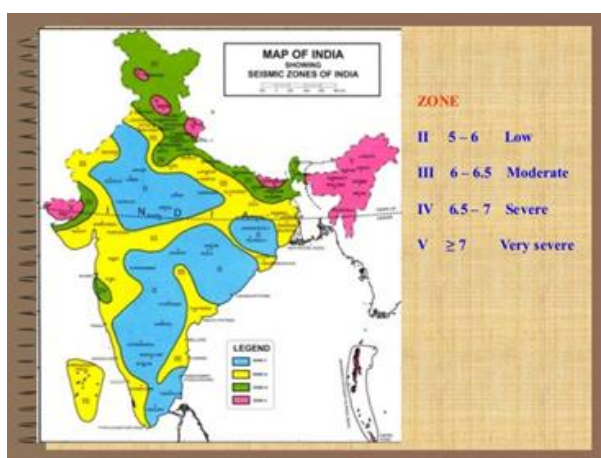
4.3.7. IONOSPHERIC BASED MONITORING OF LARGE EARTHQUAKES

- Scientists at Indian Institute of Geomagnetism (IIG), an autonomous institution of the Department of Science and Technology, have been trying to **study source characteristics of recent large earthquakes (EQ) by studying Ionosphere**.
- Link between **Earthquakes and ionosphere:**
  - Sudden movement in Earth crust during EQs produces pressure waves in atmosphere which propagate upwards till ionosphere (85-1000km)
  - Ionised particles/electrons in ionosphere get redistributed according to the wave, thereby creating **Co-seismic ionospheric perturbations (CIP).**
  - These CIPs are derived using the Global Positioning System (GPS) measured Total Electron Content (TEC).
- The research is part of the interdisciplinary program **'Coupled Lithosphere-Atmosphere-Ionosphere-Magnetosphere System (CLAIMs)'** of IIG funded by DST.

- It is focused on energy transfer to the atmosphere during solid Earth processes such as **earthquakes as well as tsunamis.**
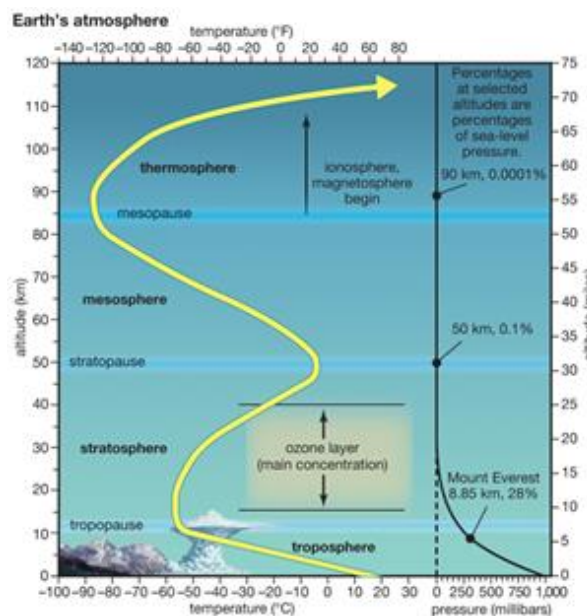
About Ionosphere
- Ionosphere is part of Earth's upper atmosphere where extreme UV and X-ray solar radiation ionizes atoms and molecules thus creating a layer of electrons for radio propagation to distant places on Earth.
- It is a **layer of charged particles** in Earth's atmosphere that extends **from about 80 to 550 kilometer** above the surface of Earth.
- Ionosphere is **where many Earth-orbiting satellites revolve,** including the International Space Station.

New Model to Predict Ionospheric Electron Density
- Researchers from **Indian Institute of Geomagnetism** (IIG), an autonomous institute of Department of Science & Technology, have developed an **Artificial Neural Networks based global Ionospheric Model** (ANNIM).
- ANNIM **predicts variability** in ionospheric electron density.
- Ionospheric **electron density is influenced by** both solar originated processes and Earth atmosphere processes.
- **Tracking variability** of Ionosphere is important for **communication & navigation** and has potential applications in calculating **Global Navigation Satellite System positioning errors**.
- **Artificial Neural Network** is a computational model that **replicates processes in the human brain** (or biological neurons) to solve problems such as pattern recognition, classification, clustering, generalization, etc.

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4.4. SUSTAINABLE DEVELOPPMENT

4.4.1. GREEN BONDS

Why in news?

State Bank of India has listed **Green Bonds worth $100 million** on **India INX's Global Securities Market Platform (GSM).**

What are Green Bonds?

- Green bonds are **debt instruments** issued by financial, non-financial or public entities where the proceeds are **'ear-marked'** for use towards **financing 'green' projects.**
- As per official 'green bonds requirements for Indian issuers' published (in 2016) by **Securities and Exchange Board of India (SEBI),** debt security shall be considered as **'Green' or 'Green Debt Securities',** if funds raised are to be utilized for assets falling under any of the following broad categories:
  - Renewable and sustainable energy (wind, solar etc.)
  - Clean transportation (mass transportation)
  - Sustainable water management
  - Climate change adaptation
  - Energy efficiency (efficient and green buildings)
  - Sustainable waste management (recycling, waste to energy etc.)
  - Sustainable land use (including sustainable forestry and agriculture, afforestation etc.)
  - Biodiversity conservation

India INX
- India International Exchange Limited (India INX) is India's first international exchange located at the Gujarat International Finance-Tech City **(GIFT City).**
- Operating on an advanced technology platform of **EUREX T7,** Exchange is **fastest in the world** with a turn-around time of 4 micro seconds.
- Launched in 2017, it is a **subsidiary of BSE Limited.**
  - BSE is **Asia's first Stock Exchange**. It was established in **1875.**

India INX's Global Securities Market (GSM)
- It is India's **first international primary market** platform that connects global investors with Indian and foreign issuers.
- This provides global investors an opportunity to invest in Indian securities **without assuming any currency risk** and in a regulatory regime comparable with any other leading jurisdiction.

Green bonds scenario in India
- India's **First Green Bond was issued** by Yes Bank Ltd in 2015.
- In 2016, **India became second country** (after China) to provide **national level guidelines for Green bonds**, issued by SEBI.
- According to the **2019-20 Economic Survey,** India has the **second largest green bond market** among emerging economies after China. India has issued **$10.2 billion of green bonds** in the first half of 2019.
- **India's first listed Green Bond** on 'India INX' issued by Indian Railway Finance Corporation.
- FICCI and **Climate Bonds Initiative (CBI)** established the **Indian Green Bonds Council** in 2016 having representation from banking, finance, insurance, public and private sector etc. to **propose solutions towards the development of a green bonds** market in India.
  - CBI is an international organisation working to mobilise bond market for climate change solutions.

4.4.2. BEE: STAR RATING PROGRAMME

Why in news?

Bureau of Energy Efficiency (BEE) launched star rating programme for Deep Freezer and Light Commercial Air Conditioners (LCAC).

Standards and Labelling Programme (Star Labelling)

- Star Labelling Programme was formulated in 2006 by the **Bureau of Energy Efficiency**, under the **Energy Conservation Act, 2001.**
- It provides **informed choice** to consumers through display of energy performance labels on high energy use equipment & appliances and lays down minimum energy performance standards.
- A star rating, **ranging from 1 to 5 in the ascending order of energy efficiency** is provided to products registered with the Bureau. An endorsement label is also provided for some products.
- It seeks to **improve energy efficiency and also lower energy cost** of appliances/equipment for the consumers.
- Through launch of these two new appliances under voluntary regime, 26 appliances would now be covered under this programme.
- **10 mandatory appliances:** Room Air Conditioners, Frost Free Refrigerators, Tubular Florescent Lamp, Distribution Transformer, Room Air Conditioner (Cassettes, Floor Standing), Direct Cool Refrigerator, Colour TV, Electric Geysers, Variable Capacity Inverter Air conditioners, LED Lamps.

- **Voluntary appliances:** Induction Motor, Pump Sets, Ceiling Fans, LPG -Stoves, Washing Machine, Computer (Notebooks/Laptops), Ballast (Electronic/ Magnetic), Office equipment's (Printer, Copier, Scanner, MFD's), Diesel Engine Driven Mono-set Pumps, Solid State Inverter, DG Sets, Chillers, Microwave Oven, Solar Water Heater, Deep Freezer, Light Commercial Air Conditioners.

Related news: Urja Dakshata Information Tool (UDIT)
- It is a first ever initiative taken by **BEE** with World Resources Institute (WRI), to **facilitate a database on energy e-fficiency.**
  - WRI is global research non-profit organization based in USA.
- It is a user-friendly platform that explains the **energy efficiency landscape of India** across industry, appliances, building, transport, municipal and agriculture sectors.
- It will also **showcase the capacity building and new initiatives** taken up by the Government across the sectors in the increase energy efficiency domain.

4.4.3. OTHER IMPORTANT NEWS

Star Rating Program for Industries	- It is a first-of-its-kind **transparency initiative to categorise industries** from one to five stars compliant to pollution standards. - A **five-star rating** will be given to companies that have 50% of maximum allowed **particulate matter (PM)** emissions. A **one-star rating** will be for companies whose emissions are 25% more than prescribed limit. - Jharkhand will start "Star Rating Program" **to reduce industrial pollution.** - Programme will **focus on PM emissions** out of 17 categories of "highly polluting" industries. - Odisha and Maharashtra too have implemented star rating system.
'Green Company Rating system' (GreenCo rating)	- It is the "first of its kind in the World" holistic framework that **evaluates companies on the environmental friendliness** of their activities using life cycle approach. - It is applicable to both **manufacturing facilities and service sector units**. - GreenCo Rating, **developed by Confederation of Indian Industry,** has been acknowledged in India's Intended Nationally Determined Contribution document.

4.5. BIODIVERSITY

4.5.1. STATE OF THE WORLD'S FORESTS REPORT 2020

Why in news?

Recently, **United Nations Environment Programme (UNEP) and Food and Agriculture Organization (FAO)** has jointly released a report titled **The State of the World's Forests (SOFO) 2020.**

Food and Agriculture Organization (FAO)
- It is a **specialized agency of the United Nations** that leads international efforts to defeat hunger.
- Its goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives.
- It was established in 1945 and has around 194 Member countries.
- It is headquartered in **Rome, Italy**.

About the report

- It examines the contributions of forests, and of the people who use and manage them, to the conservation and sustainable use of biodiversity.
- This issue of SOFO draws on the results of **FAO's Global Forest Resources Assessment 2020 (FRA 2020).**
  - FRA 2020 examined the status and trends related to the extent, characteristics, condition, management and uses of forest across 236 countries and areas over the period 1990–2020.

Key Findings of the Report

- **Contribution of forest:** Forests provide habitats for 80% of amphibian species, 75% of bird species and 68% of mammal species. About 60% of all vascular plants are found in tropical forests.
- **Area covered by forests:** Forests cover **31% of the global land area**.
  - More than half of the world's forests are found in only 5 countries - **Brazil, Canada, China, Russia and US.**
- **Deforestation and forest degradation:**
  - Between 2015 and 2020, **the rate of deforestation had decreased** as compared in the 1990s.
    - ✓ The **net loss of forest area decreased** from 7.8 million hectares per year in the 1990s to 4.7 million hectares per year during 2010–2020.

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- o **Agricultural expansion continues to be the main driver** of deforestation and forest fragmentation.
- o Areas with dense human populations and intense agricultural land use like **India are less intact in terms of their biodiversity.**
- **Conservation of species**: Progress on preventing the extinction of known threatened species and improving their conservation status has been slow.
  - o **Forest-Specialist index** has fell by 53% between 1970 and 2014 which highlights the increased risk of species becoming vulnerable to extinction.
    - ✓ Index is developed by **World Wildlife Fund** which tracks the average change in abundance of thousands of vertebrate populations from around the world.

PROPORTION AND DISTRIBUTION OF GLOBAL FOREST AREA BY CLIMATIC DOMAIN, 2020

Tropical 45%
Boreal 27%
Temperate 16%
Subtropical 11%

Source: Adapted from United Nations World map, 2020.

Some findings in FRA 2020
- **Forest regeneration:** Area of naturally regenerating forests decreased since 1990, but area of planted forests increased.
  - o Asia had highest net gain of forest area while Africa had largest annual rate of net forest loss.
- **Protected areas:** 18% of forest worldwide is in protected areas.
  - o South America has the highest share of forests in protected areas, at 31%.
  - o About 10% of the world's forests is allocated for biodiversity conservation
- 93% percent of forest area worldwide is composed of naturally regenerating forests and 7 % is planted.
- **Forest fire:** Fire is a prevalent forest disturbance in the tropics.
- **Decrease in Carbon Stock**
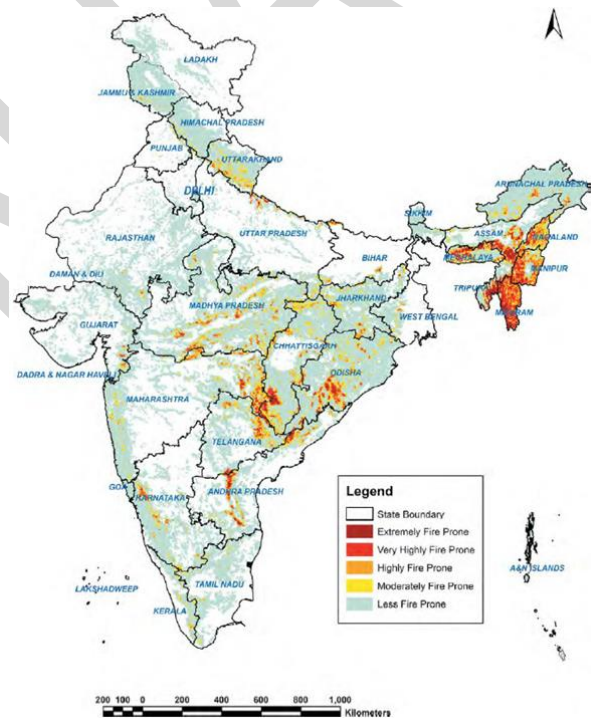
4.5.2. FOREST FIRES

- According to **India State of Forest Report 2019,** over **30,000 incidents** of forest fires were **reported in 2019**.
  - o About **half of India's forests** are prone to fires. 43% were prone to occasional fires and 5% to frequent fires, and 1% were at high or very high risk.

- o Most fire prone areas are found in north eastern and central part of the country.
- **Impact**: loss of flora & fauna, livelihoods; air pollution; water pollution, increasing spread of weeds, soil erosion, loss of regeneration, landslides, etc.
- **Causes of forest fires:**
  - o **Natural:** lightning, high atmospheric temperatures and dryness, spontaneous combustion of dry fuel such as sawdust and leaves.
  - o **Anthropogenic**: shifting cultivation, use of fires by villagers to ward off wild animals, recreation etc.
- **Steps taken:** Monitoring through satellites like NASA's **MODIS (or Moderate Resolution Imaging Spectroradiometer),** National Action Plan on Forest Fires 2018, Centrally Sponsored Forest Fire Prevention and Management (FPM) Scheme etc.

Legend
State Boundary
Extremely Fire Prone
Very Highly Fire Prone
Highly Fire Prone
Moderately Fire Prone
Less Fire Prone

4.5.3. ILLEGAL WILDLIFE TRADE (IWT)

Why in news?

The Financial Action Task Force (FATF) has presented its first global report titled "Money Laundering and the Illegal Wildlife Trade".

IWT

- Financial Action Task Force described **wildlife trafficking as a "global threat",** which also has links with other organised crimes such as modern slavery, drug trafficking and arms

trade. **Illegal trade** is estimated to generate **revenues up to $23 billion a year**.

- At estimated $23 billion per year, **wildlife trafficking is the world's fourth largest illicit trade**, after narcotics, human trafficking, and trade in counterfeit goods.
- **Impacts of illegal wildlife trade**
  - Threat to conservation of species
  - Risks to human health
  - negatively impacts a country's natural resources and local communities

IWT in India: A brief overview

- India is only 2.4 % of world's land area, but contributes about **8% of known global wildlife**, including over 45,000 species of plants and 91,000 species of animals.
- The **most trafficked species** are pangolins, seahorses and tortoises.
- The **main reason** for the unabated wildlife trafficking across India is its **porous international land borders**.

Steps taken in India to counter IWT

- **Constitutional safeguard:** Under **Article 51A (g),** it is a fundamental duty of every citizen of India to protect and improve natural environment including forests, lake, rivers and wildlife and to have compassion for living creatures.
- **Laws and Government Initiatives:**
  - Trade in over 1800 species of wild animals, plants and their derivative are prohibited under **the Wildlife (Protection) Act, 1972.**
  - **The Prevention of Cruelty to Animals Act 1960** empower authorities to penalize and jail those who harm wildlife.
  - **Indian Penal Code, 1860:** Section 428 and Section 429 reads that killing, poaching, maiming, poisoning or torturing an animal is a **cognizable offence** and the punishment for such act is rigorous imprisonment which may extend to five years or fine or both.
  - **Wildlife Crime Control Bureau (WCCB)** is a **statutory multi-disciplinary body** established under the Ministry of Environment and Forests, to combat organized wildlife crime in the country, under **Wild Life (Protection) Act, 1972.**
  - Recently Environment Ministry has unveiled the **new rules to regulate exotic animal trade**. According to rules
    - ✓ **Exotic live species** will mean **animals named under Appendices I, II and III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**. It will not include species from the Schedules of the Wild Life (Protection) Act, 1972.
    - ✓ Owners and possessors of such animals and birds must also **register their stock with the Chief Wildlife Warden of their States.** Currently, the Directorate-General of Foreign Trade, Ministry of Commerce, oversees such trade.
    - ✓ Wildlife Officials will also **prepare an inventory of such species** and have the **right to inspect** the facilities of such traders.
- **Other initiatives:**
  - **Participation of local community**: A **15-year National Wildlife Action Plan (2017-31)** with a special focus on peoples' participation has been launched.
  - **Demand-reduction campaigns**: In May 2019, the WCCB launched a campaign in collaboration with the UN Environment named **'Not all animals migrate by choice' campaign launched to raise awareness on illegal wildlife trade** at airports across India.
    - ✓ Tiger, Pangolin, Star Tortoise and Tokay Gecko featured in the campaign.

International Organizations for control of Wildlife Trafficking:

- **TRAFFIC,** established in 1976, is a wildlife trade monitoring network and a **joint programme of WWF** and **IUCN.**
  - It works closely with the National and the State Governments and various agencies to help study, monitor and influence action to curb illegal wildlife trade and bring wildlife trade within sustainable levels.
- **CITES (the Washington Convention),** signed in 1973 provides a mechanism to regulate the trade in wildlife. Under its guidance, governments all over the world have taken steps to prevent this illegal trade and bring it under control.
  - **India is a member.**
- **IFAW: The International Fund for Animal Welfare** is one of the largest animal welfare and conservation charities in the world. The organization works to rescue individual animals, safeguard populations, preserve habitat, and advocate for greater protections.
- In response to the global wildlife trafficking crisis, the United Nations Environment Programme (UNEP) **Wild for Life campaign** works with the United Nations Development Programme, United Nations Office on Drugs and Crime and the CITES.

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	international ramifications, relevant policy and laws

WCCB is mandated to
- collect and collate **intelligence related to organized wildlife crime** activities and to disseminate the same to State and other enforcement agencies
- establish a **centralized wildlife crime data bank**
- **advise the Government of India** on issues relating to wildlife crimes having national and

- **assists and advises the Customs authorities** in inspection of the consignments of flora & fauna as per the provisions of Wild Life Protection Act, CITES and EXIM Policy governing such an item

4.5.4. SPECIES OF FAUNA AND FLORA IN NEWS

Eurasian Otter	• It is a **semi-aquatic mammal** native to Eurasia which has been sighted for the first time in the brackish water lagoon in Chilika, Odisha. • IUCN Status: **Near Threatened** • **Threats:** pollution, poaching, habitat loss, accidental trapping, road kill • India is home to 3 of the 13 species of otters found worldwide: Eurasian Otter, Smooth-coated Otter (Vulnerable) & Small-clawed otter (Vulnerable).
Red pandas Species	• According to a comprehensive genetic study on these **endangered mammals**, Red pandas of Asian high mountains **are two distinct species** - Chinese red pandas and Himalayan red pandas. • **Himalayan red panda** is distributed in Nepal, Bhutan, northern India, northern Myanmar, Tibet and the western Yunnan province of China. • **Chinese red panda** inhabits the Yunnan and Sichuan provinces of China. • **Hunted for:** meat and fur, besides illegal capture for the pet trade. • **IUCN Status: Endangered**
White Giraffe	• Poachers have killed two extremely rare white giraffes in northeast Kenya, **leaving just one such animal in the world**. • White appearance of the giraffe is **due to leucism**, a genetic condition that causes skin cells to have no pigmentation. • Giraffes are most often found in savanna/woodland habitats and range widely throughout Africa. • **IUCN Status of Giraffe: Vulnerable**
Long-tailed macaques	• It is a crab-eating macaque and is **native to Southeast Asia**. • It is associated with **freshwater habitat**. It is found in Australasia and the Indo-Malayan Realm (also found in Great Nicobar). • IUCN: **Least Concerned**
Himalayan Ibex	• A recent study by Zoological Survey of India has proved that **Himalayan Ibex**, distributed in the trans-Himalayan ranges of Jammu and Kashmir, Ladakh and Himachal Pradesh, is **distinct species from Siberian Ibex.** • Himalayan Ibex can be best seen in **Pin Valley National Park** (Himachal Pradesh) and **Kanji Wild Life Sanctuary** (Jammu and Kashmir). • Siberian Ibex is a **species of wild goat**. From Mongolia, its distribution extends towards Altai, Hangai, Gobi-Altai, Hurukh mountain ranges as well as Sayan Mountains near Russia and scattered populations in the small mountains of Trans-Altai Gobi. • IUCN status of Siberian Ibex: **Least Concern** • It is listed under **Schedule 1 of the Wildlife Protection Act,** 1972.
Grey Seal	• Hundreds of grey seal pups have died **on the shores of the Baltic Sea in Estonia and Latvia** as the Nordic coastline faced the first winter without ice in decades. • **Grey seals need ice** - which helps them keep a distance from predators like wolves or foxes - in order to breed pups during the winter. • Gray seals are mammals found in coastal waters **throughout the North Atlantic Ocean**. • **IUCN status: Least Concern**
Blue-throated Macaw	• It is **a large parrot** and plumage on its upper parts and long tail is turquoise. • It was thought to be extinct for years until 1992, when a wild population of the species was found in South America. • **Habitat:** Forest, Savanna grass lands. • **Threats:** Hunting & trapping, Ranching operations etc. • IUCN status: **Critically Endangered**
Sal forest tortoise or elongated	• According to a recent study by Wildlife Institute of India, Dehradun, over 90% of potential distribution of Sal forest tortoise falls outside current protected area's network. • It is widely distributed over eastern and northern India and Southeast Asia.

tortoise (Indotestudo elongata)	• **IUCN status: Critically Endangered** • **Threats:** It is heavily hunted for food and collected both for local use, such as decorative masks, and international wildlife trade.
Dugong	• World Dugong Day 2020 was observed on May 28th, with theme **"Save dugong, save livelihood".** • Dugong (commonly known as sea cow) is **world's only vegetarian marine mammal.** • **Found in**: warm coastal waters from East Africa to Australia, including Red Sea, Indian Ocean, and Pacific. • **Threats**: destruction and modification of habitat, pollution, rampant illegal fishing activities, vessel strikes, unsustainable hunting or poaching and unplanned tourism. • **IUCN status: Vulnerable**
Charru mussel (Mytella strigata)	• It is an **invasive mussel, native to South and Central American coasts**, that is spreading in backwaters of Kerala. o Mussels are often used as **indicators of water quality.** • It is threatening livelihoods of fishermen engaged in molluscan fisheries. • Rapid spread of Charru mussel may have been triggered by Cyclone Ockhi (2017).
Pinanga andamanensis	• It is a **critically endangered rare palm,** endemic to South Andaman Island. • Its entire population **naturally occurs only in a tiny, evergreen forest pocket** in South Andaman's **Mount Harriet National Park.**
Anthurium	• Recently, **National Innovation Foundation (NIF)-India** has facilitated mass multiplication and large-scale production of **four varieties of Anthurium** through tissue culture technique. • Anthurium is **domestic flowering plant** known for **purifying surrounding air and remove harmful airborne chemicals** like formaldehyde, ammonia, toluene, xylene, and allergens. • Anthurium has **economic importance** because of its eye-catching and beautiful **inflorescence** (process of flowering). • NASA has also placed it in the list of **air purifier plants.** **National Innovation Foundation (NIF)- India** • **NIF India** is **autonomous body of Department of Science and Technology**, set up in 2000. • NIF is national initiative to **strengthen grassroots technological innovations and outstanding traditional knowledge.**

4.5.5. CONSERVATION EFFORTS

4.5.5.1. UN DECADE ON ECOSYSTEM RESTORATION

Why in news?

The United Nations General Assembly (UNGA) proclaimed **2021–2030** as the **Decade on Ecosystem Restoration**.

About UN Decade on Ecosystem Restoration

- The UN Decade on Ecosystem Restoration aims to **massively scale up the restoration of degraded and destroyed ecosystems** as a proven measure to fight the climate crisis and enhance food security, water supply and biodiversity.
- This endeavour builds on regional efforts such as:
  - o **Initiative 20×20 in Latin America** that aims to restore 20 million hectares of degraded land by 2020.
  - o **AFR100 African Forest Landscape Restoration Initiative** that aims to bring 100 million hectares of degraded land under restoration by 2030.

- **UN Environment and the Food and Agriculture Organization (FAO)** will lead the implementation.

What is Ecosystem Restoration (ER)?

- It is the **process of assisting the recovery of an ecosystem** that has been degraded, damaged, or destroyed.
  - o An ecosystem is a functional unit of nature, where living organisms interact among themselves and also with the surrounding physical environment.
- **Restoration activities** may be designed to replicate a pre-disturbance ecosystem or to create a new ecosystem where it had not previously occurred.
  - o It involves practices such as restoring vegetation, planting native trees, clearing invasive species, regenerative (perennial) agriculture, agroforestry etc.

International Decades
- The United Nations (UN) **designates specific days, weeks, years and decades** as occasions to **mark particular events or topics** in order to promote, through awareness and action, the objectives of the Organization.

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- Some decades ending in 2020 are-
  o United Nations Decade on Biodiversity
  o Decade of Action for Road Safety
  o United Nations Decade for Deserts and the Fight against Desertification.

4.5.5.2. SUPER YEAR FOR BIODIVERSITY

Why in news?

- Year 2020 is also "**Super Year for Biodiversity**", as
  o **Strategic Plan for Biodiversity** with 20 global Aichi targets adopted in 2010 ends in 2020.
  o End of 2011-2020 **UN Decade on Biodiversity** and start of other new biodiversity related decades for 2021-2030: **UN Decade of Ocean Science for Sustainable Development** and **UN Decade on Ecosystem Restoration.**

About Strategic Plan for Biodiversity 2011-2020 (SPB 2011-2020)

- SPB 2011-2020 was adopted by the parties to the CBD, during its **COP10** in 2010 in **Nagoya, Japan,** with the purpose of inspiring **broad-based action in support of biodiversity** over the next decade by all countries and stakeholders.
- The Strategic Plan is comprised of a shared vision, a mission and **20 targets organized under 5 strategic goals,** collectively known as the **Aichi Biodiversity Targets (ABTs).**

Related News

In a virtual celebration of the **International Day for Biological Diversity 2020,** Ministry of Environment, Forest and Climate Change **launched five key initiatives** towards conservation of biodiversity:

- **Biodiversity Samrakshan Internship Programme** to engage postgraduate students to support the projects of National Biodiversity Authority.
- **UNEP Campaign on Illegal Trafficking of Endangered Species** launched by the **Wildlife Crime Control Bureau**, with UNEP to address environmental challenges related to illegal trafficking.
- **A Webinar Series on 'Biodiversity Conservation and Biological Diversity Act, 2002'.**
- **World Wildlife Fund (WWF (India)) Model Conference of Parties (MCoP)** that engages the younger generation in conversations around impact of humanity's footprint on biodiversity
- **An awareness campaign supported by WWF.**

Convention on Biological Diversity (CBD)

- The CBD is an **international multilateral treaty** which was opened for signature in 1992 at the United Nations Conference on Environment and Development (**the Rio "Earth Summit"**).

- It has 3 main **objectives**:
  o The conservation of biological diversity.
  o The sustainable use of the components of biological diversity.
  o The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
- The CBD has **196 parties** and **India is one of them.**
- CBD has following supplementary agreements-
  o **The Nagoya Protocol on Access and Benefit-sharing**: It aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way.
  o **The Cartagena Protocol on Biosafety**: It aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity and human health.
  o **The Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety:** It aims to contribute to the conservation and sustainable use of biodiversity by providing international rules and procedures in the field of liability and redress relating to LMOs.
- **India has signed and ratified all 3** of these protocols.

The Access and Benefit-sharing Clearing House (ABS Clearing-House)

- It is a **platform for exchanging information on ABS** established by Article 14 of the Nagoya Protocol.
- It is a key tool for facilitating the implementation of the Protocol, by **enhancing legal certainty and transparency** on procedures for access and benefit-sharing, and for **monitoring** the utilization of genetic resources along the value chain, including through the **internationally recognized certificate of compliance**.

India's efforts towards SPB 2011-2020

- India prepared its **first National Biodiversity Action Plan (NBAP) entitled "National Policy and Macro Level Action Strategy on Biodiversity" in 1999** which was revised and updated into **NBAP, 2008** to bring the biodiversity agenda in alignment with the National Environment Policy (NEP), 2006.
- The NBAP, 2008 was updated with **Addendum 2014 to NBAP, 2008** in order to integrate it with the SPB 2011-20.
  o Accordingly, India developed **12 National Biodiversity Targets (NBTs)** which cover all the 20 ABTs.

4.5.5.3. ECO-SENSITIVE ZONES

Why in news?

The Ministry of Environment, Forest and Climate Change (MoEF&CC) declared the National Chambal

Sanctuary in Madhya Pradesh as eco-sensitive zone (ESZ).

Eco Sensitive Zones (ESZ)/ Eco-Sensitive Area (ESA)

- ESZs are declared around Protected Areas (PAs) through Notification **under the provisions of Environment (Protection) Act, 1986** and Rules made thereunder.
- MoEF&CC has issued **"Guidelines for Declaration of ESZ around National Parks and Wildlife Sanctuaries"** in 2011 with consultations among the states/UTs. It **prescribes general procedures** to be followed while considering declaration of an ESZ.
- **Nature of Activities in ESZ:** 2011 Guidelines specify activities that are to be prohibited, regulated and permissible in the ESZ -
  o **Prohibited-** commercial mining, polluting industries, major hydroelectric projects etc.
  o **Restricted with safeguards (Regulated) -** Felling of trees, Establishment of hotels and resorts, Drastic change of agriculture system, widening of roads, introduction of exotic species etc.
  o **Permissible-** Rain Water Harvesting, Organic farming, Ongoing Agricultural Practices etc.
  o Though **ESZ does not affect the ownership rights of people** on land resources, **it restricts land-use change**.
- **Parameters considered to declare ESZs:** In general, following parameters are considered for declaring ESZs: Details of the Protected Area; Proposed ESZ Area and Extent; Available Biodiversity, Flora, Fauna in the Area; List of villages in ESZ.
- As per 2011 Guidelines, **proposal for ESZ should be prepared by the states** considering various parameters and forwarded to the MoEF&CC for further processing and notification.
- **Extent of ESZ:** The width of the ESZ and type of regulations would differ from one PA to other. However, as a general principle the width of the ESZ could go up to 10 kms around a PA (may not be uniform all around it) as provided in the Wildlife Conservation Strategy-2002.

National Chambal Sanctuary
- National Chambal Sanctuary, also known as **National Chambal Gharial Sanctuary**, was declared a national sanctuary in 1979 and sits across three states: Madhya Pradesh, Uttar Pradesh and Rajasthan.
- It was formed to **protect the Chambal river eco-system**. It is home to naturally living population

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of **75% of gharial**. The sanctuary also harbours national aquatic animal - the freshwater **Gangetic dolphins**, 9 species of **freshwater turtles** and more the 290 species of migratory birds.
- National Chambal Sanctuary is the **first and only tri-state riverine protected area in India for breeding population of Gharial.**

About Gharial
- **Native Extant (resident):** Bangladesh; India; Nepal
- It is **found majorly in Chambal river**. Also, few **satellite populations** is found in **Girwa river** (Katarniaghat Wildlife Sanctuary), **Ramganga river** in Jim Corbett National Park, **Son river** and **Mahanadi (Odisha).**
- **Threats:** Habitat destruction due to Dam, barrages, Sand mining and water abstraction, entanglement in fishing nets, Egg harvesting for subsistence food use by riparian residents
- **Conservation Status:** Listed in **Schedule I of Wildlife (Protection) Act, 1972** and as **Critically Endangered** on IUCN Red List.
- June 17 is celebrated as **World Crocodile day.**

Related news
- Recently, 40 gharials were released in Ghaghara river by Bahraich forest division of UP.
  o Ghaghara is a major left-bank tributary of the Ganges River.
  o It rises as the Karnali River in high Himalayas of southern Tibet.

In a related development, six states, which form WG, asked **centre to expedite the process to notify the ESAs** in the global biodiversity hotspot for clarity.
  o In 2018, Centre issued a draft notification mentioning 56,825 sq km of WG in six states as ESA.
  o Six states **seek modifications to the notification** as it would create adverse effect on state's economy.
- Also, earlier two committees had recommended about ESA in WG:
  o **K Kasturirangan committee** in 2012 recommended 37% of WGs to be declared ESAs.
  o **Madhav Gadgil Commission,** formed in 2010, recommended 64 % of WG to be declared ESAs.

Eco-sensitive area remains on paper

WESTERN GHATS

Spread over six states: Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala (covers distance of 1,500km along the western coast)

Proposed eco-sensitive area (ESA) to stop polluting activities and deforestation **56,825** sq km

Area (in sq km)	
Karnataka	20,668
Maharashtra	17,340
Kerala	9,993
Tamil Nadu	6,914
Goa	1,461
Gujarat	449

Centre keeps on issuing draft notification
First | Mar 10, 2014
Second | Sep 4, 2015
Third | Feb 27, 2017
Fourth | Oct 3, 2018

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4.5.5.4. INDIA'S FIRST DOLPHIN OBSERVATORY

Why in news?

The Bihar government is setting up India's first observatory for the **Gangetic dolphins** in Bhagalpur district.

More about news

- The observatory is constructed at **Vikramshila Gangetic Dolphin Sanctuary (VGDS).**
  - Observatory will aim to **promote eco-tourism.**
- **About Gangetic dolphin**
  - IUCN Status: **Endangered**
  - They **prefer deep waters, in and around the confluence of rivers.** They can **only live in freshwater** and are essentially blind.
  - They are reliable indicator of the health of the entire river ecosystem.
  - It is also **National Aquatic Animal of India.**
  - It can be found in the **Ganges-Brahmaputra-Meghna** and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh.
    - ✓ In India, it covers seven states namely, **Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand, and West Bengal.**
  - **Major threats to dolphins in I**ndia include overfishing in the habitat, pollution, infrastructure etc.
  - Gangetic dolphins are one among the 21 species identified under the centrally

sponsored scheme, **"Development of Wildlife Habitat".**
- ✓ **Conservation Action Plan for the Gangetic Dolphin (2010-2020),** which has identified threats to Gangetic dolphins and impact of river traffic, irrigation canals and depletion of prey-base on dolphin populations.

> **Other dolphins found in India**
> - **Indus River Dolphin**
>   - IUCN Status: **Endangered**
>   - They can only be found in the **lower parts of the Indus River in Pakistan and in River Beas,** a tributary of the Indus River in Punjab, India.
>   - They have adapted to life in the muddy river and are functionally blind.
>   - The dolphin is the **state aquatic animal of Punjab.**
> - **Irrawaddy Dolphin (Snubfin dolphin)**
>   - IUCN Status: **Endangered**
>   - Besides the Irrawaddy River, it is also found in India's **Ganges, Chilka Lake and Southeast Asia's Mekong River.**
>   - They prefer to live in estuaries and brackish water near coasts.
> - **Indian Ocean humpback dolphin**
>   - IUCN Status: **Endangered**
>   - They prefer the shallow, near shore waters of countries in the Indian Ocean, ideally with a freshwater input.
>   - They can be found not far from shore in the coastal waters of **South Africa in the south, northwards around the coast of East Africa, throughout the Middle East, and the west coast of India.**

4.5.6. VARIOUS CONSERVATIONS EFFORTS/NATIONAL PARKS/INTERNATIONAL EFFORTS

Dibru-Saikhowa National Park & Biosphere Reserve, Assam	• Oil India Ltd's decision to drill seven wells inside this Park has raised concerns. • Park is bounded by **Lohit and Brahmaputra river** on the north and by the **Dibru river** on the southern side. • **Largest Salix swamp forest** of North East India is also located inside this reserve. • **Forests:** semi-evergreen forests, deciduous forests, littoral and swamp forests and patches of wet evergreen forests. • **Fauna:** Tiger, Elephant, Leopard, Small Indian Civet, Gangetic Dolphin, Slow Loris, etc. • It is identified as **Important Bird and Biodiversity Area.**
Jim Corbett National Park	• It is located in **Nainital district of Uttrakhand.** • It was established in 1936 as Hailey National Park. • It is the **oldest National Park in India** and also being honored as place where Project Tiger was first launched in 1973. • Its whole area comprises of hills, marshy depressions, riverine belts, grasslands and large lake.
Nanda Devi National Park	• It is situated around the **peak of Nanda Devi, (7,816 m)** in Uttarakhand. • Along with the adjoining **Valley of Flowers National Park** to the northwest, it was inscribed a **World Heritage Site by UNESCO** in 1988. • Nanda Devi National Park together with Valley of Flowers National Park is encompassed in the **Nanda Devi Biosphere Reserve.** This Reserve is part of the **UNESCO World Network of Biosphere Reserves** since 2004.

	• This richly diverse area is also home to rare and endangered animals, including the Asiatic black bear, snow leopard, brown bear and blue sheep. • Park is drained by river **Rishi Ganga**.
Pakke Tiger Reserve	• **Salazar Slytherin**- a new species of **viper family (venomous snake)** has been discovered in **Pakke Tiger Reserve (PTR)**. • PTR lies in the foothills of the Eastern Himalaya in the East Kameng district of **Arunachal Pradesh**. • It falls within the **Eastern Himalaya Biodiversity Hotspot**. • PTR won India Biodiversity Award 2016 in the category of 'Conservation of threatened species' for its **Hornbill Nest Adoption Programme**.
Tadoba Andhari tiger reserve	• It is located in Chandrapur district of **Maharashtra**. • It is also **Maharashtra's oldest and largest National Park**. • It represents Southern Tropical Dry Deciduous Teak Forests in the Tiger habitat. • Andhari is derived from name of **Andhari river that flows in this area**. • **Fauna:** Tigers, Indian leopards, Sloth bears, Gaur, Nilgai, Dhole, Striped Hyena, Small Indian Civet, Jungle Cats, etc.
Dehing Patkai Elephant Reserve	• National Board for Wild Life (NBWL) has recommended coal mining in part of Dehing Patkai Elephant Reserve (DPER). • **Dehing Patkai Wildlife Sanctuary**, also known as Jeypore Rainforest is a part of DPER. • Dehing Patkai is a **deciduous rainforest** interspersed with **semi-evergreen** flora, the **only patch of virgin rainforest in Assam**. • **Dehing river flows** through this forest and **Patkai is the hill** at the foot of which the sanctuary lies. • It adjoins the **Arunachal Pradesh's Deomali Elephant Reserve**.
Laboratory for the Conservation of Endangered Species (LaCONES)	• It is a **dedicated lab of Council of Scientific and Industrial Research** in Hyderabad for conservation of endangered wildlife. • It is the **only laboratory in India** that has developed methods for collection and cryopreservation of semen and oocytes from wildlife and successfully reproducing endangered blackbuck, spotted deer and Nicobar pigeons. • It has established **Genetic Resource Bank of Indian wild animals** under which genetic resources from 23 species have been collected and preserved.
National Mission on Himalayan Studies (NMHS)	• NMHS, a **Central Sector Grant-in-aid Scheme**, targets to provide much needed focus in addressing key issues relating to conservation and sustainable management of natural resources in Indian Himalayan Region. • It is implemented by **Ministry of Environment, Forest & Climate Change.** • **Jurisdiction of NMHS** includes 10 Himalayan states fully (Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir (Now UT), Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura and Uttarakhand) and two states partially (hill districts of Assam and West Bengal).
Herbal Road	• UP government **will develop 800 km roads as Herbal roads** in state. • These roads **will have medicinal and herbal trees along with land on their both sides.** o It **will have trees like** like Peepal, Neem, Sehjan along with other herb varieties like brahmi, ashvagandha and jatrofa. • It will help in providing **raw material for medicines** and will also help **in curbing land erosion.**
World Earth Day	• Earth Day is celebrated **all over the world on April 22** to show support for **environmental protection.** • 2020 marks the **50th anniversary of the World Earth Day.** • Theme for the year 2020 is **Climate Action.** • **First Earth Day** took place in 1970 when millions of Americans took to the streets to protest environmental ignorance and demand a new way forward.
World Water Day 2020	• World Water Day, held on **22 March** every year since 1993, focuses on the importance of freshwater. • This year's theme, '**Water and Climate Change**', explores how water and climate change are inextricably linked.
Earth Hour 2020	• It is a **global grassroot movement** uniting people to take action on environmental issues and protect the planet. • It includes **turning off non-essential electric lights**, for one hour, from 8:30 to 9:30 p.m. • It is organized by **World Wide Fund for Nature (WWF)** every year on the last Saturday of March, as a symbol of commitment to the planet. o WWF is an international non-governmental organization founded in 1961, working in the field of wilderness preservation, and the reduction of human impact on the environment.

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4.6. UN WORLD WATER DEVELOPMENT REPORT, 2020

- It is **published by UNESCO** on behalf of the **UN-Water**.
  - The **UNESCO World Water Assessment Programme (UNESCO WWAP)** coordinates the work of 31 UN-Water members and partners in the WWDR.
- WWDR, published annually, is UN-Water flagship report on water. WWDR 2020 entitled **'Water and Climate Change'** brings out **nexus of water- climate change**.

Key findings

- Climate change will affect **availability, quality and quantity of water** for basic human needs.
- **Global water use** has **increased 6 times** over past 100 years and continues to grow steadily at a rate of about 1% per year as a result of increasing population, economic development and shifting consumption patterns.

United Nations Water (UN-Water)
- It coordinates the efforts of UN entities and international organizations working on water and sanitation issues.
- **Members-** UN agencies, programmes and funds with a water-related mandate.
- **Partners-** international organizations, professional unions, associations or other civil-society groups that are actively involved in water.
- Its members and partners inform about water and sanitation policies, monitor and report on progress, and coordinate two annual global campaigns on **World Water Day (22 March)** and **World Toilet Day (19 November).**

4.7. GRAVITY RECOVERY AND CLIMATE EXPERIMENT FOLLOW ON (GRACE-FO)

- GRACE-FO is a mission of **NASA and German Research Centre for Geosciences** launched in 2018, **to track Earth's water movement** to monitor changes in underground water storage, amount of water in large lakes and rivers, soil moisture, ice sheets and glaciers, and sea level caused by the addition of water to the ocean.
  - It is a **successor to the original GRACE mission,** which orbited Earth from 2002-2017. GRACE measured changes in the local pull of gravity as water shifts around Earth due to changing seasons, weather, and climate processes.

Utilisation of GRACE and GRACE-FO data
Global Groundwater Maps • Recently NASA and the University of Nebraska-Lincoln developed weekly **global maps of soil moisture** and **groundwater wetness conditions** based on data from GRACE-FO. • It produced **time-varying maps of distribution of water at three depths:** Surface soil moisture, root zone soil moisture (roughly top 3 feet of soil) and shallow groundwater. • **Possible benefits of the map:** Managing agricultural crops and predicting their yields, Predicting drought conditions etc.
Groundwater affects Himalayan slip and climate • In the Himalaya, seasonal water from glaciers, as well as monsoon precipitation, plays a key role in the **deformation of the crust and the seismicity** associated with it. • Researchers from Indian Institute of Geomagnetism (IIG) have found that apart from the normal, common seasons, **subsidence and uplift are found to be associated with seasonal changes** in groundwater. • For instance, **water acts as a lubricating agent,** and hence when there is water in the dry season, the **rate of slip of the fault in this region is reduced.**   ○ Slip is defined as **relative motion of rock on each side of fault** with respect to other side. • Researchers have made combined use of **Global Positioning System and GRACE** data.

4.8. MISCELLANEOUS

Bay of Bengal Boundary Layer Experiment (BOBBLE)	• It is a **project funded by Union Ministry of Earth Sciences and the Natural Environment Research Council of UK** to examine the impact of various features such as ocean temperature, salinity and currents in Bay of Bengal on the **monsoon.**
IDEAthon on 'The Future of River Management'	• It was organized by National Mission for Clean Ganga (NMCG) under Ministry of Jal Shakti and National Institute of Urban Affairs. • It focused on how COVID-19 crisis can shape River Management strategies for the future and also highlighted interconnectivity of Cities with River.
Dibang valley project (Etalin	• It is a proposed 3097 MW Hydropower project, Arunachal Pradesh's Dibang valley at **confluence of Ashu Pani and Dibang rivers.**

Hydroelectric Project)	• It has been **delayed by over 6 years** now as it required diverting 1165 hectares of subtropical evergreen broad-leaved and subtropical rainforest in a region of rich biodiversity. • **Forest Advisory Committee (FAC)** is yet to decide on this project. • FAC, under **Ministry of Environment, Forest and Climate Change** is the apex body tasked with deciding whether forest land can be diverted for industrial projects.
Ithai barrage, Manipur	• Manipur urged Centre to consider **decommissioning this barrage.** • It was constructed in 1983 at confluence of Imphal River and Tuitha River, south of Loktak Lake, as part of Loktak Hydroelectric project. o Loktak Lake is **largest freshwater lake in North -East**. It is known for floating islands called **Phumdis.** • It was to act as an artificial reservoir to maintain sufficient water volume in Loktak lake. • Over time, it has **affected hydrology of lake** and **harmed ecology and economy** of region.
National Crisis Management Committee (NCMC)	• NCMC reviewed rescue and relief operations in cyclone Amphan that hit West Bengal and Odisha. • NCMC has been **constituted in the Cabinet Secretariat** for effective implementation of relief measures in the wake of a natural calamity. • It is a multi-member body **headed by Cabinet Secretary**. Other members include- Secretary to Prime Minister, Secretary (MHA), Director (IB) etc.
National Board for Wildlife (NBWL) has not met in last 6 years	• It is statutory body, under Wild Life (Protection) Act, 1972 **chaired by Prime Minister.** • It is responsible for **promotion of conservation and development of wildlife and forests.** • **Without the approval of the NBWL,** construction of tourist lodges, alteration of the boundaries of Protected Areas, destruction or diversion of wildlife habitat and de-notification of Tiger Reserves, cannot be done. • NBWL can constitute a Standing Committee (chaired by Environment Minister), whose **function is to regulate land diversion within Protected Areas and Eco Sensitive Zones.**
South Asian Climate Outlook Forum (SASCOF)	• It is a **regional forum to forecast** for South West Monsoon Season rainfall. • It was established in 2010 and is coordinated by **India Meteorological Department (IMD).** • It covers Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka. • The **main activity of SASCOFs** is the preparation and issuing of a **consensus outlook for the southwest monsoon rainfall over South Asia.**
National Aquifer Mapping and Management Programme (NAQUIM)	• It is an initiative of **the Ministry of Water Resources for mapping and managing the entire aquifer systems in the country.** o It is being implemented by **Central Ground Water Board (CGWB)** • It aims to quantify the available groundwater resources, and to propose plans appropriate to the scale of demand and aquifer characteristics, and institutional arrangements for participatory management. • Out of nearly 25 lakh km2 of mappable area in country, so far aquifer maps and management plans have been developed for an area of 11.8 lakh km2.
Indian Meteorological Department (IMD)'s Color- coded Heat Wave Alert	• IMD has issued "**red**" and **'orange warning'** for heatwaves in various states. • IMD issues **colour-coded warnings depending on intensity** of any weather system in ascending order, **green, yellow, orange and red.** o These warnings are mainly **meant for administrators to keep ready and position their resources** to handle situations arising out of weather-related disastrous events.
Global Animal Protection Index 2020	• Released by **World Animal Protection**, an international animal welfare charity. • It ranks countries from A (highest score) to G (weakest score) according to their policy and legislation. **India has attained a C ranking in the index**. • It noted that India has strong laws on the protection of animals, but highlighted lack of regulations regarding the rearing of farm animals.
Cauvery river	• According to Karnataka State Pollution Control Board, Cauvery and tributaries like Kabini, Hemavati, Shimsha, and Lakshmanathirtha are regaining their decades-old status in terms of water quality. • This is because of lockdown due to Covid-19. • Cauvery river **rises on Brahmagiri Hill** of Western Ghats in Karnataka, and flows through Karnataka and Tamil Nadu. • Cauvery basin is spread over 81,155 sq km in Karnataka (34,273 sq km), Tamil Nadu (43,856 sq km) and Kerala (2,866 sq km) and Union Territory of Puducherry (160 sq km).

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Damodar River	- Government of India, West Bengal Government and Asian Infrastructure Investment Bank signed a loan agreement to improve irrigation services and flood management in Damodar Valley Command Area in West Bengal. - Damodar River **flows through West Bengal and Jharkhand.** Due to **frequent and immense flood damages**, it was also **called sorrow of Bengal.** 5 dams were constructed in the Damodar Valley, namely, Maithon, Panchet, Konar, Tilaiya and Tenughat and a barrage was constructed at Durgapur. **Source:** Palamau hills, Chota Nagpur Plateau (Jharkhand). **Tributaries/subtributaries:** Konar, Barakar, Haharo, Bokaro, Ghari, Jamunia, Khadia, Guaia and Bhera.
Myristica swamps	- These are **tropical fresh water swamp forests** with an abundance of **Myristica trees,** the most primitive of the flowering plants on earth. - These are **endangered ecosystem** restricted to small patches in **Western Ghats.** - They play a key role in **maintaining perennial stream flow** and possess **higher potential to store carbon** than nearby non-swamp forests. **Threats they face**: Shrinking duration of monsoon, change in land use pattern etc.
Fusarium wilt Tropical Race 4 (TR4)	- Dubbed as **'Banana COVID', i**t is **novel fungus strain** that has devastated banana plantations across globe this year. - It **cripples plantations** by first attacking the leaves, which turn yellow from their trailing edges before wilting away. - It was **first identified in Taiwan,** and has spread from Asia to Middle East, Africa and Latin America. **India**, world's **largest producer of bananas,** is emerging as one of the hotspots.
Blue holes	- Recently, **Carbon more than 8,000 years old** was found in World's deepest blue hole is **Yongle Blue Hole** (South China Sea). - Blue holes are **deep, circular columns of water, inside oceans,** that form when rainwater dissolves a sink hole through limestone rock. - Its waters are **mostly isolated from the surrounding ocean** and receive little fresh water from rainfall, making it a spot to study the chemistry of oxygen-deprived marine ecosystems.

5. SOCIAL ISSUES

5.1. POCSO RULES 2020

Why in news?

Central government has notified the **Protection of Children from Sexual Offences (POCSO) Rules, 2020** which gives effect to amendments made to POCSO Act in 2019.

Key Provisions of The Rules

- **Mandatory police verification of staff in** any institution housing children or coming in regular contact with children like schools, care homes, sports academies etc.
- State Governments to **formulate a child protection policy** based on the principle of zero-tolerance to violence against children, which shall be adopted by all institutions, organizations, or any other agency working with, or coming in contact with children.
- Central Government and State Governments shall
  - o **Provide periodic training** (like sensitization workshops etc.) to all persons, coming in contact with the children, to sensitize them about child safety and protection.
  - o Prepare **age-appropriate educational material and curriculum for children**, informing them about personal safety, emotional and mental wellbeing, reporting mechanisms including Childline helpline services (toll free number-1098) etc.
- **Orientation programme and intensive courses for police personnel and forensic experts** for building their capacities in their respective roles on a regular basis.
- **Any person who has received any pornographic material** involving a child or any information regarding such pornographic material **shall report** the contents.

5.2. GENDER SOCIAL NORMS INDEX (GSNI) RELEASED

- It was released by the **United Nations Development Programme** (UNDP)
- This index measures how social beliefs obstruct gender equality in areas like politics, work, and education, and contains data from 75 countries, covering over 80 percent of the world's population.
- It finds despite progress in closing gender inequalities in basic areas such as education

and health, **"enormous power gaps still exist between men and women"** in the political and corporate arenas.

5.3. TECH FOR TRIBALS

Why in news?

TRIFED launched 'Tech for Tribals' program to develop Tribal entrepreneurship.

About 'Tech for Tribals'

- It is an **initiative of TRIFED supported by Ministry of Micro, Small and Medium Enterprises**.
- It aims at **capacity building and imparting entrepreneurship skills** to tribal forest produce gatherers enrolled **under the Pradhan Mantri Van Dhan Yojana (PMVDY).**
- It was launched in **collaboration with** IIT-Kanpur, IITRoorkee, IIM Indore, Kalinga Institute of Social Science, Bhubaneshwar etc.
- Under this, courses **will be developed with content relevant to entrepreneurship** in value addition and processing of forest produces.
- This **will help their business run with marketable products** with quality certifications.

5.4. VIDYADAAN 2.0

Why in news?

Recently, Ministry of Human Resource Development (MHRD) **e-launched VidyaDaan 2.0 program for inviting e-learning content contributions.**

VidyaDaan

- VidyaDaan **is national program, in which individuals** (teachers, educationists, subject experts etc.) **& organizations** (schools etc.) **can contribute to e-learning** in the education domain.
- These contributions can be of different types such as teaching videos, practice questions, competency-based items, lesson plans etc. for grade from 1 to 12 and subject specified by the states/UTs under their respective projects.
- It can also **include sharing life changing experiences, consultation, stress relieving sessions**, sessions on mental or physical health, sessions on grooming and personality development.

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About VidyaDaan 2.0

- VidyaDaan 2.0 was **launched due to the increasing requirement for e-learning content for students** (both school and higher education) in the backdrop of COVID-19 and due to urgent need to integrate digital education with schooling to augment learning.
- **Content will be monitored by a panel of academic experts and released for use on the DIKSHA app** to children across country continue learning anytime and anywhere.
- States and Union Territories can initiate their own program as part of VidyaDaan 2.0.

About DIKSHA (Digital Infrastructure Knowledge Sharing)

- Diksha platform **was launched in 2017, by MHRD to provide supplementary learning material for students and for upgrading the skills of teachers.**
- The high-quality e-learning material both for students and teachers are available on this portal.
- Thus, Diksha will serve as **National Digital Infrastructure for Teachers and will aid teachers to learn and train themselves** for which assessment resources will be available.
- States, government bodies and private organizations, can integrate DIKSHA into their respective teacher initiatives.
- Currently, DIKSHA **supports 10 languages** viz. Hindi, English, Gujarati, Bengali, Assamese, Marathi, Odia, Kannada, Tamil and Telugu, both for creating and viewing content.

5.5. 'PRIME MINISTER'S RESEARCH FELLOWSHIP (PMRF)' SCHEME

Why in News?

Recently, Ministry of Human Resource Development (MHRD) announced modifications in PMRF Scheme.

About PMRF scheme

- Scheme has been designed for improving the quality of research in various higher educational institutions in the country.
- It aims to attract the best talent into research with attractive fellowships, thereby realizing the vision of development through innovation.
- Under it, students who have completed or are in final year of B. Tech or Integrated M. Tech or M.Sc. in Science and Technology streams from IISc/IITs/NITs/IISERs/IIITs will be offered **direct admission** in PhD programme in IITs/IISc.

- There is **no reservation quota for PMRF**.
- Now with aim to boost research in-country, **MHRD has made certain modifications:**
  - **Students from any recognised institute/university** can apply.
  - **Requirement of GATE Score has been relaxed**.
  - In addition to direct entry, **lateral entry** is now allowed under which, students, who are pursuing PhD in PMRF granting institutions can apply.
  - National Institutes of Technology (NITs), appearing in top 25 institutions as per **National Institutional Ranking Framework** (overall) can also become PMRF Granting institution.

5.6. GLOBAL EDUCATION COALITION

- Recently, United Nations Educational, Scientific and Cultural Organisation (**UNESCO**) **has launched** the Global Education Coalition.

About Global Education Coalition (GEC)

- Global Education **Coalition is a multi-sector partnership involving the United Nations agencies, international organisations, private sector, civil society representatives, philanthropic and non-government organisations etc**.
- It seeks to facilitate inclusive learning opportunities for children and youth during the period of educational disruption due to COVID 19 pandemic.

Aims of GEC

- **Help countries in mobilising resources and implementing innovative and context-appropriate** solutions to provide education remotely, leveraging hi-tech, low-tech and no-tech approaches
- Seek **equitable solutions and universal access**
- Ensure **coordinated responses** and avoid overlapping efforts
- Facilitate the return of students to school when they reopen to avoid an upsurge in dropout rates

5.7. CHILDREN'S RIGHT AND THEIR FUTURE

Why in News?

World Health Organization, The Lancet medical journal and UNICEF jointly launched a report titled 'A future for the world's children?'

About Report

- Report **assesses threat to health and future of every child and adolescent from ecological degradation,** climate change and exploitative marketing practices.
- The report tries to estimate overall well-being of a child through a Flourishing Index and a Sustainability Index.
- **Flourishing Index** is a geometric mean of two indices on surviving and thriving of child.
  - The parameter of Surviving considers **maternal survival, survival in children younger than 5 years old, suicide, access to maternal and child health services, basic hygiene, sanitation, and lack of extreme poverty.**
  - The parameter of Thriving considers educational achievement, growth and nutrition, reproductive freedom, and protection from violence.
  - **India's rank is 131st among 180 countries.**
  - **Norway, Republic of Korea topped** while Chad and Central African Republic were at the bottom.
- **Sustainability Index ranks countries based on their 'excess CO2 emissions relative to 2030 targets'** as per 2015 Paris Climate Agreement.
  - **India's rank is 77th among 180 countries.**
  - Burundi, Chad, Somalia topped while Trinidad and Tobago and Qatar were at the bottom.
- Not a single country performed well on all three measures of **child flourishing** (calculated using **Flourishing Index**), **sustainability** (calculated using **Sustainability Index**), and **equity** (calculated using Income based **Gini-coefficient**).
- **Specific recommendations given:** stopping CO2 emissions with utmost urgency; children and adolescents centric policies, a new Optional Protocol to the UN Convention on the Rights of the Child.

5.8. GLOBAL NUTRITION REPORT 2020 (GNR)

Why in news?

According to the Global Nutrition Report 2020, India is among 88 countries that are likely to miss global nutrition targets by 2025.

About Global Nutrition Report 2020

- It is a multi-stakeholder initiative that **assesses progress in meeting 2025 Global Nutrition**

Targets established by World Health Assembly (WHA).

- The report aims to inspire governments, civil society and private stakeholders to act to end malnutrition in all its forms.
- It also plays the important role of helping hold stakeholders to account on the commitments they have made towards tackling malnutrition.

Global Nutrition Targets

- In 2012, the World Health Assembly Resolution endorsed a Comprehensive implementation plan on maternal, infant and young child nutrition.
- It specified a **set of six global nutrition targets that by 2025 aim to:**
  - achieve a 40% reduction in the number of children under-5 who are **stunted** (low height for age);
  - achieve a 50% reduction of **anaemia** in women of reproductive age;
  - achieve a 30% reduction in **low birth weight**;
  - ensure that there is no increase in childhood **overweight**;
  - increase the rate of **exclusive breastfeeding** in the first 6 months up to at least 50%;
  - reduce and maintain childhood **wasting** (low weight for height) to less than 5%.

5.9. GLOBAL REPORT ON FOOD CRISES-2020

- Report is released by Global Network Against Food Crises (GNAF).
- GNAF is an international alliance working to address root causes of extreme hunger which was co-founded by **European Union, FAO** and World Food Programme (**WFP**) at the 2016 World Humanitarian Summit (WHS).

5.10. SWACHH BHARAT MISSION (GRAMIN) [PHASE II]

Why in News?

Ministry of Jal Shakti recently launched the **second phase of Swachh Bharat Mission (Grameen)**, which has a total **outlay of ₹1,40,881 crore.**

Swachh Bharat Mission (SBM) – Gramin

- **SBM- Gramin is a sub mission** of SBM and is being implemented **by Ministry of Jal Shakti.**
- It has following objectives –

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- o Bring **improvement in the general quality of life by promoting cleanliness**, hygiene and eliminating open defecation.
- o **Accelerate sanitation coverage in rural areas** to achieve Swachh Bharat Vision.
- o Motivate communities and Panchayati Raj Institutions to **adopt sustainable sanitation practices** and facilities through awareness creation and health education.
- o Encourage **cost effective technology**
- o **Develop community managed sanitation systems** focusing on scientific solid waste management.
- o Create significant positive impact on gender and promote social inclusion by improving sanitation especially in marginalized communities

> **Related information**
> **Swachh Manch web portal**
> - It is a **web-based platform** launched under the SBM which aims to bring together **every stakeholder contributing** to the Swachh Bharat Mission under a **common platform**.
> - The platform will allow stakeholders to **create/invite/participate in volunteering opportunities** around neighbourhoods.
> - It will **enable uploads of pictorial evidence** of citizens and organizations participating in the initiatives, as well as **record the number of hours volunteered**, as acknowledgement of citizens'/organisations' efforts and contributions to the cause of 'swachhata'.
> - It will also be **integrated with the existing Swachhata App** to act as a citizens' grievance redressal platform.

About Swachh Bharat Mission (Gramin) [Phase II]

- It will focus on **sustaining the gains made under the programme** in the last five years in terms of toilet access and usage, ensuring that no one is left behind.
- It will ensure that **effective solid and liquid waste management (SLWM)** is instituted in every Gram Panchayat of the country.
- It will focus on **Open Defecation Free Plus (ODF Plus),** which includes ODF sustainability and Solid and Liquid Waste Management (SLWM).

- o **SLWM component of** ODF Plus, will be monitored on the basis of **output-outcome indicators** for four key areas:
  - ✓ **plastic waste management,**
  - ✓ **bio-degradable solid waste management** (including animal waste management),
  - ✓ **greywater management**
  - ✓ **faecal sludge management**.
- It will be implemented **from 2020-2021 to 2024-2025** in a **mission mode.**
- It will **continue to generate employment** and provide **impetus to the rural economy** through the construction of household toilets and community toilets, as well as **infrastructure for solid and liquid waste management (SLWM)** such as compost pits, soak pits, waste stabilisation ponds, material recovery facilities etc.
- **Funding for the project:** It will be a novel model of convergence between different verticals of financing.
  - o Allocated **from the budget** of Department of Drinking Water and Sanitation.
  - o The **remaining amount** will be dovetailed from the funds being released under the **15th finance commission, MGNREGS and revenue generation models particularly for SLWM.**
- **Provisions**
  - o Provision for incentive of **Rs.12,000/- for construction of Individual Household Toilet** (IHHL) to the newly emerging eligible households as per the existing norms will continue.
  - o Funding norms for SLWM have been rationalized and changed to per capita basis in place of number of households.
  - o **Financial assistance to the Gram Panchayats** (GPs) for construction of Community Managed Sanitary Complex (CMSC) at village level has been **increased from Rs.2 lakh to Rs.3 lakh per CMSC**.
  - o **Fund sharing pattern** between Centre and States will be 90:10 for North-Eastern States and Himalayan States and UT of J&K; 60:40 for other States; and 100:0 for other Union Territories, for all the components.

6. SCIENCE AND TECHNOLOGY

6.1. BIOTECHNOLOGY

6.1.1. INDIAN INITIATIVE ON EARTH BIOGENOME SEQUENCING (IIEBS)

Why in news?

Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) has been selected to take part in **Indian Initiative on Earth BioGenome Sequencing (IIEBS).**

About JNTBGRI
- It is an **autonomous R & D organisation** set up in 1979 in Thiruvananthapuram, Kerala.
- It is recognised as a '**National Centre of Excellence** in ex situ conservation and sustainable utilisation of tropical plants diversity'.

About Indian Initiative on Earth BioGenome Sequencing (IIEBS)

- This project aims to **decode the genetic information** of **all known species of plants and animals** in the country.
- **The National Institute of Plant Genome Research, New Delhi** is the coordinating centre involving a total of 24 institutes.
- The project is **part of the Earth BioGenome Project.**
- The whole genome sequencing of **1,000 species** of plants and animals will be taken up in the **initial phase of IIEBS** to be completed over a **period of five years** at an estimated cost of ₹440 crore.
- It will help in
  - o **collection and preservation** of endangered and economically important species.
  - o **prevention of biopiracy.**
    - ✓ Biopiracy is **exploitative use of genetic code of plants or animals**, without compensating the countries from which the material or relevant knowledge is obtained.

About Earth BioGenome project

- It is a global effort launched in 2018, **involving scientific partners and funders** from around the globe.
- It aims to **sequence, catalogue and characterise genomes** of all of Earth's **eukaryotic biodiversity** over a **period of ten years.**

- **Vision-** Create a new foundation for biology to drive solutions for **preserving biodiversity and sustaining human societies.**

About Genome Sequencing
- A genome is an **organism's complete set of deoxyribonucleic acid (DNA)**.
- **Sequencing a genome means** deciphering the **exact order of base pairs** in an organism.
- The way **these base pairs are arranged**, or variations and mutations in their pattern, can provide clues about the individual's health or ill health, inherited or acquired.

Related Information
- **Eukaryotic organisms** are those whose **cells contain a nucleus and organelles,** and are enclosed by a plasma membrane.
- It includes protozoa, fungi, plants and animals.
- **Prokaryotic cells** are **cells** that do not have a true nucleus or membrane-bound organelles. E.g. Bacteria
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6.1.2. OTHER IMPORTANT NEWS

Methane Oxidizing Bacteria (Methano-trophs)	• Scientists at Agharkar Research Institute (ARI), Pune have **isolated 45 different strains of methanotrophic bacteria.**
	• Methane oxidizing bacteria (methanotrophs) grow on methane as their sole source of carbon and energy.
	• They are **capable of reducing methane emissions from rice plants** and also positive or neutral effect on growth of rice.
	  o Rice fields are waterlogged and anaerobic degradation of organic matter results in the generation of methane. They contribute to nearly **10% of global methane emissions**.
	  o Methane is the second most important greenhouse gas (after CO2) and 26 times more potent as compared to carbon-di-oxide. In rice fields, methanotrophs **are active near the roots or soil-water interfaces.**
	• Also, **bio-methane** generated from waste can be used by methanotrophs to convert into value added products such as single cell proteins, carotenoids, biodiesel etc. to reduce global warming due to GHG emission.

6.2. SPACE RELATED TECHNOLOGICAL DEVELOPMENTS

6.2.1. BLACK HOLES

Why in news?

- GW190412 is **first observation of a Binary Black Hole (BBH) Merger** where two black holes of distinctly different masses merged.

- Study confirmed that **Primordial Black Holes (PBH)** were born as a result of a tiny bump in potential energy levels of universe, at a time when it was expanding rapidly.
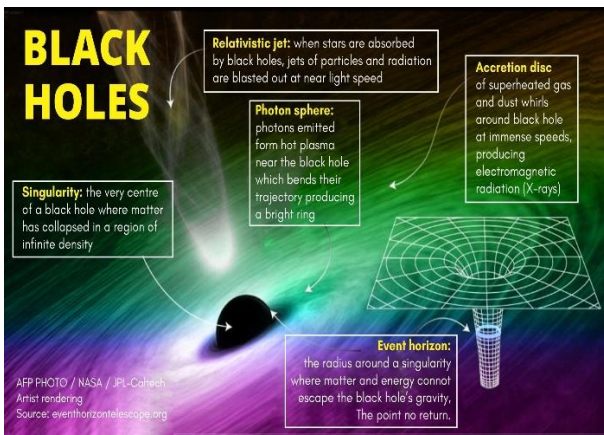
About Black Hole

- A black hole is a place in space where gravity pulls so much that even light cannot get out. The gravity is so strong because matter has been squeezed into a tiny space.

- Black holes **form when a star with a mass greater than three times that of our sun runs out of fuel.** It explodes into a supernova and collapses into an extremely dense core that we know as a black hole

- **Albert Einstein theorized** Black holes **in 1915.**

- In 2019, NASA released first ever photograph of black hole and its shadow which was captured by **Event Horizon Telescope**.

Primordial Black Holes

- PBHs are type of black hole **formed as a result of collapsing radiations** as **opposed to collapse of massive stars,** which is case of any other black holes.

- PBH **were formed during Hot Big Bang phase** and can be massively large as 3000kms or be extremely tiny like nucleus of atom.

Binary Black Hole (BBH) merger

- BBH is a system consisting of **two black holes in close orbit** around each other.

- All discoveries of BBH mergers, till now, were those involving Black Holes of comparable masses.

- When merger of this pair happens, an immense amount of energy is **released as gravitational waves**.

About Gravitational Waves
- **Gravitational waves** are **'ripples' in space-time** travelling at speed of light and are caused by some of most violent and energetic processes in Universe.
  - They carry with them **information about their cataclysmic origins, as well as clues to nature of gravity itself.**
- They are **created when**
  - objects move at very high speeds,
  - when a star explodes asymmetrically (called a supernova),
  - when two big stars orbit each other,
  - when two black holes orbit each other and merge.
- **Albert Einstein predicted existence** of gravitational waves in 1916 in his general theory of relativity.
- **GW were first detected in 2015** by Laser Interferometer Gravitational Wave Observatory (LIGO), located in US.

Related information:
About Big Bang Nucleosynthesis Theory
- In the early Universe, the temperature was so great that all matter was fully ionized and dissociated.
- Roughly three minutes after the Big Bang itself, the temperature of the Universe rapidly cooled from 10^{32} Kelvin to approximately 10^9 Kelvin.
- At this temperature, nucleosynthesis, or the production of light elements, could take place. In a short time interval, protons and neutrons collided to produce deuterium (one proton bound to one neutron).
- Most of the deuterium then collided with other protons and neutrons to produce helium and a small amount of tritium (one proton and two neutrons).

Lithium Rich Giant Stars
- Recently, Researchers at the **Indian Institute of Astrophysics (IIA)**, under the Department of Science and Technology, have **discovered hundreds of Lithium (Li) rich giant stars**.
- Lithium is one of the three primordial elements, apart from Hydrogen and Helium (He) produced in the Big Bang Nucleosynthesis.
- The discovery of **Li rich giant stars** indicate that Li is being produced in the stars and is abundant in the interstellar medium.
- IIA team has also associated such Li enhancement with **central Helium-burning stars**, known as **Red clump giants,** thereby opening up new vistas in the **evolution of the Red giant stars (a dying star in the last stages of stellar evolution).**

6.2.2. SUN SPOT CYCLE

Why in news?

Researchers from IISER Kolkata identified Sunspots that herald the start of a **new Sun Spot cycle**.

What are Sun Spots?

- Sunspots are areas that **appear dark** on the surface of the Sun and are cooler than other parts of the Sun's surface.
- They form at areas where **magnetic fields are so strong** that they keep some of the heat within the Sun from reaching the surface.
- Sunspot activity may be **correlated with climate on earth**. Between 1645 and 1715, sun spot activity had come to a halt– a phenomenon referred to as **the Maunder minimum**. This coincided with extremely cold weather globally.

What is Sun Spot cycle?

- Sun Spot's number waxes and wanes as the amount of magnetic flux that rises up to the Sun's surface varies with time in a cycle called the **solar cycle**. This cycle which lasts 11 years on average is referred to as the **sunspot cycle**.
- So far, astronomers have documented 24 such cycles, the last one ended in 2019. Recent observations point to the signs that 25th cycle has just begun.
- Solar activities affect space weather, which can have an impact on space-based satellites, GPS, power grids and so on.
- Sunspot Cycle was discovered in 1843 by German astronomer **Samuel Heinrich Schwabe**.

Related: Solar Minimum
- It is being reported that **Sun has gone into Solar Minimum phase.**
- Sun goes through 11-year cycles of activity that peak & trough with a Solar Maximum and a Solar Minimum.
- **At Solar Maximum, Sun's surface is peppered with sun spots**, solar flares and clouds of electrified gas are thrown into space.
- **At Solar Minimum, Sun can go without sun spots** or other signs of activity for days at a time. This may cause health risks to astronauts travelling through space as the sun's magnetic field weakens and provides less shielding from these cosmic rays.

6.2.3. EXOPLANETS

Why in news?

Recently, following exoplanets were discovered:

Kepler-1649c

- It is **Earth-size exoplanet** 300 light-years away which was **recently discovered** from data of **NASA's Kepler space telescope** (retired in 2018).
- It revolves around its star in the habitable zone— the area around a star where a rocky planet could support liquid water.
- It is only **1.06 times larger than Earth** and a year on Kepler-1649c is equivalent to only 19.5 Earth days.
- Unlike Earth, the Kepler-1649c **orbits a red dwarf,** which are known for stellar flare-ups that may make a planet's environment challenging for any potential life.

Exoplanets are the planets that orbit around stars other than the Sun. They are very hard to see directly with telescopes as they are hidden by the bright glare of the stars they orbit.
Super earth
- It **is an exoplanet** that is **similar to size of Earth** but **with more mass than Earth** and **less than a larger planet like Uranus or Neptune.**
  - A **New Super-Earth Has Been Discovered** at the Centre of Our Galaxy.

K2-18b

- It is more than **eight times the mass of Earth** and orbits a red dwarf star 124 light-years away from Earth in the Leo constellation.

WASP-76b

- It is 640 light-years from earth.
- Recently, **liquid iron rain was spotted** on super-heated exoplanet WASP-76b.

Related Information: Fomalhaut B
- Recently, **researchers have confirmed that the earlier discovered exoplanet Fomalhaut b is not an exoplanet but** a giant cloud of dust left over from the collision of two planetesimals that dispersed over time.
- **Fomalhaut b**, located 25 light-years from Earth was one of the **first exoplanets ever discovered** in visible light by **NASA's Hubble Space Telescope in 2004.**

6.2.4. NASA MISSIONS

6.2.4.1. ANTARCTIC IMPULSIVE TRANSIENT ANTENNA (ANITA)

Why in news?

ANITA is **first NASA observatory for neutrinos**, a radio telescope designed **to detect ultra-high energy cosmic-ray neutrinos from a scientific balloon flying over the continent of Antarctica.**

About Neutrinos

- The neutrinos are **second most abound particles in the universe.**
- They **interact very little with anything** and pass through everything that's why it's hard to detect them.
- They **carry no electrical charge and are nearly massless.**
- They **occur in 3 different types /flavors**, separated based on mass (electron-neutrino, muon-neutrino, tau-neutrino).
- They are **produced in the core of the sun** & millions of them roam around in the solar system.
- Neutrinos **can also be made artificially**. They are produced in radioactive decays and in nuclear reactors.
- They are **least harmful of elementary particles**, as they hardly interact with matter. In fact, trillions of solar neutrinos pass through our body every second without doing any harm to us.
- **Benefits:** understanding the evolution of the universe, understanding of dark matter (as they interact with it), role in nuclear non-proliferation through remote monitoring, study of Geoneutrinos might help creating an earthquake warning system, map natural resources inside the earth.

Other neutrino study projects

- **LAGUNA** (Large Apparatus studying Grand Unification & Neutrino Astrophysics) in Europe.
- **Hyper Kamiokande Detector** at Kamioka Observatory in Hida (Japan).
- **DUNE** (Deep Underground Neutrino) project in South Dakota (US).
- China proposed Neutrino Observatory in Jianmeng Province.
- India-based Neutrino Observatory (INO) is proposed in Theni district in south Tamil Nadu.

About Anti-neutrinos
- They are antiparticles of neutrinos and are **produced in the negative beta decay.**
- Antineutrinos (as neutrinos) are **very penetrating subatomic particles**, capable of passing through Earth without any interaction.
- Neutrinos and antineutrinos belong to the family of **leptons**, which means they do not interact via strong nuclear force.

6.2.4.2. OTHER NASA INITIATIVES

Sun Radio Interferometer Space Experiment (SunRise Mission)	• Recently, National Aeronautics and Space Administration (NASA) announced SunRISE Mission.
	• It will e**xplore how Sun generates and releases the giant weather storms, known as the solar particle storms**, into space.
	  ○ **Solar storms** are a variety of **eruptions of mass and energy from the solar surface** such as flares, coronal mass ejections etc.
	  ○ They all involve **sudden releases of stored magnetic energy**, which accelerates the hot gases near the surface or in the corona of the Sun.
	  ○ Sometimes these particles make it all the way to the Earth and beyond by flowing along the Sun's magnetic field into interplanetary space.
	  ○ When the material collides with the Earth's magnetic field and trapped radiation belts, it can dump particles into our upper atmosphere to **cause the Aurora.**
	  ○ The same 'charged' particles can produce their own magnetic fields which **can modify the Earth's magnetic field and affect compass readings.**
	  ○ The changing magnetic fields can also 'induce' electricity in long pipelines, or **produce electrical surges in our power grids** leading to brown outs and black outs.

DEMO-2 Mission	• It is a NASA's mission **to send astronauts to International Space Station** (ISS) on **SpaceX's Crew Dragon spacecraft.** • It will mark NASA's first crew launch since the agency's Space Shuttle fleet retired in 2011. Since 2011, Russian Soyuz spacecraft has been the sole means of human transport to the ISS, delivering mostly long-term crew. • It **will use a Falcon 9 rocket** (also built by SpaceX)**.** SpaceX in its **DEMO-1 mission** launched its **first un-crewed test flight** to the International Space Station in 2019. ○ **SpaceX is one of two commercial companies tapped by NASA** to fly astronauts to and from the International Space Station. The other company is Boeing. **About International Space Station (ISS)** • ISS is a modular space station (habitable artificial satellite) in low Earth orbit. • The ISS programme is a **multi-national collaborative project between five participating space agencies:** NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA

	(Europe), and CSA (Canada). The ownership and use of the space station is established by intergovernmental treaties and agreements.
	• It **serves as a microgravity and space environment** research laboratory in which scientific experiments are conducted in astrobiology, astronomy, meteorology, physics, and other fields.
Artemis Accords for Responsible Space Exploration	• Artemis Accord are a **series of bilateral agreements between NASA and its international partners** that want to cooperate on **Artemis program** o Artemis is NASA's moon mission under which it will land the first woman and the next man on Moon by 2024. • It has been established to **create common set of principles** to govern the civil exploration and use of outer space at times when numerous countries and private sector players conducting missions and operations in **cislunar space** (space between earth and moon). • The **agreement includes various norms** such as transparency, peaceful exploration, Interoperability of systems, Registration of Space Objects, Orbital Debris & Spacecraft Disposal etc. • Accord is **based on the Outer Space Treaty of 1967** that was created to ensure fairness and peaceful relationships at a time when humans were first exploring the final frontier. • France, Japan, Australia and Canada have already shown their support. **India has not clarified its stand yet.**
Cassini mission	• It is a **joint endeavor of NASA, ESA and the Italian space agency.** • It is sophisticated robotic spacecraft **sent to study Saturn** and its complex system of rings and moons and Saturn's Magnetosphere. • Cassini carried a probe called **Huygen**s to the Saturn system which landed on surface of Saturn's largest moon, Titan. • Recently data from Cassini Mission showed outer layer of Saturn, Jupiter, Neptune and Uranus, are hot just like the Earth's likely due to electric current at the planets' poles.
Double Asteroid Redirection Test (DART) Mission	• It is a proposed mission of National Aeronautics and Space Administration (NASA), for **preventing an impact of Earth by a hazardous asteroid.** • DART will be first demonstration of **kinetic impactor technique** to change the motion of an asteroid in space. • **Binary near-Earth asteroid** (65803) **Didymos** is target for the DART demonstration. • It is planned to be launched in July 2021.
OSIRIS-Rex (Origins Spectral Interpretation Resource Identification Security - Regolith Explorer)	• It is a **NASA spacecraft**, that will **travel to near-Earth asteroid, called Bennu** and bring sample back to Earth for study. • It was **launched in 2016,** and **first sample collection attempt** is now scheduled for October, during which spacecraft will descend to Bennu's surface and collect material. • It is scheduled to **depart Bennu in 2021** and will return sample to Earth in 2023. • It will help scientists **investigate how planets formed** and how life began, and improve understanding of asteroids.

6.2.5. OTHER SPACE MISSIONS

Advanced Extremely High Frequency (AEHF-6) satellite	• AEHF system is series of **six military communication satellites** for U.S. Space Force. Sixth satellite is launched successfully by US. • **US space force** was established as separate military branch in 2019.
Arktika-M	• It is a series of satellites to be launched by Russia for **monitoring Arctic climate.** First of Arktika-M satellite will be launched by this year end.
Tianwen-1	• **Tianwen-1** is China's first Mars exploration mission to be launched later this year. • Mission includes an **orbiting spacecraft, landing craft and a detachable rover** to roam the Martian surface. • **China's earlier attempted** an exploratory probe to Mars called **Yinghuo-1**, in a Russian spacecraft in 2011. o This has failed as it was declared lost and later burnt during re-entry. • **US, Russia, EU and India** have so far succeeded in sending missions to Mars. • India is also **first country** to have entered the **Martian orbit in its first attempt.**
Xingyun-2 01 and 02	• China will launch the two communications satellites named **Xingyun-2 01 and 02** for its **space-based Internet-of-Things project.** o **Internet of Things (IoT) is** the concept of **connecting any device to the Internet and to other connected devices all of which collect and share data** about the way they are used and about the environment around them.

6.3. IT & COMPUTER

6.3.1. SUPREME COURT LIFTS CURBS ON CRYPTOCURRENCIES

Why in News?

Recently, Supreme Court has set aside an RBI's April 2018 circular banning regulated financial institutions such as Banks and NBFCs from trading in virtual currency/cryptocurrency.

HOW IT WORKS:

Someone requests a transaction

The requested transaction is broadcast to P2P network consisting of computers known as nodes.

A verified transaction can involve Cryptocurrency, contracts, records, or other information

VALIDATION
The network of nodes validates the transaction and the user's status using known algorithms.

Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.

The new block is then added to the existing blockchain, in a way that is permanent and unalterable

Transaction is complete

CRYPTOCURRENCY

Meaning: It is medium of exchange, created and stored electronically in the blockchain, using encryption techniques to control the creation of monetary units and to verify the transfer of funds.
Bitcoin is the best known example

- Has no Intrinsic Value in that it is not redeemable for another commodity, such as gold.
- Has no Physical Form and exists only in the network
- Its Supply is not Determined by a Central Bank and the network is completely decentralized.

What is Cryptocurrency?

- Cryptocurrency is **a type of digital currency that uses cryptography** for security and anticounterfeiting measures.
- It is normally **not issued by any central authority**, making it **immune to government interference** or manipulation.
- The control of each cryptocurrency works through distributed ledger technology called **blockchain.**
- **Examples** include Bitcoin, Ethereum, Ripple etc.
- **Various benefits of cryptocurrencies include:**
  - **Difficult to counterfeit** as compared to physical currency.
  - **There aren't usually transaction fees** for cryptocurrency exchanges because the miners are compensated by the network.

- Blockchain technology can be used for **enhancing the efficiency of the financial system**.
- Recently, an inter-ministerial committee on virtual currencies headed by Subhash Chandra Garg has proposed the draft **Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019.**
  - It has proposed banning of private cryptocurrencies in India by enacting a law and imposing fines and penalties for carrying on activities related to such cryptocurrencies.

Issues related with cryptocurrency

- The issuance of currency is a sovereign function. Thus, private entities issuing currency instruments **undermines the macroeconomic and financial stability of the country.**
- Due to anonymous nature of transactions they are **well-suited for illegal activitie**s such as money laundering, tax evasion etc.
- **High risk involved** for the investors as rate of exchange of cryptocurrencies fluctuate widely and a digital cryptocurrency balance can be wiped out by a computer crash.
- Cryptocurrencies have the potential of being a Ponzi scheme (**investment fraud**).
- Recently concerns are being raised on its **immunity to hacks** as well.
- **High energy consumption** during the mining of cryptocurrency which contributes to global warming.

6.3.2. INFLIGHT WIFI

Why in news?

Union government recently issued a notification to announce that all airlines operating in India can now provide in-flight wi-fi services to its passengers.

Wi-fi
- The term Wi-Fi stands for wireless fidelity.
- It is a **radio transmission technology** and is built upon a set of standards that allow high-speed and secure communications between a wide variety of digital devices, access points, and hardware.
- The typical range of a standard Wi-Fi network can reach up to 100 meters in the open air.
- They transmit at frequencies of 2.4 GHz or 5 GHz.

Hotspot
A hotspot is a physical location where people can access the Internet, typically using Wi-Fi, via a wireless local area network (WLAN) with a router connected to an Internet service provider.

How does Inflight Wifi work?

There are two operating systems for airplane WiFi:
Air-to-ground WiFi System

- It works in a similar way to a cell phone.
- Airplanes have an antenna located underneath their body, which links up with cell towers on the ground.
- As the aircraft travels, it simply connects to the nearest transmitter/towers on a rolling basis.
- The airplane becomes a hotspot, so passengers can access internet.
- However, this system can't work when the plane is flying over large expanses of water or particularly remote terrain, like on transatlantic routes.

Satellite based WiFi System

- It uses a network of orbiting satellites to allow a connection.
- Information is passed between the ground and the plane via the satellite.
  - The satellite is linked to ground stations.
  - The airplane connects to the satellite using a satellite antenna on the top of the fuselage.
- Wi-Fi signal is distributed to plane passengers via an on board router.
- The plane uses whichever satellite is nearest as it travels and thus can operate over large expanses of water or remote terrain as well.
- Satellite WiFi operates on two different bandwidths: narrowband and broadband. Both allow passengers full Internet access, although the narrower options are less suitable for streaming movies.

6.3.3. NATIONAL SUPERCOMPUTING MISSION (NSM)

Why in news?

India to get 14 new supercomputers under the mission. Once deployed, the total number of supercomputers under the mission would grow to 17.

About Supercomputers
- A **supercomputer** is a computer with a high level of performance as compared to a general-purpose computer. The performance of a **supercomputer** is commonly measured in floating-point operations per second (FLOPS).
- Memory of a supercomputer is averaged around 250000 times of the usual computer.
- **Application areas:** Climate Modelling, Computational Biology, Atomic Energy

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Simulations, National Security/ Defence Applications, Disaster Simulations and Management, Computational Material Science and Nanomaterials, Cyber Physical Systems, Big Data Analytics etc.

About National Supercomputing Mission

- NSM was launched in 2015 to empower national academic and R&D institutions by installing a vast supercomputing grid comprising of more than 70 high-performance computing facilities. NSM envisages:
  - **Installing network of supercomputers** with cumulative capacity of 45 PF, ranging from few Tera Flops (TF) to Hundreds of TF and three systems with greater than or equal to 3 Peta Flops (PF) in academic and research institutions of National importance by 2022.
  - Connecting these supercomputers on **National Supercomputing grid** over **National Knowledge Network** – which connects academic institutions and R&D labs over a high-speed network.
  - Development of **highly professional High-Performance Computing** aware human resource.
- NSM is **jointly implemented by Ministry of Electronics and IT and Department of Science and Technology** along with C-DAC and IISc as executing agencies.
- Under NSM, **Param Shivay – first supercomputer was assembled indigenously** is installed in IIT (BHU). **Param Shakti** and **Param Brahma** were installed at IIT-Kharagpur and IISER, Pune.

Related Information: Top-500 Project
- Started in 1993, it ranks the 500 most powerful non-distributed computers in the world.
- It publishes an updated list of the supercomputers twice a year.
- Currently, China dominates the list with 229 supercomputers, leading the second place (United States) by a record margin of 121.
- Japan's Fugaku supercomputer is the world's most powerful supercomputer, based on the LINPACK benchmarks.
  - LINPACK benchmark are a measure of a system's floating point computer power. It measures how far a computer solves a system of linear equations.
- India has 4 supercomputers in the Top-500 list of the world's top 500 supercomputers with **Pratyush** and **Mihir** being the fastest supercomputers in India.

6.3.4. OTHER IMPORTANT NEWS

MAC-Binding	• While restoring internet connectivity in Jammu and Kashmir rules specified that Internet connectivity will be made available **"with mac-binding".** • Every device has a **Media Access Control (MAC)** address**, a hardware identification number** that is unique to it. While accessing the Internet, every device is assigned an **Internet Protocol (IP) address.** • Mac-binding means **binding together the MAC and IP addresses**, so that all requests from that IP address are served only by the computer having that particular MAC address. • It means that if the IP address or the MAC address changes, the device can no longer access the Internet. • Also, **monitoring authorities can trace the specific system** from which a particular online activity was carried out.
Self-Service Blockchain Track and Trace Platform for Businesses	• Recently, a **Self-Service Blockchain Track and Trace Platform for Businesses** was launched • This pilot platform is capable of **blockchain-based supply chain data from multiple companies and sources.** • **It is first public blockchain-based platform** built for accelerating **transparency and sustainability** across manufacturing ecosystems. • This platform is created by Everledger, International Trade Centre (ITC) and Lenzing Group, in collaboration with the **World Economic Forum**.
Maze Ransomware	• Recently, IT services provider Cognizant had faced **Maze ransomware** attack. • A **ransomware attack infects computers** in a network and **encrypts files on these computers** and then **demands a ransom to recover the files.** • In 2019, Global cybersecurity firm Kaspersky Security identified three prominent ransomwares- **Ryuk, Purga and Stop**. India was attacked by all three groups of ransomwares.
EventBot Trojan	• **It is a mobile Banking Trojan and information stealer** that specifically targets financial apps on phone and steals financial data of its victim. • A Trojan horse or Trojan is a **type of malware that is often disguised as legitimate software.**
CollabCAD	• It is a collaborative network, **computer enabled software system**, that would provide a total engineering solution from 2D drafting & detailing to 3D product design. • It is jointly **launched by NITI Aayog and National Informatics Centre (NIC)** • The aim of this is to provide a platform to **students of Atal Tinkering Labs (ATLs) across country** to create data across the network and concurrently access the same design data for storage and visualization. • ATLs are established across India in 5,000 schools and provide tinkering spaces to children to hone their innovative ideas and creativity.
National Artificial Intelligence Portal (www.ai.gov.in)	• It will work as **one stop digital platform for AI related developments in India,** sharing of resources such as articles, startups, investment funds in AI, resources, companies and educational institutions related to AI in India. • **National e-Governance Division** of Ministry of Electronics and IT a**nd NASSCOM will jointly run this portal.**

6.4. HEALTH

6.4.1. COVID-19

Why in news?

There is a large scale outbreak of COVID-19 (Coronavirus Disease 2019) across the world.

Coronavirus and its origin

• Coronaviruses are a large family of viruses that **circulate among a range of animals**, such as bats, cats, and birds. Sometimes these viruses make a jump over from animals to humans (known as **Spill over**) causing diseases known as **Zoonotic diseases.**
   o This spill over happens **due to factors such as mutations in the virus or increased contact between humans and animals.**

• The virus **causes respiratory and gastrointestinal symptoms** in humans **with infectious diseases ranging from common cold to more severe diseases** such as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and CoVID-19.

• While the **SARS coronavirus is thought to have evolved from infecting bats to civet cats to humans** in the Guangdong province of southern China in 2002, the **MERS evolved from bats to camels to humans** in Saudi Arabia in 2012.

• Research suggests that the **original source of the virus that caused COVID-19 was bats, and pangolins might have acted as intermediaries.** The mutation and natural selection might have

taken place either inside pangolins or in humans after transfer from pangolins. This virus was **first identified in Wuhan (Hubei province), China in 2019.**

1. Spike protein on the virion binds to ACE2, a cell-surface protein. TMPRSS2, an enzyme, helps the virion enter **2.** The virion releases its RNA **3.** Some RNA is translated into proteins by the cell's machinery **4.** Some of these proteins form a replication complex to make more RNA **5.** Proteins and RNA are assembled into a new virion in the Golgi and **6.** released.
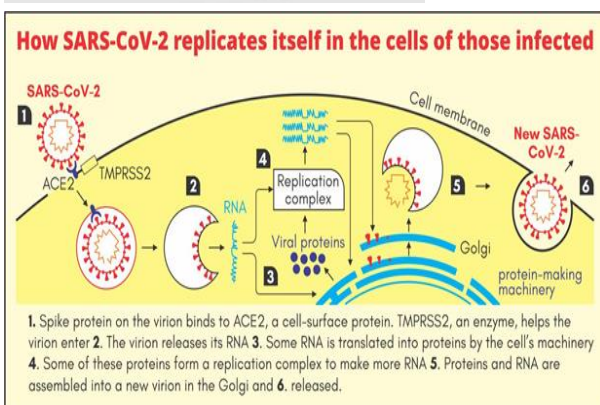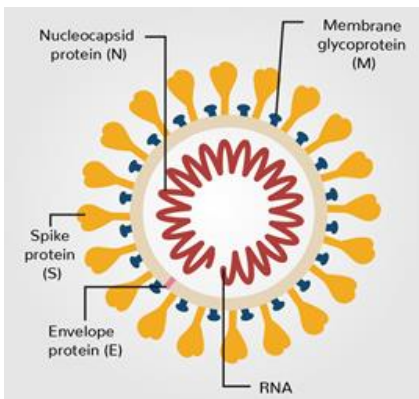
Structure and physiology of the virus

- Coronaviruses are spherical shaped and consist of a core of genetic material **(RNA) surrounded by an envelope with mushroom shaped protein spikes.** These spikes binds and fuses to human cells allowing the virus to gain entry and replicate itself inside the body.
- Each virus particle is just between 50–200 nanometres in diameter (human hair is 80000nm in diameter).
- The **protein spikes gives the appearance of a crown or a halo around the Sun.** Crown in Latin is called as "Corona" and this is how the virus also got its name.
- **COVID-19 is caused by SARS-CoV-2 also known as novel coronavirus (n-CoV),** as it is very similar to the one that caused SARS in 2002 **(98% sequence identity with the spike protein).**
- SARS-CoV-2 has spike proteins which contain a receptor-binding domain (RBD). The **RBD facilitates the virus' entry into target cells by binding with the cellular receptor called angiotensin-converting enzyme-2 (ACE-2)** found in heart, lungs, kidneys and the gastrointestinal tract.
- Once inside, it hijacks the cell's reproductive machinery to produce more copies of itself,

before breaking out of the cell again and killing it in the process.

- **However, unlike in the case of SARS, the spike protein of the novel coronavirus binds to the cell receptor with much higher affinity** — 10- to 20-fold higher. The RBD's bonding affinity is increased due to mutation within the virus.
- This stronger bonding affinity **partly explains the apparent high human-to-human transmissibility** and COVID-19's faster spread as compared to SARS epidemic in 2002-2003 across 29 countries.

DNA VIRUSES	RNA VIRUSES
DNA viruses refer to viruses whose genetic information is stored in the form of DNA	RNA viruses refer to viruses whose genetic information is stored in the form of RNA
Contain DNA as their genetic material	Contain RNA as their genetic material
Most are double-stranded	Most are single-stranded
Replicated inside the nucleus of the host cell	First transcribed and then replicated in the cytoplasm
Viral DNA is first transcribed into RNA, and then mRNA is translated into viral proteins	Can bypass transcription during protein synthesis since they already contain RNA in the genome
Stable due to the lower mutation rate	Unstable due to the higher mutation rate
Shows an accurate replication	Shows an error-prone replication
Contain a large genome	Contain a small genome
Newly-synthesized viral DNA is packed into a pre-formed capsid called procapsid	Newly-synthesized viral RNA is not packed in a procapsid
Smallpox, herpes, and chickenpox are diseases of DNA viruses	Aids, Ebola hemorrhagic fever, SARS, common cold, etc. are some diseases of RNA viruses

Primary case and Index case in a disease outbreak

- The term **primary case can only apply to infectious diseases** that spread from human to human, and **refers to the person who first brings a disease into a group of people**. For many outbreaks, the primary case will never be known—the worldwide HIV epidemic is one example.
- The **index case (sometimes referred to as patient zero) is the first documented patient** infected by a viral or bacterial disease in an outbreak within a population.
  - The index case may or may not indicate the source of the disease, the possible spread, or which reservoir holds the disease in between outbreaks, but may bring awareness of an emerging outbreak.
  - Even **outbreaks of disease that is not spread from human to human, might have an index case.**
  - As per the data available, a shrimp seller in Wuhan has been identified as **'patient zero' in the current COVID-19 outbreak.**

6.4.1.1. EPIDEMIOLOGY OF SARS-COV-2

Viral epidemiology is the **scientific discipline concerned with** the **study of the incidence and spread of viruses** in populations over time the **ultimate goal of which is to devise intervention strategies.**

Geographic distribution	COVID-19 cases have been **reported in all continents, except for Antarctica,** and have been steadily rising around the world.
Route of transmission —	• **mainly via respiratory droplets of an infected person.** • **through aerosols** in the air.

Reproduction Number (the number of additional cases that likely result from an initial case)	• **R0 (R-naught)**, also called the basic reproduction number, is the rate at which a virus is transmitted.
	    o R0= new infections/existing infections; or the average number of new infections over an infectious period.
	    o It indicates the average number of people who will contract the virus from an infected person, in a population that does not have immunity (herd immunity or vaccination) for the said disease.
	    o R0=1 indicates constant number of infected people, below 1- transmission to fewer people, above 1- transmission to higher numbers.
	 • According to WHO, COVID 19 reproduction number is understood to be between 2 and 2.5 (may also be as high as 5).

Incubation period (the time between catching the virus and beginning to have symptoms of the disease)	• **14 days following exposure,** with most cases occurring approximately four to five days after exposure. • **An infected person can transmit the virus during this period** i.e. in asymptomatic period.

Symptoms	• **fever, cough, shortness of breath** are the classical symptoms.
	 • loss of either smell or taste may also be an early warning sign of COVID-19
	 • **may present with mild, moderate, or severe illness**; the latter includes severe pneumonia, ARDS [Acute Respiratory Distress Syndrome], sepsis and cytokine storms.
	    o **Sepsis is an organ dysfunction** caused by the body's immune system overreacting in response to an infection and can be triggered by a variety of pathogens including viruses, bacteria, fungi or parasites.
	    o **Cytokine storm** is the **overproduction of immune cells and proteins by the body to fight with the infection.** In this case **immune cells spread beyond infected body parts and start attacking healthy tissues** leading to lung inflammation and fluid build-up, and respiratory distress.

Fatality rate (the proportion of deaths a disease causes within a group of people who have the disease)	Individuals of any age can acquire severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, but the fatality rate **increases with the age and with pre-existing medical conditions** such as cardiovascular disease and diabetes.
Period of infectivity (The interval during which an individual with COVID-19 is infectious)	• Determined by evaluating viral RNA detection from respiratory and other specimens after symptom onset and later in the illness. • It is currently **uncertain for COVID-19.**
Seasonality of the virus (Season/weather during which the virus remains most active)	• Coronaviruses in animals are not always seasonal but have historically been so in humans for reasons that are not fully understood. • There is however **no evidence so far about the novel coronavirus's seasonality.**

6.4.1.2. DIAGNOSIS

Currently following tests are available for identifying coronavirus infection in a person:

Serological Tests/ Antibody Detection Tests:	• These are **blood/serum/plasma test carried out to determine whether an individual's body has IgM and IgG antibodies** developed against the SARS-CoV-2.
	    o **Immunoglobulins**, also known as antibodies, are glycoprotein molecules produced by plasma cells (white blood cells). They act as a critical part of the immune response by specifically recognizing and binding to particular antigens, such as bacteria or viruses, and aiding in their destruction.
	    o IgM is the first antibody that the body makes when it fights a new infection and it does not stays for long while IgG can take time to form after an infection or immunization thus indicating an old infection.

Updated Classroom Study Material

	• **If antibodies are present** in the sample, these bind to the antigen immobilised on the test strip and give a coloured reaction. • These are carried out for symptomatic individuals and have to be confirmed by molecular tests. • It is also **helpful tool for scientist to determine** the extent to which a disease has spread and how many have developed immunity to it.
Molecular Test/ Reverse-Transcription Polymerase Chain Reaction (RT-PCR) test:	• This **identifies the presence of virus itself based on its genetic fingerprint.** **RT-PCR Test:** • When a person is suspected to be suffering from COVID-19, an oral/nasal swab is taken (another option is the bronchoalveolar lavage (BAL) method, which a bronchoscope is passed to obtain fluid from lungs or sputum). • **Viral Ribonucleic Acid (RNA)** is isolated from these swabs using a variety of chemicals. • Enzymes are then added to transcribe the RNA into DNA. This DNA is put into a real-time PCR (RT-PCR) machine that xeroxes the DNA, making thousands of copies of any genetic material in the samples. • Scientists then **use sets of DNA fragments** that complement fragments found in the coronavirus. • If **any viral genetic material is present, these fragments will bind to it**. • Chemical markers attached to the DNA release fluorescence when this DNA binding occurs. • It's these flashes of fluorescence that scientists use to determine whether the virus is present in a sample. • Earlier it was also used for Ebola and Zika diagnosis.
Pool Testing Method	• Developed by German Red Cross Blood Donor Service in Frankfurt • It involves **simultaneously testing a combined sample from multiple people** from a household or a local cluster to widen reach and speed up results. **Suitable for expanded testing in larger population groups.** • In the case of a positive mini-pool result, individual testing is carried out in previously reserved samples. In the case of a negative result, all included samples have a reliable negative result. • It was **earlier used during large outbreaks and invisible community transmission, such as of HIV.**

India's Approach

• ICMR's **initial strategy was of testing those with a travel history and showing symptoms,** and those who have come in contact with persons having a travel history.
• Lately, it was **revised to test all pneumonia patients** for novel coronavirus, hospitals across the country have taken to testing all patients admitted with severe respiratory illnesses.
• The new guidelines state **asymptomatic direct and high-risk contacts of a confirmed case should be tested** once between Day 5 and Day 14 of coming in to the contact of infected person.
• In India, the **antibody detection test known as ELISA** (enzyme-linked immuno-sorbent assay) test is approved by ICMR **only for serosurveys**- which estimate the proportion of the population exposed to infection— **and for surveys in high-risk areas** and segments like containment zones, immunocompromised individuals, and frontline and health workers.
  o A positive result from ELISA or rapid antibody test may not mean the person needs isolation or is infectious; it may simply mean the person was exposed to the virus and has developed antibodies.
  o ICMR designed a **Covid Kavach ELISA IgG test** through the National Institute of Virology in Pune.
• **RT-PCR remains the final confirmatory test** for Covid-19. To diagnose and treat, doctors rely on RT-PCR, which implies active infection. Once confirmed the person has to be isolated, and treated if symptoms emerge.
  o Pune based molecular diagnostic company Mylab developed indigenous RT-PCR based diagnostic test kits.
• ICMR has suggested **Pool Testing Method for the low prevalence areas, where the positive case rate is less than 2 percent.** Here, about five samples are clubbed together for a single test. It is to be avoided in all areas where the positive case rate exceeds five percent.

Indian Council of Medical Research (ICMR) • It is apex body for **formulation, coordination and promotion of biomedical** research in India. • ICMR is funded through Department of Health Research, Ministry of Health & Family Welfare. • **Governing Body** of Council is **presided over by Union Health Minister**. It is assisted in scientific and technical matters by a Scientific Advisory Board comprising eminent experts in different biomedical disciplines. • It is located in New Delhi. • Formed as **Indian Research Fund Association** in 1911 it was redesignated as ICMR in 1949.

6.4.1.3. TRANSMISSION, TESTING AND PREVENTION RELATED DEVELOPMENTS

Vertically Transmitted Infection	• Emerging evidences suggests of vertical transmission is probable in CoVID-19. • Vertical transmission refers to the **transmission of an infection from a pregnant woman to her child.** It can be antenatal (before birth), perinatal (weeks immediately prior to or after birth) or postnatal (after birth). • Transmission **might occur across the placenta, in the breast milk, or through direct contact** during or after birth. • Among infections of which vertical transmission has been known to happen are **HIV, Zika, rubella and the herpes virus.** • ICMR has issued a Guidance for Management of Pregnant Women in COVID-19 Pandemic.
Feluda Test	• It is a **paper-based test strip developed by CSIR scientists** to detect the new coronavirus within an hour. • The test **uses the cutting-edge gene-editing tool- Crispr-Cas9** to target and identify the genomic sequences of the novel coronavirus in the samples of suspected individuals.
Chitra GeneLAMP-N	• It is a **diagnostic test kit that can confirm COVID-19** in 2 hours at low cost. • It has been **developed by Sree Chitra Tirunal Institute for Medical Sciences and Technology**, Trivandrum under the Department of Science and Technology (DST). • It detects the N Gene of SARS- COV2 **using reverse transcriptase loop-mediated amplification of viral nucleic acid (RT-LAMP) technology**, and can detect two regions of the gene, which will ensure that the test does not fail even if one region of the viral gene undergoes mutation during its current spread.
nCoVSENSEs	• Department of Science & Technology has funded "**Module Innovations**", a Pune based healthcare start-up to develop **rapid antibody test device for detecting COVID 19 with a 10 to 15 minute test.** • It **is aimed at detecting the IgG and IgM antibodies generated in the human body** upon the onset of viral infection and is targeted against the Spike proteins making it specific for COVID 19.
eCovSens	• It is a biosensor developed by National Institute of Animal Biotechnology, Hyderabad that can **detect the novel coronavirus** in saliva samples. • Biosensor is a device which **uses a living organism or biological molecules**, especially enzymes or antibodies, to detect presence of chemicals.
Project Consortium for Affordable & Rapid Diagnostics (CARD).	• Launched by **Niti Aayog and the Department of Biotechnology**. • It aims to ramp up **production of COVID-19 testing kits** in India to **expand diagnosis** as well as boost exports • The plan involves bringing scientists and laboratories in touch with private firms to produce millions of testing kits, including around 10 million rapid antibody tests that offer quick results.
COBAS 6800 Testing Machine	• It is a **fully automated, high end machine** for performing real time Polymerase Chain Reaction (PCR) testing for COVID-19. • Machine **minimizes chance of contamination** as well as **risk of infection** since it can be **operated remotely** with limited human intervention. • COBAS 6800 can **also detect other pathogens** like Viral Hepatitis B & C, HIV, MTb (both rifampicin and isoniazide resistance), Papilloma, Chlamydia, Neiserreia etc.
AcryloSorb	• It is a **highly efficient superabsorbent material** for liquid respiratory and other body fluid solidification and disinfection for the safe management of infected respiratory secretions. • It is designed and developed by Scientists at Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) an autonomous institute under the Department of Science and Technology (DST). • It **can absorb liquids at least 20 times more than its dry weight** and also contains a decontaminant for in situ disinfection. • This technology **reduces the risk for the hospital staff**, the need for personnel for disinfecting and cleaning the bottles and canisters for reusing them and makes the disposal safer and easier.
Hospital Care Assistive Robotic Device (HCARD)	• It can **help frontline health care workers in maintaining physical distance** from those infected by corona virus. It **works both in automatic as well as manual modes** of navigation. • It is **developed by Durgapur-based CSIR lab,** Central Mechanical Engineering Research Institute.
KARMI Bot	• It is a **robot deployed by a government hospital in Ernakulam, Kerela** to serve food and medicines to coronavirus patients with an aim **to reduce risk of infections for doctors and health workers.**

	• The robot is **developed by ASIMOV robotics**, a company working under maker village of Kerala start-up mission.
Microwave steriliser ('ATULYA')	• It is developed by Defence Institute of Advanced Technology, Pune, a deemed university supported by Defence Research and Development Organisation **to disintegrate COVID-19 virus.** • Virus gets disintegrated by **differential heating** in the range of **56° to 60° Celsius** temperatures. • It can be **used for non-metallic objects only**.
UV blaster	• It is an **Ultra Violet (UV) Disinfection Tower** for rapid and chemical free disinfection of high infection prone areas. • It is designed and developed by **DRDO.** • It is useful for **high tech surfaces** like electronic equipment, computers and other gadgets that are not suitable for disinfection with chemical methods. • It is also **effective for areas with large flow of people** such as airports, shopping malls, metros, hotels, factories, offices, etc.
Compendium of Indian Technologies for Combating COVID-19 (Tracing, Testing and Treating)	• It carries **information about 200 COVID-19-related Indian technologies**, research activities and efforts by Government, categorised under 3Ts of **Tracking, Testing and Treating.** • It has been prepared by **National Research Development Corporation** (NRDC). o **NRDC** was established in 1953, with **objective** to **promote, develop and commercialise the technologies,** inventions, patents etc. emanating from various national R&D institutions. • It is working under **Department of Scientific & Industrial Research.**
Defence Research Ultraviolet Sanitiser (DRUVS)	• It is an **automated, contactless UV cabinet system** to sanitise electronic gadgets, papers and currency notes. • It provides a **360-degree exposure of UV rays** to objects placed inside the cabinet. • Developed by: Hyderabad based DRDO's lab, Research Centre Imarat (RCI).

6.4.1.4. TREATMENT

To date, there is **no vaccine and no specific drug to treat COVID-2019.** The most effective measure has been to isolate people who have tested positive, quarantine them and increase social distancing to contain the spread of virus.

Proposed and potential drugs:

WHO has recommended four drugs and their combination under its Solidarity trial initiative to find out whether any can treat infection. Those are:

• **Remdesivir:** It was **previously tested as an Ebola treatment** and generated promising results in animal studies for MERS and SARS.
• **Chloroquine and hydroxychloroquine:** are very closely related and **used to treat malaria and rheumatology conditions respectively.**
• **Ritonavir/lopinavir:** It is a **licensed treatment for HIV.**
• **Ritonavir/lopinavir with Interferon beta-1a: Interferon beta-1a is** a molecule involved in **regulating inflammation in the body** and is **used to treat multiple sclerosis.**

Genome sequencing of the coronavirus
• **India has shared nine whole genome sequence data of the novel coronavirus (SARS-CoV-2)** with the **Global Initiative on Sharing All Influenza Data (GISAID**). The sequences were shared **by the Pune-based National Institute of Virology.**

• Genetic research would **help scientists understand** the nature and the evolution of the novel coronavirus, origin of the virus and how the virus has spread. This information will thus **help in development of a vaccine and efficient treatment** methodology.
• **Global Initiative on Sharing All Influenza Data (GISAID)**
  o It is a **platform started by WHO in 2008** and **hosted by the German government in partnership with nonprofit organization Friends of GISAID.**
  o It **promotes the international sharing of** all influenza virus sequences, related clinical and epidemiological data associated with human viruses, and geographical as well as species-specific data associated with avian and other animal viruses,.
  o The Initiative **through its database named EpiFlu** ensures that open access to data is provided free-of-charge and to everyone to help researchers understand how the viruses evolve, spread and potentially become pandemics.

Convalescent Plasma Therapy:

The US Food and Drug Administration (FDA) approved use of blood plasma from recovered patients to treat severely critical COVID-19 patients.

• **About plasma therapy**
  o It **seeks to make use of the antibodies developed in the recovered patient** against the coronavirus.

o The whole blood or plasma from such people is taken, and the plasma is **then injected in critically ill patients so that the antibodies are transferred and boost their fight** against the virus.

o Either a **blood fractionation process** is used to separate the plasma from the donated blood or a special machine called **aphaeresis machine** can be used to extract the plasma directly from the donor.

o **WHO guidelines(2014) for plasma therapy:**

  ✓ **Donor's permission is mandatory** before extracting plasma.

  ✓ Plasma from **only recovered patients** must be taken,

  ✓ Donation must be done **from people not infected with HIV**, hepatitis, syphilis, or any infectious disease.

  ✓ If plasma needs to be collected again from the same person, it must be done after 12 weeks of the first donation for males and 16 weeks for females.

o **Previous usage of this therapy - Spanish flu (1918-1920), SARS (2005), H1N1 (2009), Ebola (2014) and MERS (2015).**

WHO Solidarity Trial Initiative

- It is an **international clinical trial to help find an effective treatment for COVID-19,** launched by the World Health Organization and partners.
- It **will compare four treatment options** against standard of care, to assess their relative effectiveness against COVID-19.
- Enrolling patients in one single randomized trial will help facilitate the rapid worldwide comparison of unproven treatments. This will overcome the risk of multiple small trials not generating the strong evidence needed to determine the relative effectiveness of potential treatments.

India's approach

- **Hydroxychloroquine (HCQ) is approved to be used as a prophylaxis** (i.e. treatment given or action taken to prevent disease) for COVID-19 in the following categories:
  o All **asymptomatic healthcare workers**.
  o **Asymptomatic frontline workers**.
  o **Asymptomatic household contacts** of laboratory-confirmed cases.
- The main treatment given to the patients of COVID-19 is in the form of HIV Drugs i.e. **combination of Lopinavir and Ritonavir.**
- **FabiFlu** developed by Glenmark is India's first oral antiviral drug approved **for treatment of mild & moderate COVID-19 patients.**
- **Dexamethasone** is approved for COVID-19 patients **in moderate to severe stages of**

illness. It is a **corticosteroid drug** used in a wide range of conditions for its anti-inflammatory and immunosuppressant effects and is also a **part of the National List of Essential Medicines.**

- The use of investigational therapies such as drug **Remdesivir, Convalescent Plasma Therapy and Tociluzimab** has been allowed for patients **in the severe category.**

Schedule-H1 drug

- **Hydroxychloroquine** has been declared as a schedule H1 drug.
- **Schedule H1 to the Drugs and Cosmetics Rules, 1945** means it can only be sold on a prescription by a qualified medical professional.
- It also means that **its box will have a warning label** of only prescription sale and against self-medication, and chemists would need to maintain records of sale.

6.4.1.5. VACCINE DEVELOPMENT

- There are at least **130 vaccines in various stages of development,** of which 10 are in advanced stages of development, according to data from the World Health Organisation.
- The WHO has listed Serum Institute of India, Zydus Cadila, Indian Immunologicals Limited and Bharat Biotech from India among the firms involved in developing a vaccine but **research on a COVID vaccine in India is at a very early stage of development.**

Vaccine Development Process

There are **six stages** of vaccine development which takes around 12-15 years to complete.

- **Exploratory:** This research-intensive phase of the vaccine development process is designed to identify "natural or synthetic antigens that might help prevent or treat a disease."
- **Pre-clinical:** During this phase, researchers — usually in private industry — use tissue-culture or cell-culture systems and animal testing to determine whether the candidate vaccine will produce immunity.
- **Clinical development:** At this point, a sponsor, usually a private company, submits an application for to an authorising agency like FDA of USA. This summarizes findings to date and describes how the drug will be tested and created. An institution that will host the clinical trial holds a review board for approval of the application. Once the proposal has been approved, the vaccine must pass three trial stages of human testing:
- **Regulatory review and approval:** If a vaccine passes through all three phases of clinical

development, the vaccine developer submits a Biologics License Application (BLA) to the authorizing agency.

- **Manufacturing:** Major drug manufacturers provide the infrastructure, personnel and equipment necessary to create mass quantities of vaccines. They also reap the profits of successful or widely distributed drugs.

- **Quality control:** Stakeholders must adhere to procedures that allow them to track whether a vaccine is performing as anticipated. Multiple systems — including Phase IV trials (optional studies that can be conducted following the release of a vaccine), the Vaccine Adverse Event Reporting System (VAERS) and the Vaccine Safety Datalink — are designed to monitor the performance, safety and effectiveness of an approved vaccine.

Types of Vaccines

Live Attenuated Virus (LAV)	• **Uses a weakened (or attenuated) form of the germ** that causes a disease. • Because these vaccines are so similar to the natural infection that they help prevent, they create a strong and long-lasting immune response. Just 1 or 2 doses of most live vaccines are enough to give a lifetime of protection against a germ and the disease it causes. • **Used in case of Measles, Rubella (MMR combined vaccine), Tuberculosis, Rotavirus, Oral Polio Vaccine (OPV), Yellow fever etc.**
Inactivated vaccines	• **Uses the killed version of the germ** that causes a disease. • These vaccines usually don't provide immunity that's as strong as live vaccines so several doses over time (booster shots) is needed to get ongoing immunity against diseases. • **Used in case of Polio (IPV), Pertussis, Hepatitis A etc.**
Subunit and Recombinant vaccines	• **Use only part of a target pathogen** like its protein, sugar, or capsid (a casing around the germ) presenting it as an antigen on its own to provoke a response from the immune system. • It can also be created via genetic engineering. A gene coding for a vaccine protein is inserted into another virus, or into producer cells in culture. When the carrier virus reproduces, or when the producer cell metabolizes, the vaccine protein is also created. **The end result of this approach is a recombinant vaccine:** the immune system will recognize the expressed protein and provide future protection against the target virus. • **Used in case of Haemophilius Influenza type B(Hib). The Hepatitis B** vaccine currently used in the United States is a recombinant vaccine.
Conjugate vaccines	• Similar to recombinant vaccines but are **made using pieces from the coats of bacteria.** These coats are chemically linked to a carrier protein, and the combination is used as a vaccine. • Conjugate vaccines are used to create a more powerful, combined immune response: typically the "piece" of bacteria being presented would not generate a strong immune response on its own, while the carrier protein would. • The vaccines **currently in use for children against pneumococcal bacterial infections** are made using this technique.
Toxoid vaccines	• **Uses a toxin (harmful product) made by the germ** that causes a disease. • They create immunity to the parts of the germ that cause a disease instead of the germ itself. • booster shots are needed to get ongoing protection against diseases. • **Used in case of Tetanus and Diphtheria.**
RNA vaccine	• Unlike a normal vaccine, RNA vaccines **work by introducing an mRNA sequence (the molecule which tells cells what to build) which is coded for a disease specific antigen,** once produced within the body, the antigen is recognised by the immune system, preparing it to fight the real thing. • RNA vaccines are **faster and cheaper to produce than traditional vaccines,** and an RNA based vaccine is also safer for the patient, as they are not produced using infectious elements. • Production of RNA vaccines is **laboratory based, and the process could be standardised and scaled,** allowing quick responses to large outbreaks and epidemics. • **No vaccine made from genetic material – RNA or DNA – has been approved till date.**

6.4.1.6. VACCINES AND OTHER TREATMENT METHODS RELATED DEVELOPMENTS

CoroFlu Vaccine	• It is being **developed by Bharat Biotech Ltd** in partnership with University of Wisconsin-Madison and US-based company FluGen and will be in human trials by Sept 2020.

	•	It will be **based on FluGen's flu vaccine candidate M2SR** in which gene sequences from the coronavirus SARS-CoV2 will be inserted into the vaccine candidate to provide additional immunity against covid-19.
• CoroFlu, like M2SR, **will be administered intranasally mimicking the natural route of infection** by coronavirus and influenza and activates several modes of the immune system.
Operation Warp Speed	•	It is a public-private partnership, launched by U.S., **to facilitate and accelerate development of COVID-19 vaccines, therapeutics, and diagnostics.**
New Millennium Indian Technology Leadership Initiative (NMITLI) scheme	•	**Council of Scientific & Industrial Research through its NMITLI program** approved a multi institutional project to develop human monoclonal antibodies that can neutralize SARS-CoV-2 in patients.
• NMITLI is **largest public-private-partnership effort within R&D domain** in the country.
• It seeks to build, capture and retain for India a leadership position by **synergizing the best competencies of publicly funded R&D institutions, academia and private industry**.
PRANA-VAYU	•	It is the **closed-loop ventilator , developed by IIT-Roorkee** in collaboration with AIIMS, Rishikesh, and is equipped with state-of-the-art features.
• It **does not require compressed air for functioning** and can be especially useful in cases when hospital wards or open areas are converted into ICUs.
Ruhdaar	•	It is a **low-cost ventilator prototype using locally available materials developed by** IIT Bombay, NIT Srinagar and Islamic University of Science & Technology (IUST), Pulwama, Jammu and Kashmir.
VITAL (Ventilator Intervention Technology Accessible Locally)	•	It is a new **high-pressure ventilator developed by NASA engineers** and specially tailored to treat coronavirus (COVID-19) patients
• VITAL **can be built faster and maintained** more easily than a traditional ventilator, and is **composed of far fewer parts**, many of which are currently available to potential manufacturers through existing supply chains.
SwasthVayu	•	It is a **Non Invasive Ventilator** developed **by CSIR - National Aerospace Laboratories,** Bangalore.
• It is **simple to use without any specialized nursing,** cost effective, compact and configured with majority of indigenous components.

6.4.2. OTHER IMPORTANT TECHNOLOGICAL DEVELOPMENTS

6.4.2.1. TRACKING AND SURVEILLANCE

COVID Quarantine Alert System	•	**Department of Telecommunication and C-DOT in coordination with Telecom Service Providers** have developed this application which automatically triggers an email or SMS if any identified corona positive person moves away from their quarantine location.
• It is **based on Kerala's Geo-fencing app** being used to track COVID-19 cases.
National Analytical Platform for Dealing with Intelligent Tracing, Tracking and Containment (NAADI)	•	**Developed by Centre for Development of Advanced Computing (C-DAC)** as a data science-based tool to make easy the task of **tracking the movements of Covid-19 patients** or quarantined people across the country.
Supercomputer using Artificial Intelligence, Machine Learning, Healthcare Analytics based Research, Covid-19 (SAMHAR)	•	It was announced by **Centre for Development of Advanced Computing** (C-DAC) under the aegis of the National Supercomputing Mission (NSM), a Ministry of Electronics & Information Technology (MeitY) and Department of Science & Technology (DST) initiative, in association with **NVIDIA & OpenACC**.
• The hackathon is **open to Researchers, Academicians, MSMEs, Startups and Industries** with an objective to bring out Innovative and Implementable Ideas for Prediction, Forecasting and Building Healthcare Models that could revolutionize the way we interpret science of pandemic outbreaks using AI technology on Supercomputers.
Government Response Stringency Index	•	It is **created by Oxford University** showing how strict a country's measures were in imposing lockdown, and at what stage of the spread it enforced these.
• It is composite measure based on **nine response indicators** including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 =strictest response).
• According to it, **India had one of the strongest lockdown measures** in the world. India called its strict lockdown at a **much earlier point on its case and death curves.**

Updated Classroom Study Material

GARUD (Government Authorisation for Relief Using Drones) Portal	• It was launched by **Directorate General of Civil Aviation** (DGCA) for **providing fast track conditional exemptions to government agencies** for COVID-19 related drone operations. • DGCA, under **Ministry of Civil Aviation** is **regulatory body in the field of Civil Aviation,** primarily dealing with safety issues.

6.4.2.2. AWARENESS GENERATION AND GRIEVANCE REDRESSAL

PRACRITI- Prediction And Assessment Of Corona Infections And Transmission In India	• It is a **web-based dashboard developed by IIT Delhi researchers** for predicting the spread of COVID-19 in India. • It gives **detailed state-wise and district-wise predictions of COVID-19 cases in India based on the R0 values** of each district and state available from multiple sources.
National Monitoring Dashboard on COVID 19 Grievances	• It is **developed by Department of Administrative Reforms and Public Grievances (DARPG)** in pursuance of the recommendations of the Empowered Group of Officers constituted under the Disaster Management Act 2005 on Public Grievances and Suggestions to ensure timely implementation of COVID 19 Response Activities. • It aimed at **addressing grievances of Central government and State governments/Union territories.**
YUKTI Portal	• Young India Combating COVID with Knowledge, Technology and Innovation (YUKTI) Portal is a **unique portal and dashboard to monitor and record the efforts and initiatives of MoHRD.** • The portal helps in critical issues related to student promotion policies, placements related challenges and physical and mental well-being of students in these challenging times.
Lockdown Learners	• **Launched by United Nations Office of Drugs and Crime (UNODC)**, it is a **series of online dialogues with students and educators in India** on COVID-19 and its impact on SDGs, peace and the rule of law. • **Developed under the Education for Justice Initiative (E4J**, a component of the Global Programme for the Implementation of the Doha Declaration), these dialogues **aim to sensitize students** on concerns of vulnerable groups and issues such as cybercrime, misinformation, gender-based violence, discrimination, and corruption, among others. o **The Education for Justice (E4J) initiative** seeks to prevent crime and promote a culture of lawfulness through education activities designed for primary, secondary and tertiary levels. • The Lockdown Learners series **also provide a platform for students** to receive mentorship and knowledge support through activity-based learning, and to use their talents and skills to promote awareness and share ideas and solutions to address some of these problems.
Year of Awareness on Science & Health (YASH)- 2020-2021	• It is a **programme on health and risk communication** with focus on COVID-19. • Under it, strategies have been worked out to **involve academic, media &voluntary organizations** to facilitate necessary actions and emergency preparedness of society to address the challenge. • It is launched by **National Council for Science & Technology Communication (NCSTC)**, Department of Science & Technology.

## 6.4.2.3. CAPACITY BUILDING AND PROMOTING INNOVATION

Integrated Govt. Online training' (iGOT) portal	• Launched on Ministry of HRD's DIKSHA platform **for the capacity building of frontline workers** to handle the pandemic efficiently. • Courses on iGOT have been launched for Doctors, Nurses, Paramedics, Hygiene Workers, Technicians, Auxiliary Nursing Midwives (ANMs), State Government Officers, Civil Defence Officers, Various Police Organisations, National Cadet Corps(NCC), NehruYuva Kendra Sangathan (NYKS), National Service Scheme, Indian Red Cross Society, Bharat Scouts and Guides and other volunteers at the stage.
Integrated Geospatial Platform and SAHYOG App	• The Department of Science and Technology (DST), Government of India, has created an Integrated Geospatial Platform out of available geospatial datasets, standards-based services, and analytic tools **to help decision making during the current COVID-19 outbreak** and aid devising area-specific strategies to handle the socio-economic impact in the recovery phase. • The **mobile application SAHYOG, as well as the web portal prepared & managed by the Survey of India (SoI),** has been customized to collect COVID-19 specific geospatial

	datasets through community engagement to augment the response activities by Government of India to the pandemic and **will complement the Aarogya Setu App.**
CoAST India (Collaboration/Covid Action Support Group)	• It is a **GIS-enabled dashboard** that reflects movement of migrants in real time along with facilities and relief organisations on their routes. • It draws **information from 55 organisations on ground**, mostly in villages, and aims to make such data available so that it would enable governments and small local civil society groups to be of assistance. • It is a **joint collaboration between** India Observatory, an open-source database and Anand-based Forest Ecological Security.
COVID 19 National Teleconsultation Centre (CoNTeC)	• It has been made operational at AIIMS, New Delhi with a view to connect the Doctors across the country to AIIMS in real time for treatment of the COVID-19 patients. • It is a **multi-modal telecommunication hub** through which two-way audio-video and text communications (through WhatsApp, Skype and Google Duo) can be exchanged from any part of the country or the world. • It has been conceptualised by the **Ministry of Health & Family Welfare.**
Hack the Crisis – India	• It is an Online Hackathon launched **to discover non-medical solutions to stop the spread of Covid 19.** • This hackathon is **part of a global initiative and is being organised by 'Hack A Cause – India'** and 'Ficci Ladies Organization Pune' and supported by Ministry of Electronics & Information Technology, Government of India (MEITY).
Challenge Covid-19 Competition (C3).	• It is **launched by National Innovation Foundation – India (NIF)**, an autonomous institute under the Department of Science and Technology • The aim is **to invite creative ideas and innovations which can supplement the efforts of the government in** slowing or eliminating the spread further.
Scitech Airon	• It is **air purifying technology** to disinfect State hospitals developed by startup, Scitech Park. • It has developed **a negative ion generator** that can reduce the viral load in an infected area. • The technology has been developed under the **'Nidhi Prayas' programme** initiated by Department of Science and Technology (DST). • **National Initiative for developing and harnessing Innovation - PRomoting and Accelerating Young and ASpiring innovators & startups (NIDHI-PRAYAS)** Program is to **help – young and aspiring innovators**. The focus is to provide support/funding from idea to prototype.
National Biomedical Resource Indigenization Consortium (NBRIC)	• Recently, National Biomedical Resource Indigenization Consortium (NBRIC) was **constituted by the Department of Biotechnology,** Ministry of Science and Technology**, as a Public Private Partnership** to drive indigenous innovation focused on **developing reagents, diagnostics, vaccines and therapeutics for COVID19.** • It is **hosted and led by the Centre for Cellular and Molecular Platforms** . • NBRIC is a **'Make in India' initiative** for Biomedical research and innovative products, towards **promoting import substitution and exports.**

6.4.2.4. CONCEPT OF FLATTENING THE CURVE

• The WHO has repeatedly underlined the importance of "flattening the curve" in order to tackle the coronavirus outbreak, calling on countries around the world to impose sweeping public health measures.
• **This approach is saving lives and buying time for the development of vaccines and treatments.**
• In epidemiology, the **curve refers to the projected number of new cases** over a period of time.
• The idea of flattening the curve is **to stagger the number of new cases over a longer period, so that people have better access to care.**

• It **explains why so many countries are implementing draconian policies**, such as social-distancing guidelines, "shelter in place" orders, restrictive travel measures and asking citizens to work or engage in schooling from home.
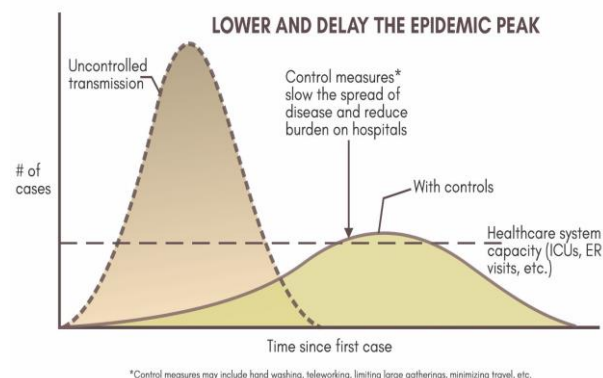
- The above chart shows two curves with two very different virus reproduction rates.
- **In the steepest curve, the virus reproduces quickly in a short period of time.** In this scenario, emergency rooms, intensive care units and other parts of the health care system are overwhelmed. In an overwhelmed system, mortality rates can be high and those infected may not get the treatment they need.
- **In the second, flatter curve, controls help slow the spread of the virus.** Infections occur, but over a longer period of time. Since health care workers and facilities are not overwhelmed, those infected receive better treatment and fewer deaths occur.

6.4.2.5. HERD IMMUNITY

Why in news?

Natural herd immunity was **advocated for some time by the UK government as a strategy to contain the COVID-19 pandemic** in their country.
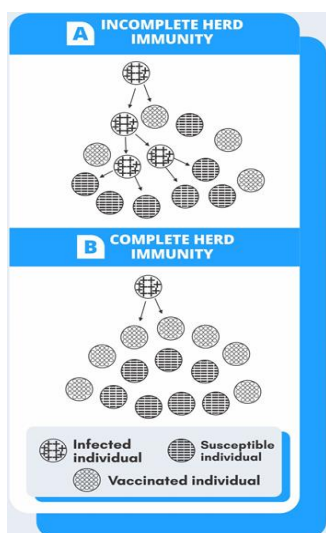

About the concept

- It is the **indirect protection from a contagious infectious disease** that happens when a population is immune **either through vaccination or immunity developed through previous infection.**
- **Vaccinated or immune people act as a buffer** between the infected persons and people who aren't vaccinated, or in whom the vaccine doesn't trigger immunity.
- Once herd immunity has been established for a while, and the **ability of the disease to spread is hindered,** and can eventually be eliminated.
- Mass vaccination has been highly successful in inducing herd immunity for many diseases, protecting those that are unable to build up immunity, such as people with immune deficiencies or whose immune systems are being suppressed for medical reasons.
- Herd immunity was **recognized as a naturally occurring phenomenon in the 1930s during the measles outbreak.**
- It **does not apply to all diseases, just those that are contagious**, meaning that they can be transmitted from one individual to another. **Tetanus, for example, is infectious but not contagious, so herd immunity does not apply.**

6.4.2.6. PANDEMIC DISEASE

- In March, 2020 WHO publicly characterized **COVID-19 as a pandemic:**
- According to the World Health Organization, a **pandemic is declared when a new disease for which people do not have immunity spreads around the world and between people sustainably beyond expectations.**
- Declaring a pandemic has nothing to do with changes to the characteristics of a disease, but is instead associated with concerns over its geographic spread.
- The use of this term highlights the importance of countries throughout the world working cooperatively and openly with one another.
- **There is no threshold, such as a certain number of deaths or infections, or number of countries affected, that needs to be met in order to declare a disease as pandemic.** For example, the SARS coronavirus, identified in 2003, was not declared a pandemic by the WHO despite affecting 26 countries.
- **COVID-19 is the first pandemic known to be caused by the emergence of a new coronavirus.** In the past century, there have been four pandemics caused by the emergence of novel influenza viruses.
- The **last pandemic declared was in 2009 during the outbreak of H1N1 flu**, commonly known as the swine flu.
- **Pandemics of the past century were influenza-related** and charted in six phases WHO used to make recommendations based on the severity of a disease's spread.

Updated Classroom Study Material
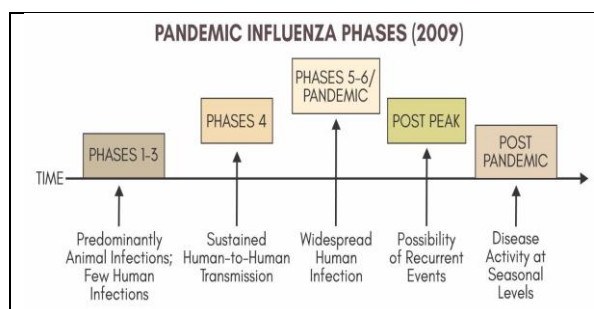
Phase 4 to 6 involves four stages of a Pandemic that are:

- **Stage 1- Imported cases** involving those who have travelled to virus hit foreign countries and have come back to a country.
- **Stage 2- Local Transmission** involving those cases who have come in contact with patients who have a travel history.
- **Stage 3- Community transmission** when a patient not exposed to any infected person or one who has travelled to any of the affected countries tests positive. Large areas get affected when community transmission takes place.
- **Stage 4-** This is the last and the worst stage where the disease takes the shape of an **epidemic** with no clear endpoint.

EPIDEMIC VERSUS ENDEMIC

EPIDEMIC	ENDEMIC
A widespread occurrence of an infectious disease in a community at a particular time	A regularly found disease among disease among particular people or in a certain area
Cause a significant damage to the living organisms within a short period of time	Prevalent in a certain region or population
Rate of infection continuously increases	Rate of infection is constant
Ex: smallpox, H1N1, black plague	Ex: malaria, tuberculosis, chicken pox, etc.

Public health emergency of international concern (PHEIC)

- Earlier in January 2020, the World Health Organization declared the COVID-19 outbreak a "**public health emergency of international concern**" (PHEIC).
- PHEIC is a **formal declaration by the International Health Regulations Emergency Committee** of World Health Organization (WHO) of "an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response", formulated when a situation arises that is "serious, sudden, unusual or unexpected".
- It is **not only confined to infectious diseases,** and may cover an emergency caused by a chemical agent or a radio nuclear material.
- Under the **2005 International Health Regulations (IHR)**, states have a legal duty to respond promptly to a PHEIC.
- **Emergency Committee (EC)** under the IHR was developed following the SARS outbreak of 2002–03.
- **PHEIC declarations so far:** Since 2009 there have been six PHEIC declarations: the 2009 H1N1 (or swine flu) pandemic, the 2014 polio declaration, the 2014 outbreak of Ebola in Western Africa, the 2015–16 Zika virus epidemic, the ongoing 2018–

20 Kivu Ebola epidemic, and the ongoing 2019–20 coronavirus pandemic.
- **The recommendations are temporary and require reviews** every three months.

6.4.2.7. ONE HEALTH

Why in news?

There has been an increased focus across the world on one health approach in the light of global outbreak of COVID-19.

About the concept

- The term 'One Health' was **first used in 2003–2004, in association with the emergence of severe acute respiratory disease (SARS)** in early 2003 and subsequently by the spread of highly pathogenic avian influenza H5N1, and by the series of strategic goals known as the **'Manhattan Principles'.**
- It is a **collaborative, multisectoral, and transdisciplinary approach** — working at the local, regional, national, and global levels — with the goal of achieving optimal health outcomes **recognizing the interconnection between people, animals, plants, and their shared environment.**
- **One Health issues include** zoonotic diseases, antimicrobial resistance, food safety and food security, vector-borne diseases, environmental contamination, and other health threats shared by people, animals, and the environment.
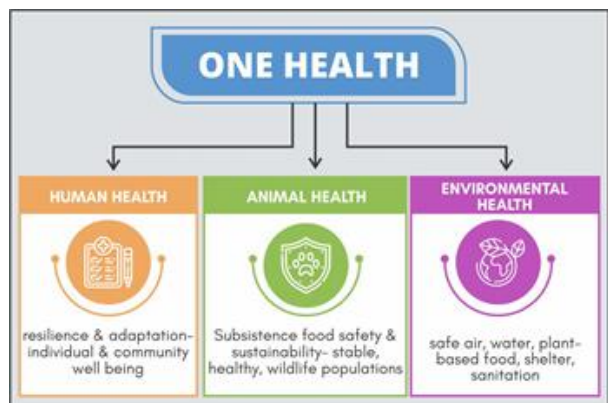
Manhattan Principles

- These were **derived at a meeting of the Wildlife Conservation Society in 2004,** which clearly recognised the link between human and animal health and the threats that diseases pose to food supplies and economies.
- These are **the set of 12 principles** as a vital step in recognising the critical importance of collaborative, cross-disciplinary approaches for responding to emerging and resurging diseases, and in particular, for the inclusion of wildlife health as an essential component of global disease prevention, surveillance, control, and mitigation.

ONE HEALTH

HUMAN HEALTH	ANIMAL HEALTH	ENVIRONMENTAL HEALTH
resilience & adaptation- individual & community well being	Subsistence food safety & sustainability- stable, healthy, wildlife populations	safe air, water, plant-based food, shelter, sanitation

6.4.2.8. BCG VACCINE

Why in news?

Researchers across the world are testing the Bacillus Calmette-Guerin (BCG) vaccine against the novel coronavirus disease (COVID-19).

More on news

- The World Health Organization (WHO) also does not recommend the BCG vaccination for prevention of Covid-19.

About BCG vaccine

- The BCG vaccine was developed in 1921 in France to be **used against Tuberculosis.**
- It is composed of a live, weakened strain of the bacterium Mycobacterium bovis (causative agent of tuberculosis in cattle) which related to mycobacterium tuberculosis, the bacteria which causes tuberculosis in humans.
- The vaccine provokes the body to develop antibodies to attack TB bacteria thus creating an **adaptive immune response like other vaccines.**

- However, unlike other vaccines, the **BCG vaccine may also boost the innate immune system** i.e. first-line defence that keep a variety of pathogens from entering the body or from establishing an infection.
- Globally, the **practice is to administer it to children below one year of age** as most children acquire natural clinical/ sub-clinical tuberculosis infection by the age of one year. This too protects against severe forms of childhood tuberculosis e.g. TB meningitis and military disease.
- **In India, BCG vaccine was first introduced in 1948** and was then made a part of universal immunisation programme.
- BCG vaccine has proved quite **effective against the SARS infection also.**
- Recent studies showed that it is **effective in controlling blood sugar** in people with diabetes type 1 and maintained better sugar levels for the next five years. It has also been found **effective as bladder cancer therapy and increasing survival of low birth weight children.**

Universal Immunisation Programme
- **Immunization Programme** in India was introduced in 1978 as 'Expanded Programme of Immunization' (EPI) by the Ministry of Health and Family Welfare, Government of India.
- In 1985, the programme was modified as 'Universal Immunization Programme' (UIP) to be implemented in phased manner to cover all districts in the country by 1989-90 with the one of largest health programme in the world.
- Under UIP**, free vaccines are provided to infants, children and pregnant women against 12 life threatening diseases** - Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Hepatitis B, Pneumonia and Meningitis due to Haemophilus Influenzae type b (Hib), Measles, Rubella, Japanese Encephalitis (JE) and Rotavirus diarrhoea. (Rubella, JE and Rotavirus vaccine in select states and districts)

Immunisation and Types of Immunity
- **Immunity to a disease is achieved through the presence of antibodies** to that disease in a person's system.
  - **Antibodies are proteins produced by the body** to neutralize or destroy toxins or disease-carrying organisms. Antibodies are disease-specific. For example, measles antibody will protect a person who is exposed to measles disease, but will have no effect if he or she is exposed to mumps.
- **Immunization is the process whereby a person is made immune or resistant to an infectious disease,** typically by the administration of a vaccine.
  - **Immunization introduces antigens or weakened pathogens** to a person in such a way that the individual does not become sick but still produces antibodies. Because the body saves copies of the antibodies, it is protected if the threat should reappear later in life.
- There are **mainly two types of immunity in humans**
  - **Natural or Innate immunity:**
    - ✓ Innate immunity is something **already present in the body and refers to nonspecific defense mechanisms** that come into play immediately or within hours of an antigen's appearance in the body.
    - ✓ These mechanisms **include physical barriers** such as skin, chemicals in the blood, and immune system cells that attack foreign cells in the body.
  - **Acquired or Adaptive immunity:** It is of two types:

Active Immunity	Passive immunity
• Immunity **acquired by exposure to disease or by vaccination.** Either way, if an immune person comes into contact with that disease in the future, their immune system will recognize it and immediately	• Immunity **acquired when a person is given antibodies** to a disease than than producing them through his or her own immune system. • **A new born baby acquires passive immunity from its mother** through placenta. **A person can also get passive immunity through anti containing blood products** such as immune globulin or plasma, which m given when immediate protection from a specific disease is needed.

produce the antibodies needed to fight it. • Active immunity **takes time (usually several weeks) to develop but is long-lasting.**	• The major advantage of passive immunity is that **protection is immediate but it lasts only for a few weeks or months.** • The **Convalescent Plasma Therapy** currently identified as a potential treatment for CoVID-19 **is a way of developing passive immunity** in covid patients.

6.4.2.9. STEM CELLS AGAINST COVID-19

Why in news?

Recently, **intravenous injection of mesenchymal stem-cells (MSC) from a human placenta into a covid-19 patient** was found to boost body's immune response against the infection.

More about MSCs

• Mesenchymal stem cells are **multipotent adult stem cells** that are present in multiple tissues, including umbilical cord, bone marrow and fat tissue.

• These stem-cells have **strong anti-inflammatory and immunomodulatory properties**, which can prevent lung inflammation in severe cases of COVID-19.

• It could help build up regenerative cells in the lungs, which could protect the epithelial cells of the lungs, prevent lung damage and help patients recover.

About Stem Cells

• Stem cells are the **cells from which all other cells of the body are generated.**

• Stem cells **provide new cells** for the body as it grows, and **replace specialised cells** that are damaged or lost. They have two unique properties that enable them to do this:
  ○ They can divide over and over again to produce new cells (called as '**potency**').
  ○ As they divide, they can change into the other types of cell that make up the body.

• Research in stem cells helps in understanding the basic biology of how living things work and what happens in different types of cell during disease.

• There are **three main types** of stem cell:
  ○ **Embryonic stem cells** that supply new cells for an embryo as it grows and develops into a baby. These stem cells **are said to be pluripotent,** which means they can change into any cell in the body.
  ○ **Adult stem cells** that supply new cells as an organism grows and to replace cells that get damaged. Adult stem cells **are said to be multipotent,** which means they can only change into some cells in the body, not any cell. For example- Blood (or

'haematopoietic') stem cells can only replace the various types of cells in the blood.
  ○ **Induced pluripotent stem cells or 'iPS cells',** are stem cells that scientists make in the laboratory by taking normal adult cells, and reprogramming them to become stem cells. Just like embryonic stem cells, they **are pluripotent** so they can develop into any cell type.

• **Applications of Stem cells are:**
  ○ Therapeutic cloning, regenerative medicine and personalised medicine.
  ○ In treatment of the abnormal development in the human body.
  ○ To generate new organs for use in transplants.
  ○ **Stem Cell Therapy** using a patient's own stem cells to repair damaged tissue and repair injuries have been successful in treating degenerative diseases, especially Alzheimer's, Type-1 diabetes, Leukemia etc.
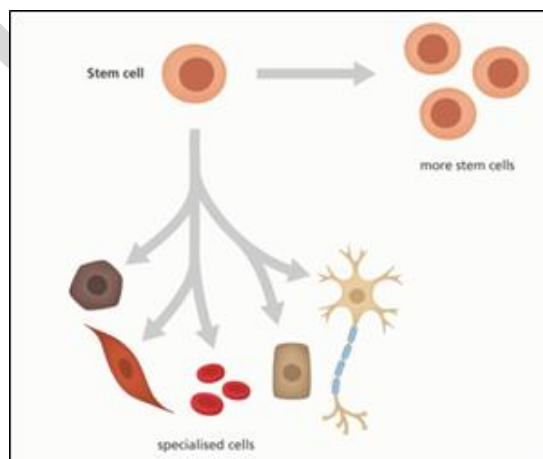
6.4.3. NEW REGULATORY BODIES TO COVER TRADITIONAL MEDICINE

Why in News?

Recently, Rajya Sabha passed the **National Commission for Indian Systems of Medicine (NCIsM) Bill, 2019 and the National Commission for Homeopathy Bill, 2019** for setting up separate commissions for Indian traditional systems of medicine and homoeopathy respectively.

Related news: Ayush Grid

- Recently, **Ministry of AYUSH** has conceptualized this new project for digitization of AYUSH sector.
- It is a nationwide **digital platform which aims to bring onboard all AYUSH facilities** including hospitals and laboratories and to promote traditional systems of healthcare.

Indian Systems of Medicine

India has recognized **six systems of medicine viz. Ayurveda, Unani, Siddha,Yoga, Naturopathy and Homoeopathy.**

- **Ayurveda**
  - As per the fundamental basis of Ayurveda, **all objects and living bodies are composed of five basic elements, called the Pancha Mahabhootas,** namely: Prithvi (earth), Jal (water), Agni (fire), Vayu (air) and Akash (ether).
  - The treatment approach in the Ayurveda system is holistic and individualized having preventive (Svasth-Vritta), curative Aushadhi (drugs), Ahara (diet) and Vihara (life style), mitigative, recuperative (Rasayana) and rehabilitative aspects.

- **Unani**
  - **Originating in Greece (Yunan),** it was introduced in India by the Arabs and Persians around the eleventh century.
  - Unani system of medicine **described four mode of treatment viz.,** Ilaj-bil-Tadbir (Regimenal Therapy), Ilaj-bil-Ghidha (Dietotherapy), Ilaj-bilDawa (Pharmacotherapy) and Ilaj-bil-Yad (Surgery).

- **Siddha**
  - The Siddha System of medicine in India having **its close relation with Dravidian culture**.
  - The term Siddha means achievements and Siddhars are those who have achieved perfection in medicine.
  - **Eighteen Siddhars are said to have contributed towards the systematic**

development of this system and recorded their experiences in Tamil language.

- **Yoga**
  - It is primarily a way of life, first **propounded by Maharshi Patanjali in systematic form Yogsutra**. The discipline of Yoga consists of eight components namely, restraint (Yama), observance of austerity (Niyama), physical postures (Asana), breathing control (Pranayam), restraining of sense organs (Pratyahar), contemplation (Dharna), meditation (Dhyan) and Deep meditation (Samadhi).
  - The United Nations General Assembly had declared **June 21st as the International Yoga Day on December 11, 2014.**

- **Naturopathy:**
  - Naturopathy is a **cost effective drugless, non-invasive therapy** involving the use of natural materials for health care and healthy living.
  - It is based on the theories **of vitality, boosting the self healing capacity of the body and the principles of healthy living.**
  - Naturopathy promotes healing by stimulating the body's inherent power to regain health with the help of five elements of nature – Earth, Water, Air, Fire and Ether.

- **Homoeopathy:**
  - "Homoeopathy" was introduced as a scientific system of drug **therapeutics by a German Physician, Dr. Christian Frederick Samuel Hahnemann in 1805.**
  - **Hahnemann postulated** the key principle of Homoeopathy, the **Law of Similars,** logically evolving it **as an experimental science**, according to the method of inductive reasoning after exact observation, correct interpretation, rational explanation and scientific construction.

6.4.4. OTHER IMPORTANT NEWS

HantaVirus	- Hantaviruses are a family of viruses spread mainly by rodents and can cause varied disease syndromes in people. - Hantaviruses in the Americas are known as "**New World**" **hantaviruses** and may cause **hantavirus pulmonary syndrome (HPS).** - Other hantaviruses, known as "Old World" Hantaviruses, are found mostly in Europe and Asia and may cause **hemorrhagic fever with renal syndrome (HFRS).** - Each Hantavirus serotype has a **specific rodent host species** and **spreads to people via aerosolized virus that is shed in urine, feces, and saliva, and less frequently by a bite from an infected host.**
Huntington Disease	- Recently, a team of scientists from National Centre for Cell Science (NCCS), in Pune, has unraveled **key cellular mechanism in Huntington Disease.**

	• It is a **progressive genetic disorder** affecting the brain that causes uncontrolled movements, impaired coordination of balance and movement, a decline in cognitive abilities, difficulty in concentrating and memory lapses, mood swings and personality changes. • It is caused by **a mutation in a gene called HTT.** The HTT genes are involved in the production of a protein called huntingtin. They provide the instruction for making the protein.
African Swine Fever (ASF)	• ASF has killed more than 2900 pigs in Assam. • It is a highly **contagious haemorrhagic viral disease** of domestic and wild pigs caused by DNA virus of **Asfarviridae** family. • **Transmission and spread:** direct contact with infected pigs; indirect contact, through ingestion of contaminated material; biological vectors (soft ticks). • It was first detected in Kenya in 1921 and had **never been reported in India before**. • There is **no approved vaccine** against ASF. ASF is **not a risk to human health**.
Cord blood banking	• Recently there has been **growing concern** regarding the aggressively promoted concept of cord blood banking. • It is the **process of taking the umbilical cord blood**, which is a rich source of stem cells, and preserving it for future use. • Cord blood banking is a source of **hematopoietic stem cell** (derived from bone marrow, peripheral blood, or umbilical cord blood) transplantation for haematological (related to blood) cancers and disorders.
SIRT1	• SIRT1 is an **enzyme** known to be associated with **regulation of metabolic activities** and also **ageing**. • A study by researchers from Tata Institute of Fundamental Research, Mumbai shows that **glucose controls the function of SIRT1 directly**. o A shortage or absence of this control can lead to a diabetic-like state, while excess feeding and sustained low levels of SIRT1 can lead to obesity and enhanced ageing. • This study might be beneficial in **tackling lifestyle disorders and ageing related diseases**.
Down Syndrome	• Bombay High Court rejected plea seeking termination of 24-week foetus with Down Syndrome. • Typically, baby is born with **46 chromosomes**. Babies with Down syndrome have an **extra copy of one of these chromosomes, chromosome 21.** • It is associated with **intellectual disability**, a **characteristic facial appearance**, and **weak muscle tone** in infancy etc.
Wormivet	• **It is an indigenous herbal medication (dewormer)** for livestock owners as an alternate to chemical method of treatment of worm. • **It is developed by National Innovation Foundation India,** an autonomous body of Department of Science and Technology. • **NIF is an initiative to strengthen grassroots technological innovations and outstanding** traditional knowledge.

6.5. ALTERNATIVE ENERGY

6.5.1. SOLAR RECEIVER TUBE TECHNOLOGY

Why in news?

International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) has developed a **cost-effective solar receiver tube technology for industrial process heat applications.**

About ARCI
• It is **an Autonomous Research and Development Centre of Department of Science and Technology.**
• **ARCI's mandate is**
  o Development of High Performance Materials and Processes for Niche Markets

  o Demonstration of Technologies at Prototype / pilot scale
  o Transfer of Technology to Indian Industry

More about solar receiver tube technology

• It is a cost-effective wet chemical process which efficiently absorbs solar radiation and converts it into heat for the targeted applications, especially in industries.
• **Solar receiver tube is** one of the key components in the Concentrating Solar Thermal (CST) technology (one of the **Utility Scale Solar Energy technologies**)
• Currently, Indian CST plant developers are importing the high-end evacuated Concentrating Solar power receivers for CST applications.

About Utility Scale Solar Energy technologies

- Solar radiation can be converted directly to usable energy through a variety of technologies, and that energy can be used for small-scale applications such as powering hand-held calculators, powering solar vehicles, or heating water for residential applications and also for large-scale commercial applications such as generating electricity in solar power plants.
- Solar energy technologies potentially suitable for utility-scale applications include concentrating solar power technology and photovoltaic technology.
  - o **Concentrating Solar Power (CSP) technologies use mirrors** to concentrate (focus) the sun's light energy and convert it into heat to create steam to drive a turbine that generates electrical power. It utilizes three alternative technological approaches:
    - ✓ **Trough systems** use large, U-shaped (parabolic) reflectors (focusing mirrors).
    - ✓ **Power tower systems** use many large, flat heliostats (mirrors) to track the sun.
    - ✓ **Dish/engine systems** use mirrored dishes (about 10 times larger than a backyard satellite dish).
  - o **Solar photovoltaic technologies** convert solar energy into useful energy forms by directly absorbing solar photons—particles of light that act as individual units of energy—and either converting part of the energy to electricity (as in a photovoltaic (PV) cell) or storing part of the energy in a chemical reaction (as in the conversion of water to hydrogen and oxygen).This includes following approaches:
    - ✓ **Solar cells** made of layers of semiconductor materials similar to those used in computer chips that convert sunlight directly into electricity.
    - ✓ **Solar Arrays** in which solar cells are typically combined into modules of about 40 cells and are in turn assembled into arrays up to several meters on a side allowing them to capture more sunlight.
    - ✓ **Concentrated PV (CPV) systems** concentrate sunlight on solar cells, greatly increasing the efficiency of the cells. The PV cells in a CPV system are built into concentrating collectors that use a lens or mirrors to focus the sunlight onto the cells.

6.5.2. OTHER IMPORTANT NEWS

Ultium Lithium-ion Batteries	- Recently, General Motors announced that it has created a new Electric Vehicle (EV) battery, Ultium, which could give a long range and will be much cheaper than the other batteries currently available in the market. - It is based on a newly developed chemistry **for the lithium-ion cells** that helps reduce the cost and improve the performance of the battery. **Benefits:** **Optimize battery energy storage**: As Ultium batteries large-format, pouch-style cells can be stacked vertically or horizontally inside the battery pack. **Reducing cost:** Most current EVs utilize nickel, manganese and cobalt (NMC) coatings on the cathodes. GM's Ultium cells use an NMCA chemistry (**A being aluminum**). This has allowed the cobalt content to be reduced by 70%. ✓ Most automakers and cell manufacturers are working to reduce or eliminate cobalt because of the cost and the conditions where it's mined, primarily in central Africa. **Flexibility in use:** Depending on the configuration and charge power, these batteries will be able to add over 100 miles of range in just 10 minutes.

6.6. MISCELLANEOUS

Sodium Hypochlorite (NaOCl)	- Recently, the spraying of **Sodium Hypochlorite solution in Disinfectant tunnel to prevent the spread of coronavirus (COVID-19) was found to be harmful on people.** - Sodium hypochlorite, commonly known as **bleach,** is most frequently used as a disinfecting agent. **It is used on a large scale in** agriculture, chemical industries, paint- and lime industries, food industries, glass industries, paper industries, pharmaceutical industries, synthetics industries and waste disposal industries

	• A **0.5% solution of Sodium hypochlorite**, which is known as **'Dakin solution'**, is used for disinfecting areas contaminated with bodily fluids, including large blood spills. • However, the solution of sodium hypochlorite is **unstable and quickly breaks down to release Chlorine** and this can have several harmful effects. • **Inhalation** of sodium hypochlorite can lead to **irritation of mucous membranes to the nose, throat, and respiratory tract and may also cause bronchospasm**. • Exposure to stronger concentration (10-15%) of hypochlorite can cause serious damage to multiple organs.

Global Hyperloop Pod Competition	• **Indian Institute of Technology (IIT) Madras** is organizing India's first Global Hyperloop Pod Competition **to increase awareness and enthusiasm about Hyperloop in India.**
	• Hyperloop is the **5th mode of transportation (other 4 includes** railways, roadways, airways, waterways), a high-speed train that **travels in a near-vacuum tube.**
	  ○ It is all about removing the two things that slow down regular vehicles: **friction and air resistance.**
	    ✓ To do away with the former, the pod hover above its track, like a magnetic levitation train. As for air resistance, that's where the tube comes in.
	• The **reduced air resistance** allows the capsule inside the tube to reach **speeds of more than 1000 km/h,** conveying people or objects at high speed while being very efficient, thereby drastically reducing travel times over medium-range distances.
	• It is completely **autonomous, safe, clean and enclosed.** More importantly, Hyperloop is **environment friendly** and doesn't call for much maintenance too.
	• **Elon Musk,** founder of SpaceX and CEO of Tesla, **proposed the idea** of Hyperloop to the world **in 2013.**
	• Hyperloop is **among 6 new proposals for Public Transportation System,** cleared by NITI Aayog in 2017. Other five includes metrino, stadler buses, pod taxis, hybrid buses and freight rail road.

7. ART AND CULTURE

7.1. NATIONAL LIST FOR INTANGIBLE CULTURAL HERITAGE (ICH)

Why in news?

Ministry of Culture launched the National List of Intangible Cultural Heritage.

About National List of Intangible Cultural Heritage

- It is an attempt to **recognize the diversity of Indian culture** embedded in its intangible heritage.
- It aims to raise **awareness about the various intangible cultural heritage elements** from different states of India at national and international level and ensure their protection.
  - **Intangible Cultural Heritage** refers to the **practices, representations, expressions, knowledge**, transmitted from generation to generation within communities, created and transformed continuously by them, depending on the environment and their interaction with nature and history.
- This initiative is also a part of the **Vision 2024** of the Ministry of Culture.
  - Vision 2024 has fixed timeline for completing work of enlisting, preserving and showcasing deep and
  - invaluable heritage and culture of country's monuments and traditions.
- Following **UNESCO's 2003 Convention for Safeguarding of Intangible Cultural Heritage**, this list has been classified into five broad domains in which intangible cultural heritage is manifested:
  - Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage
  - Performing arts
  - Social practices, rituals and festive events
  - Knowledge and practices concerning nature and the universe
  - Traditional craftsmanship
- The items in the list have been collated from the projects sanctioned under the scheme for **'Safeguarding the Intangible Cultural Heritage and Diverse Cultural Traditions of India'** formulated by the Ministry of Culture (MoC) in 2013.
- As of now the list has more than 100 elements, it also includes the **13 elements of India** that have already been inscribed on the **UNESCO Representative List of the Intangible Cultural Heritage of Humanity.**

Safeguarding the Intangible Cultural Heritage and Diverse Cultural Traditions of India

- It was launched with objective of reinvigorating and revitalizing various institutions, groups, individuals, identified non-MoC institutions, non-government organisations, researchers and scholars so that they may engage in activities/ projects for strengthening, protecting, preserving and promoting the rich intangible cultural heritage of India.
- The Scheme cover all recognized domains of ICH such as oral traditions and expressions, including language as a vehicle of the intangible cultural heritage, Performing arts, Social practices, rituals and festive events, Knowledge and practices concerning nature and the universe, traditional craftsmanship etc.

UNESCO's Convention for the Safeguarding of the Intangible Cultural Heritage

- Adopted in 2003, the Convention is the international community's **first binding multilateral instrument** intended to safeguard and raise the profile of heritage.
- Its goal is to incite countries to care about and look after the ICH present on their territories.
- **Elements of India in UNESCO Representative List of the Intangible Cultural Heritage of Humanity**
  - Kutiyattam (Sanskrit Theatre of Kerala)
  - Traditional Vedic Chanting
  - Ramlila
  - Ramman (Religious festival of Uttarakhand)
  - Chhau Dance (West Bengal)
  - Mudiyettu (Ritual theatre and dance drama of Kerala)
  - Kalbelia (Folk dance of Rajasthan)
  - Buddhist chanting of Ladakh: recitation of sacred Buddhist texts in the trans-Himalayan Ladakh region, Jammu and Kashmir
  - Sankirtana (ritual singing, drumming and dancing of Manipur)
  - Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab
  - Nawrouz
  - Yoga
  - Kumbh Mela

National List for Intangible Cultural Heritage (ICH)

Note – This is a comprehensive list from which UPSC has asked questions earlier as well. We advise students just to go through this list so that they can have a basic idea about the different terms. You do not have to memorize all the small details.

Updated Classroom Study Material

Andhra Pradesh	
Name	Description
Kalamkari	• **Sri Kalahasti town in Andhra Pradesh** specializes in producing temple cloths - Kalamkari **(pen-work)** - primarily used for their temple festivals or as wall hangings. • The stories from the **epics Ramayan, Mahabharat and the Puranas** are painted in it using **charcoal sticks made from tamarind wood**. • The colors are obtained from **vegetable and mineral sources**. • It was originally practiced by **Balija community till 14ᵗʰ century**.
Oggukatha	• It is a **traditional folk theatre form** which is an ancient narrative form of Telugu speaking regions. • It is performed by the **pastoral communities like Kuruma and Golla** (Yadav's), of the Deccan plateau.
Tolu Bommalatta	• It is a **shadow Puppet Theatre Traditions in Andhra Pradesh** whose narratives are mainly based on the epics of Ramayana and Mahabharata, Puranas, local myths and tales. • There are **six shadow puppet theatre traditions across different regions in India**, which are locally known as: Chamadyacha Bahulya in Maharashtra, Tolu Bommalatta in Andhra Pradesh, Togalu Gombeyatta in Karnataka, Tolu Bommalattam in Tamil Nadu, Tolpava Kuthu in Kerala and Ravanchhaya in Orissa.
Arunachal Pradesh	
Traditions associated with funerals of Idu Mishimi Tribe	• The funeral traditions of Idu Mishimis are very unique in nature. • Idu Mishmi tribe of Arunachal Pradesh.
Songs of Shaman	• In Arunachal Pradesh among different tribes, **Shaman (priest)** is mostly seen as a diviner, communicator, negotiator, healer, ritual specialist, and religious expert
Sowa-Rigpa	• It is an ancient **Indian medical system conceived and propounded by Lord Buddha** in India and later was enriched in the entire Trans- Himalayan region. • It is the traditional medical system of **Ladakh, Sikkim, Darjeeling and Kalingpong (West Bengal); Lahoul-Spiti, Kinnour, Dharamsala regions of Himanchal Pradesh; Mon-Tawang and west Kameng regions of Arunachal Pardesh and Tibetan settlements** in various parts of India. • It is acknowledged as a traditional medical system by the **governments of India**, Bhutan, Mongolia and Tibet.
Lores and Rituals of Nocte	• **Noctes are one of the major tribes** of Arunachal Pradesh. • Noctes celebrate two major festivals in the villages called **Chalo and Ronglo every year**.
Deere Yameng	• **Adi Tribe of Arunachal** had a grand traditional socio-cultural institution called 'DEE:RE', which used to be the epicentre of day to day village activities like festival, social Taboo, rituals, cultivation and religious ceremony.
Assam	
Sattriya Music, Dance and Theatre	• The style of music and dance combines element from the **pan-Indian and Indo-Mongoloid traditions**. • Sattriya theatre is celebrated as a tradition next only to the Sanskrit drama and theatre.
Khol	• It is **instrument** created by Mahapurush Sankardev for the purpose of using it in the play 'Chihnayatra'.
Jun Beel Mela	• It is a **centuries-old traditional fair.** • It is organised every year in the month of Magh of Assamese calendar, that falls in the mid January.
Ankiya Nat	• The **tradition of Vaishnava theatre** popularly known as Ankiya Nat was introduced by Sankaradeva as a medium to propagate Bhakti among the people.
Pachoti	• It is a **traditional folk festival** celebrated in the month of Bhada (August-September as per the Assamese calendar).
Deepor Beel Folklore	• Deepor Beel is a **wetland situated in Assam** inhabited mostly by tribal people (**Karbi Community**) along with their distinct folklore and practices.
Bihar	
The Festival of Salhesh	• Salhesh is the chief deity of the socially marginalized and downtrodden **Dusadh dalit community** in Mithila region of Bihar.
Chattisgarh	
Nacha Folk Theatre	• Nacha is one of the most **noted folk theatre forms** in the state of Chhattisgarh.
Rawat Nach Mahotsav	• It is **celebrated by Yadavas or Raut/Rawat** of Chhattisgarh each year after Diwali.

Delhi	
Kinnar kanthgeet	• It is **event convened by transgenders** by singing and dancing in ritualistic functions of family and society, like child birth or marriage ceremony.
Compositions of Ameer Khusro in Hindustani music	• The **traditional, authentic and real Sufi music based on Ameer Khusro's poetry** is a rare treasury of Dilli Gharana.
Parsi Theatre	• Currently, the Parsi Theatre is mainly seen on the two festival days of the Parsi calendar in Bombay while in other cities such as Kolkata, Hyderabad, Delhi, Kanpur, Madras, it has shrunk to skits and One Act Plays.
Goa	
Ranmāle	• It is a **ritualistic and folk theatre** form based on mythological stories from the popular Indian epics of **Ramayan and Mahabharat.**
Dashavatar	• It is a **folk theatre** form practised by agriculturists or farmers in the Sindhudurg district of the South Konkan region of Maharashtra and the North Goa district of Goa. • The term Dashavatar refers to the **ten incarnations of Lord Vishnu**, the Hindu God of preservation.
Gujarat	
Patola: Double Ikat Silk Textiles of Patan	• Patola of Patan (Gujarat) is unique in its **geometric floral and figurative patterns** executed with precision of design planning, and meticulously accurate weaving alignment which results in precise outline of the patterns.
Rathwa ni Gher	• It is **tribal Dance of Rathwas** of Gujarat state performed on the occasion of Holi.
Sankheda Nu Lakh Kam: Lacquered turned wood furniture of Sankheda	• Sankheda furniture is famous **lacquered, turned wood furniture with hand painted motifs** and traditional method of ornamentation.
Haryana	
Jangam Gāyan	• It is a **narrative sung by the Jangam community.** • It is performed in the **temple courtyards of Shiva temples** to huge gatherings.
Alibakshi khayal	• It is **famous khayal by Alibux,** a born saint cum-poet and dramatist, who chose the pursuit of the art as a form of devotion. • Alibux's troop performed all around Alwar and was popular even region of Delhi, Agra and Rewari.
Panduan ka Kada	• Panduan Ke Kadde is very specific and **highly crucial art form for the Meo community of Mewat region,** as it carries the cultural identification of the community.
Himachal Pradesh	
Kariyala	• Kariyala is a **form of folk theatre dedicated to the local deity of solan Shimla and Sirmour**, known as Bijeshwar. • It is performed when **agricultural prosperity is achieved in the region** or personal wishes are fulfilled.
Luddi Dance	• It is a **traditional folk dance of Mandi district** of Himachal Pradesh. • Luddi is a **victory dance or a dance of celebration** where people do special movements of their hands.
Sowa-Rigpa	• It is knowledge of Healing or Science of Healing.
Jammu & Kashmir	
Kalam Bhat and Qalambaft Gharana of Sufiana Mausiqui	• They are most prominent **gharanas of District Budgam of Kashmir.**
Haran	• It is a **traditional folk theatre form** performed during Lohri festival by Dogra Community.
Jharkhand	
Chhau Dance	• It is a major dance tradition of **eastern India.** • There are **three district forms of Chhau**: Seraikella Chhau of Jharkhand, Mayurbhanj Chhau of Orissa and Purulia Chhau of West Bengal • It traces its origin to indigenous forms of dance and **martial practices** using masks to identify the character. • Dancers perform a repertoire that explores a variety of subjects: local legends, folklore and episodes from the **epics Ramayana/ Mahabharata** and abstract themes.

Karnataka	
Muharram Songs	• Muharram an occasion to **remember the martyrs of Islam,** is a day of inter-faith unity in rural areas.
Togalu Gombeyatta	• It is **a shadow puppet theatre** tradition practiced by the Killekyata/Dayat community.
Moodalapaya Yakshagana	• It is **folk theatre of Karnataka** which uses songs, music, acting, dancing, costume and facial masks for its performance.
Kerala	
Chettikulangara Kumbha Bharani Kettukazhcha	• It is a **post-harvest float festival** held as thanksgiving to the Goddess Bhadrakali, for the rich harvest gathered in, and protection from diseases and calamities.
Kalaripayuttu	• It is the martial art originated and popularly practiced in Kerala.
Tolpava Kuthu	• It is **a shadow puppet theatre** tradition practiced by Nair community.
Mudiyettu	• It is a ritual theatre form of Kerala based on the mythological tale of the battle between Goddess Kali and Darika, an evil king.
Kutiyattam	• It is a **Sanskrit theatre** and is one of India's oldest living theatrical traditions.
Ladakh	
Buddhist Chanting of Ladakh	• The recitation of ancient sacred Buddhist texts are chanted every day by the monks living in various monasteries and following different sects of Buddhism in the trans-Himalayan region of Ladakh in India
Sowa-Rigpa	• It is knowledge of Healing or Science of Healing.
Madhya Pradesh	
Chaar Bayt	• It is a **Muslim tradition in lyrical oral poetry**. • It is performed in States of Rajasthan, Uttar Pradesh, and Madhya Pradesh.
Kumbh Mela	• It is a **mass congregation of generally Hindu pilgrims** in which people gather to take a bath/dip in a sacred river. • It is considered to be the largest peaceful gathering in the world. • It **is celebrated four times every 12 years**, the site of the observation rotating between four pilgrimage places on the four sacred rivers at Allahabad (UP), Haridwar (Uttarakhand), Ujjain (MP) and Nashik (Maharashtra). • **Ardha ("Half") Kumbh Mela** is held at only two places, Haridwar and at Allahabad, every sixth year. • **Maha Kumbh** is held after every 144 years. • In Ujjain, the **Kumbh Mela (Simhastha Kumbh) is** held every 12 years when the zodiac position of Jupiter is in Leo.
Bhagoriya Dance	• It is a well-known **dance of the Bhils, a large tribe of Jhabua district** in Madhya Pradesh.
Narmada Parikrama	• It is the **circumambulation around holy river Narmada** undertaken by its pilgrims. • Narmada river is considered to be the **lifeline of Central India** and is worshipped as Narmada maiyyaor Ma Rewa.
Rai Nritya/Bedni Dance	• It is a **popular folk dance** of Madhya Pradesh performed by women of Bediya tribe.
Maharashtra	
Zadipatti	• It is **theatre art** practised in the rice cultivating region of Maharashtra during the harvest season.
Dashavatar	• It is Traditional folk theatre form.
Chamadyacha Bahulya	• It is one of **a shadow puppet theatre** tradition practiced by Thakar community.
Kumbh Mela	• It is a congregation of pilgrims (visitors, aspirants, kalpavasis and sadhus) mostly Hindus.
Manipur	
Mao Oral Tradition	• It is the **harbinger of the tales** that are associated with the oral tradition of the Mao community.
Khor	• It is **Rice beer**, among the Tangkhul community of Northeast. • It is an alcoholic beverage that is made from fermentation of a **particular type of rice called makrei.**
Pena	• It is a **single stringed musical instrument** which is an indispensible part of Meitei society, used in ritualistic functions like Lai Haraouba, Lai Ikouba, etc.
Sankirtan	• It is the artistic manifestation of Manipuri worship.
Applique	• Applique art is a technique by which the decorative effect is obtained by superposing patches of coloured fabrics on a basic fabric, the edges of the patches being sewn in some form of stitchery.

Thok Lila	• It is a **popular satire, wit and comedy folk theatre** of Manipur, satirizing the social conditions, the courtier and king.
Death rites of Phayeng	• It is a social practice by **Chapka Phayeng Community.**
Meghalaya	
Rongkhli	• It is a **religious festival celebrated by the people of Nongtalang village** in the War-Jaintia region of Meghalaya.
Traditional Drums of Garo Community	• Garos are a tribal group from Meghalaya, predominantly residing in the Garo Hills region.
Nagaland	
Chokri Naga folk songs	• It is folk song culture of Chokri community.
Nazhu festival	• It is festival of Pochury-Naga.
Odisha	
Manabasa Gurubara ritual	• It is a **ritual performed on each Thursday of Margashirsha** (November-December) in honour of Goddess Lakshmi.
Chhau Dance	• It is a major dance tradition of **eastern India.**
Ravanachhaya	• It is one of **a shadow puppet theatre** tradition practiced by Bhat community.
Punjab	
Thatheras of Jandiala Guru	• The craft of the Thatheras of Jandiala Guru represents the **traditional technique of manufacturing brass and copper utensils in Punjab.**
Rajasthan	
Hingan: Votive Terracotta Painted Plaque of Molela	• It is a hand modelled hollow relief of Hindu deities, especially of the neo-Vaishnava deity, Dev Narayan.
Kalbelia	• Kalbelia Dance is an expression of the **Kalbelia community's way of life as snake charmers**.
Practice of turban tying in Rajasthan	• The practice of turban tying, (safa wearing in local parlance), consists of tying a long, generally unstitched cloth, in a set manner of wrapping in folds, which is tied on the head of men.
Phad	• It is an approximately 30 feet long and 5 feet broad **painted scroll**, which depicts stories of epic dimensions about local deities and legendary heroes.
Chaar Bayt	• It is a **Muslim tradition in lyrical oral poetry.**
Sikkim	
Lama Dances of Sikkim	• They are **masked dances performed by the Buddhist monks** of Sikkim as part of their religious practices.
Tamil Nadu	
Alu Kurumbas	• Alu Kurumbas of Tribal Nilgiris, apart from **decorating the walls of their dwelling huts** with their indigenous peintings, are observed to draw caricature sketches of **human beings over the rock outcrops** in and around their indigenous habitats in order to bring magical effects on the people depicted therein.
Pinal Kolattam	• It is an **ancient folk dance performed by women** in a group during the harvesting season.
Nattu Adi Murai	• It is one among the **traditional martial art forms of Tamil Nadu.**
Kolam	• It is a **ritualistic design drawn** at the threshold of households and temples. • It is drawn everyday at dawn and dusk by women in South India who inherit this tradition from their elders.
Tolu Bommalattam	• It is one of **a shadow puppet theatre** tradition practiced by Killekyata community.
Tripura	
Lebang Boomani	• It is performing art by Kolai Community.
Mosak Sumani	• It is a **popular and beautiful dance form** of Tribes of Tripura related to hunting of wild animals.
Garia Dance	• It is performed by the Tripuri youths specially during Garia Puja.
Meladom Dance	• In the month of Karthik when harvesting is over men and women of Keipeng community participate in the Meladan dance.
Wicker Baskets	• They are largely used in the villages of Tripura for different purposes.
Rignai and Risa	• During the month of Karthik and Agrahayana, when the crop is harvested tribal women use to spent their leisure hours by making handloom cloths. The very **colourful attires of Tribal women** are Rignai and Risa.
Uttar Pradesh	
Nautanki	• It is a **folk operatic theatre form** that has emerged out of many traditions such as Bhagat, Swaang etc.

Chaar Bayt	• It is a **Muslim tradition in lyrical oral poetry**.
Ramlila, the traditional performance of the Ramayana	• It is a performance of then **Ramayana epic in a series of scenes that include song, narration, recital and dialogue**. • It is performed across northern India **during the festival of Dussehra,** held each year according to the ritual calendar in autumn.
Kumbh Mela	• It is a congregation of pilgrims (visitors, aspirants, kalpavasis and sadhus) mostly Hindus.
Uttarakhand	
Hill Jatra	• It is **group dance that is performed** in the Kumor village of Pithoragarh region of Uttarakhand eight days after the festival of ' Gor-Maheshwar'
Ramman	• It is a **form of traditional ritual theatre** celebrated every year in the courtyard of the temple of Bhumiyal Devta of Chamoli district, Uttarakhand.
Kumbh Mela	• It is a congregation of pilgrims (visitors, aspirants, kalpavasis and sadhus) mostly Hindus.
Aipan Art	• It is **the traditional folk art form for exterior and interior decoration in Kumaoni household** of Uttarakhand. • They have characteristic symbol representations related to religious Pooja ceremonies or Sanskar ceremonies connected with birth, birthdays, Upnayan (Yagyopaveet), wedding etc.
West Bengal	
Manosa Gaan	• They are **songs sung in praise of Goddess** Manosa in West Bengal.
Deowal Chitra and Alpana	• Deowal Chitra (Drawing on wall) and Alapana (Drawing on floor) are part of visual folk art of Santhals and reflect simplicity, honesty and a quiet vigour.
Kushan Gaan	• The kusan involves, singing, recitation of dialogue, acting, dancing, and musical accompaniment.
Durga Puja in West Bengal	• It is the most important socio-cultural and religious event in the Bengali festival calendar, celebrated in autumn. • The festival is to propitiate the **Goddess Durga** for her blessings as also celebrate her victory over the demon Mahishasur
Chhau Dance	• It is a major dance tradition of **eastern India.**
Sowa-Rigpa	• It is knowledge of Healing or Science of Healing.
Gaudiya Nritya	• It is a **classical dance form of Bengal** as well as of other Eastern parts of the country like Assam, Odisha and Manipur. It has its origins in the **Natyashastra.**
Bonobibir Pala	• In southern Bengal, men of the villages set out for jungle before the arrival of monsoon. If they manage to return from jungle, it is believed that it has happened by the grace and generosity of 'Maa Bonobibi'.
Elements Common Across India	
Qawwali	• It is a **devotional music belonging to a tradition of Islamic mysticism** and contains the compositions of the Sufi saints.
Veena and its Music	• It is the **oldest musical instrument of India** symbolizing the Indian ethos throughout the country and has sociological and cultural connotations. • Saraswati, the Goddess of learning, is visualized as Veenapani, the wielder of a Veena.
Nowrouz	• It is a festival of whole community of Parsi Zoroastrians and Irani Zoroastrians.
Yoga	• It is a traditional and time honoured Indian holistic system of personal, physical, mental and spiritual wellness focusing on all-round unification of body, mind and soul.
Tradition of Vedic chanting	• The Vedas comprise a vast corpus of Sanskrit poetry, philosophical dialogue, myth, and ritual incantations developed and composed by Aryans over 3,500 years ago. • Regarded by Hindus as the primary source of knowledge and the sacred foundation of their religion, the Vedas embody one of the world's oldest surviving cultural traditions.

7.2. WORLD HERITAGE LIST FOR THE YEAR 2020

Why in news?

Government of India has submitted two nomination dossiers namely **'Dholavira: A Harappan City'** and **'Monuments and Forts of Deccan Sultanate'** for inclusion in the World Heritage List for the year 2020.

Dholavira: A Harappan City

Location: Khadir Island of the Rann of Kutchch, Gujarat

World Heritage Sites
• UNESCO identifies World Heritage sites which must be of outstanding universal value and meet at least one out of **ten selection criteria** set by UNESCO. • It helps in protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity.

- It is based on **UN's Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972.**
- India has **38 World Heritage Sites, including 30 Cultural properties, 7 Natural properties and 1 mixed site.**
- Most recent addition to the list was the **Pink City Jaipur.**

More details

- It is a fortified quadrangular Harrapan city set which was saw occupation for 1200 years (3000 BCE-1800 BCE) and had an access to the sea prior to decrease in sea level.
- It is one of the two largest Harappan sites in India, and 5th largest in the subcontinent.
  o Mohenjo-daro, Harappa and Ganweriwala (all in Pakistan) and Rakhigarhi and Dholavira (both in India).
- It lay between two seasonal streams, the Mansar in the north and Manhar in the south, and had three distinct zones-
  o **Upper Town or the citadel**: It consists of enclosures identified as a castle and a bailey and is surrounded by massive mud-brick walls.
  o **Middle Town**: It has an area identified as the ceremonial ground or stadia, a distinct street-pattern and a large scale enclosure. It also served as a transition from the citadel to the middle.
  o **Lower Towns**: It is the area where commoners or the working population lived.
- The site demonstrates the ingenuity of Harappan people to evolve a highly organised system of town planning with perfected proportions, interrelation of functional areas, street-pattern and an **efficient water conservation system**. It adopted excellent water conservation strategy by building dams, reservoirs and pipelines.

Monuments and Forts of Deccan Sultanate

It includes Indo Islamic monuments at 4 sites in Gulbarga, Bidar, Bijapur and Hyderabad, namely:

- **Bahmani Monuments at Gulbarga, Karnataka :** Theses monuments were built in **14th century** and primarily comprise of**:**
  o **The Gulbarga Fort and Great Mosque in the Fort**
    ✓ Gulbarga was **the first capital of the Bahmani dynasty,** and thus had an elliptical fort.
    ✓ It was initially constructed on the remains of a Warangal fort built by Raja Gulchand, and then completely

overhauled and reconstructed later by **Alauddin Bahmani.**
  o **The Haft Gumbad complex with seven tombs**
    ✓ The Haft Gumbaz tombs include that of Mujahid Shah, Daud Shah, Ghiyath al-Din Shah and Shams al-Din Shah of the Bahmani dynasty.
- **Bahmani and Barid Shahi Monuments at Bidar, Karnataka**
  o These were built from late 15th to the early 16th centuries and comprise of Bidar Fort, Madrasa Mahmud Gawan, Bahamani tombs at Ashtur and Barid Shahi tombs.
- **Adil Shashi Monuments at Bijapur, Karnataka**
  o The Adil Shahi monuments at Bijapur date from late **15th to the late 17th centuries.**
  o These are an ensemble of 80 small and big monuments including the fortifications, gates, water systems and tanks, several mosques and tombs and palatial structures.
  o The most remarkable monuments within the fort is **Gol Gumbaz** that is the 2nd largest dome in world history and is the tomb of Muhammad Adil Shah.
- **Qutb Shahi Monuments at Hyderabad, Telengana**
  o The landmarks that symbolize the Qutb Shahi Dynasty are Golconda Fort, Qutb Shahi Tombs and Charminar.
    ✓ Charminar is a ceremonial Gateway built to celebrate the foundation of Hyderabad in 1591 A.D.

7.3. CENTRAL SANSKRIT UNIVERSITIES ACT

Why in News?

Central Sanskrit Universities Act, 2020 was passed by Parliament.

About the Act

- It is intended to convert following India's three deemed-to-be Sanskrit universities into Central Sanskrit Universities.
  o Rashtriya Sanskrit Sansthan, New Delhi,
  o Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeeth, New Delhi, and
  o Rashtriya Sanskrit Vidyapeeth, Tirupati,
- The **central universities will**:
  o Disseminate and advance knowledge for the **promotion of Sanskrit.**
  o Make special **provisions for integrated courses** in humanities, social sciences, and science.

o **Train manpower** for the overall **development and preservation of Sanskrit** and allied subjects.

7.4. INDIAN COUNCIL FOR CULTURAL RELATIONS (ICCR)

Why in News?

Recently, Indian Council for Cultural Relations (ICCR) completed 70 Years

About ICCR

- ICCR is an autonomous organisation of the Government of India, involved in **India's external cultural relations through cultural exchange** with other countries and their peoples.
- ICCR was **founded in 1950** by **Maulana Abul Kalam Azad**, independent India's first Education Minister.
- ICCR has been assigned responsibility of facilitating celebration of International Day of Yoga by Indian Missions/Posts abroad since 2015.
- The ICCR runs 36 cultural centres across the globe and its emphasis is on making India hub of higher education.

7.5. LALIT KALA AKADEMI

Why in News?

Recently, President of India conferred the 61st Annual Lalit Kala Akademi Awards to 15 meritorious artists.

About Lalit Kala Akademi (National Academy of Art)

- It was inaugurated in New Delhi in 1954, by the then Minister for Education**, Maulana Abul Kalam Azad**.
- The Akademi was given statutory authority in 1957 under the Societies Registration Act 1860.
- It is the youngest of the three Academies founded by the Government of India (other two being **Sahitya Akademi and Sangeet Natak Akademi**) and was established in pursuance of a cultural and national identity.
- Lalit Kala Akademi manifests a commitment to the service of the visual arts by establishing, preserving and documenting visual art of the highest order that in turn reflects the vitality, complexity and unfolding patterns of ancient, modern and contemporary art in India.
- It organises art exhibitions and award ceremonies every year to promote art as well as to honour talents.

7.6. CHARDHAM PARIYOJANA

Why in News?

Recently, 440 metre-long tunnel under Chardham Pariyojana was inaugurated in Chamba

About Chardham Pariyojana

- This initiative was taken up by **Ministry of Road Transport and Highways** for connectivity Improvement for Char-Dham (**Kedarnath, Badrinath, Yamunothri & Gangothri**) in Uttarakhand.
- It also gives Connectivity to the India-China border.

7.7. KONARK SUN TEMPLE

Why in News?

The central government has launched a program for the solarization of Odisha's Konark Sun Temple and the surrounding Konark town.

About Konark Sun Temple

- It was built middle of 13th century, by **King Narasimhadeva I** of **Ganga dynasty.**
- Temple is representation of **sun god Surya's chariot with** 24 wheels.
- It is **UNESCO world heritage site.**
- It is also **known as 'Black Pagoda'** due to its dark color.
- Ministry of New and Renewable Energy has taken up the **Complete Solarisation** of **Konark sun temple and Konark town** in Odisha to develop it as 'Surya Nagri'.

7.8. PERSONALITIES

7.8.1. RAJKUMARI AMRIT KAUR

Why in news?

Rajkumari Amrit Kaur was mentioned in **TIME magazine's list of the 100 most powerful women** who defined the last century.

About Rajkumari Amrit Kaur

- Amrit Kaur was born in 1889, to the **royal family of Kapurthala.**
- **Involvement in Social work**
  o She was a champion to the cause of women's rights and **worked towards eradication of the purdah system, child marriage, child illiteracy, and the devadasi system**.
  o In 1927, she **helped in founding All India Woman's Conference along with** Margaret Cousins.

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- ✓ She also founded the **Delhi Women's League (the Delhi branch of AIWC)** alongwith Rameshwari Nehru.
- o She ensured that **maternity and child welfare centres** were set up all over the country.
- **Participation in India's Freedom Struggle**
  - o She took an **active part in the salt campaign and was arrested for her participation in the Dandi March.**
  - o She became a **secretary to Mahatma Gandhi in 1930, serving him for 16 years,** and moved to Gandhiji's ashram in 1934.
  - o **She condemned the Communal Award** and moved a resolution against it at the All India Women's Conference held in 1932.
  - o She was appointed a member of the Advisory Board of Education by the British government but resigned in 1942 in support of the **Quit India Movement.**
- **Contribution to Constitution Making -** She was **elected to the Constituent Assembly from Central Provinces and Berar and was one of the 15 women Constituent Assembly Members.**
- **Achievements post-Independence**
  - o She was the **only woman in the Independent India's first Cabinet,** thus becoming the **first woman to hold a cabinet rank** in free India.
    - ✓ She was appointed as the **Health Minister** and remained in that position for **10 years.**
  - o She **introduced the AIIMS Bill, 1956 (which set up AIIMS, Delhi)** in both the houses and was instrumental in the passing of the Bill as an Act.
  - o She also **laid the foundation of the Lady Irwin College** and initiated the **Tuberculosis Association of India** and the **Central Leprosy Teaching and Research Institute in Madras.**

- o In 1950, she also became the **first female and first Asian president of the World Health Assembly** and also led India's delegation to the World Health Organization several times.

7.8.2. FLORENCE NIGHTINGALE

Why in News?

200th birth anniversary of Florence Nightingale, founder of modern nursing was celebrated on May 12.

About Florence Nightingale

- Florence Nightingale (1820-1910) also known as **"The Lady with the Lamp"** was a British nurse, social reformer and statistician best known as the founder of modern nursing.
- She established **St. Thomas' Hospital, London and the Nightingale Training School for Nurses in 1860.**
- She is **credited with being the first healthcare professional to use data** to show that infections control improves health outcomes.
  - o Through her career she stressed on practice of handwashing that is relevant as ever today.
- She was instrumental in **setting up training for midwives and nurses in workhouse infirmaries.** She was **the first woman to be awarded the Order of Merit (1907).**
- The **International Nurses Day** is observed annually on **May 12** commemorating her birth and celebrates the important role of nurses in health care.
- **World Health Organization (WHO)** has **designated 2020 as the "International Year of the Nurse and the Midwife,"** in honor of the 200th anniversary of Florence Nightingale's birth.

7.8.3. OTHER PERSONALITIES IN NEWS

Basava Jayanthi	• It is celebrated in the honour of the birth of **Vishwaguru Basaveshwara or Basavanna.** • He was the **12th century philosopher and social reformer.** • He is considered to be the **founder of Lingayatism or Lingayat Sect or Veerashaivism.** • His writings include his practical experiences in a novel form of literature called – **Vachana (poetry).**

Jyotirao Govindrao Phule (11 April 1827 – 1890)	• He was a **social activist, thinker, social reformer and writer from Maharashtra.**
	• He and his wife, **Savitribai Phule,** were pioneers of women education in India.
	• **Major contributions:**
	  o formed the **Satyashodhak Samaj (Society of Truthseekers)** in 1873, to attain equal rights for people from lower castes.
	  o He and Savitribai Phule started the **first indigenously-run school for girls in Pune.**
	  o **Famous work: Gulamgiri**
	• He advocated **widow-remarriage, opposed idolatry and denounced the caste system.**

Gopal Krishna Gokhale (1866-1915)	• PM paid tributes to Freedom Fighter and social reformer Gopal Krishna Gokhale on his birth anniversary on 9th May. • Gokhale became a member of Indian National Congress (INC) in 1889 and was the leader of moderate faction of Congress party. • In 1905, he was elected president of INC (Benares Session). • He formed **Servants of India Society** in 1905, founded **Ranade Institute of Economics** in 1908 and launched English weekly newspaper **Hitavad** in 1911. • In his autobiography, Gandhi calls Gokhale his mentor and guide.
Dr Bhimrao Ramji Ambedkar	• He was first minister of Law and Justice of India and chairman of the Drafting Committee of Constitution of India. • He dedicated his life towards the cause of achieving equality and respect for Dalits and untouchables. • **Organisation:** Depressed Classes Association, Bahishkrit Hitakarini Sabha, Independent Labor Party, All India Scheduled Castes Federation, Bharatiya Bauddha Mahasabha. • **Literary work:** The Buddha and His Dhamma, The Annihilation of Caste, Equality Janta, Federation Versus Freedom.

Purandara Dasa	• Karnataka government will commence field research at **Keshavapura in Karnataka** to solve the mystery regarding the **birth place of Purandara Dasa**.
	• **Purandara Dasa (1484- 1564)** was a **saint, poet and singer** during the Vijayanagara empire.
	   o He was the disciple of **Vyasatirtha**, Rajaguru of Vijayanagara empire.
	   o Prior to his **initiation to Haridasa tradition** (music and literary tradition followed by Vaishnavaits)**,** Purandara Dasa was a rich merchant and was called **Srinivasa Nayaka**.
	   o He is regarded as the **'Pitamaha' of Carnatic music.** His **systemized method of teaching Carnatic music** is followed till present day.
	   o He introduced the raga **"Maya malava gowla"** as the **basic scale for music instruction**.
	   o Under the **pen name 'Purandara Vittala'**, he has written around **4.75 lakh devotional** songs in simple **Kannada,** known as **kirtanas** touching th**e local issues and traditions of South India.**
	   o **Swami Haridas,** teacher of the foremost **Hindustani musician Tansen,** was a disciple of Purandara Dasa.

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7.9. FESTIVALS

7.9.1. NEW YEAR FESTIVALS

Name of the festival	Details
Rongali Bihu	• It is celebrated in **Assam**. It is also called **Bohag Bihu**. • It marks the beginning of **Assamese New Year**. • **Assamese celebrate Bihu thrice a year**, which signify the distinct cycles of farming - Bhogali/Magh Bihu (January), Bohag/Rongali Bihu (April), and Kongali Bihu (October).
Baisakhi	• It is a harvest festival celebrated in **Punjab**. • It also has historical significance for the **Sikhs** as in 1699, **Guru Gobind Singh** (10th spiritual guru of Sikhs) chose the festival as the moment to establish **Khalsa**.
Naba Barsha	• It is celebrated in **West Bengal**. It is also called **Poila Baisakh**. • People decorate their houses with rangoli in their courtyards made with a paste of rice and water called **Alpona**.
Puthandu (Puthuvarsham/Pirappu)	• It is celebrated in **Tamil Nadu**. It is also mentioned in **Sangam literature**.
Vishu	• It is celebrated in **Kerala**. This festival involves worship of **Lord Vishnu** and **Lord Krishna** by the devotees.
Maha Vishuva Sankranti	• It is start of Odia New Year. Special pujas are conducted at **Sri Jagannath Temple**, Puri.
Jude Sheetal	• It is celebrated in **Bihar**. It is also called **Maithili New Year**. In this festival people donate earthen pitcher containing water to temple priests.
Other Festivals celebrating New Year	• Navreh (Kashmiri New year) • Losar (Tibetan New Year) • Gudi padwa (Marathi & Konkani New Year) • Pana Sankranti (Odia New Year) • Ugadi (Telugu New Year) • Navroz (Parsi New Year)

7.9.2. OTHER FESTIVALS IN NEWS

Name of the festival	Details
Thrissur Poorama	• Recently, Thrissur Pooram was held without grand celebrations due to corona pandemic. • Thrissur Pooram is one of the **biggest temple festivals of Kerala** and has a tradition of more than 200 years. • This is a post-harvest festival. It is celebrated in the Malayalam month Of Medom (April-May) in Thrissur. • This event was **started by Sakthan Thampuran, the erstwhile ruler of Kochi.** • Festival related events take place at the Vadakkumnathan temple, Thrissur.
Bishnu Sendra Parva	• It is an annual **hunting festival observed by tribals** of Jharkhand, Odisha and West Bengal. • It was reported that for the first time, not a single animal was killed in Jharkhand on Bishnu Sendra Parva.

Meena Bharani festival	• Recently, the kavutheendal ceremony of the **Meena Bharani festival of Kerala** was observed without mass participation due to the lockdown.
	• Meena Bharani is a seven day local festival of Kerala that takes place at **Sri Kurumba Bhagavathy Temple, Kodungalloor annually.**
	• The festival starts when one among the royal family unfolds the Pattukkuda, a red Umbrella used for declaring the commencement of the Bharani Festival, allowing common people to enter the temple.
	• **About Sri Kurumba Bhagavathy Temple**
	  o It is a Hindu temple situated **in Kodungallur, Kerala** which was once a **port city under the Chera kings** of Tamil Nadu and an integral part of their capital Mahodayapuram. The Greeks and Romans also knew the city as Muziri.
	  o According to popular narratives, Sri Kurumba Bhagavathy (the main deity) is associated with two legends:
	    ✓ **Kannagi,** the heroine of the Tamil epic **Silappathikaram** (written by Ilango Adigal) which is associated with the **Pattini cult**. It is believed that the temple was built by a Chera king for Kannagi.

	✓ **Goddess Bhadrakali** of the **Kali-Daruka story**, part of **Bhagavathy cult**. It is believed that sage Parasurama, the sixth avatar of Lord Vishnu, built this temple.	

Chapchar Kut	• Recently Chapchar Kut, festival of Mizos, was celebrated across **Mizoram**.
	• Chapchar Kut is **a festival held during the period when the bamboos and trees that have been cut down are being awaited to dry to be burnt for jhumming**.
	  o Jhum cultivation, also known as the slash and burn agriculture, is the process of growing crops by first clearing the land of trees and vegetation and burning them thereafter.
	• Different tribes of Mizoram come together on a common ground to showcase their dance or musical talent during this festival.
	• One of the greatest highlights of Chapchar Kut is the performance of various folk dances of Mizoram, like:
	  o **Cheraw,** the popular bamboo dance**,** which features men tapping the bamboo sticks according to the rhythm of the dance and women adjust their dance moves with moving sticks.
	  o **Khuallam** which is an auspicious dance performed by a group of dancers celebrating new beginnings. It is also a welcome dance for guests during community festivities.
	  o **Chheihlam** which is another community dance performed by both men and women.
	  o **Solakia** which is a war dance performed by both male and female members of the community. It is accompanied by rhythmic beating of the drums.	

7.10. GEOGRAPHICAL INDICATION (GI) TAG

Why in news?

Recently, GI tags were awarded to multiple products.

• GI is a sign used on products that have a specific geographical origin and possess qualities due to that origin. It is covered under Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

Kashmir Saffron	**Jammu & Kashmir**	• It is cultivated in **Karewas (highlands) of Jammu & Kashmir.** • It is only saffron in world grown at an altitude of 1,600 m to 1,800 m. • In ancient Sanskrit literature, saffron is referred to as **'bahukam'.** • **Characteristics:** Longer and thicker stigmas, natural deep-red colour, high aroma, bitter flavour, chemical-free processing, and high quantity of crocin (colouring strength), safranal (flavour) and picrocrocin (bitterness). • **Three types include**: Guchhi, Lachha and Mongra Saffron. • **Iran is the largest producer** of saffron and **India comes second.**
Kovilpatti kadalai mittai	**Tamil Nadu**	• It is a **candy made of peanuts** held together with glistening syrup, and topped with wisps of grated coconut dyed pink, green and yellow. • It is made using **all natural ingredients** such as the traditional and special 'vellam' (jaggery) and groundnuts and water from the **river Thamirabarani** is used in the production, which enhances the taste naturally.
Chak-Hao (black rice of Manipur)	**Manipur**	• It is a **scented glutinous rice** which has been in cultivation in Manipur over centuries, is characterised by its special aroma. • Chak-Hao has also been used by **traditional medical practitioners** as part of traditional medicine. • This rice takes the **longest cooking time of 40-45 minutes** due to the presence of a fibrous bran layer and higher crude fibre content.
Gorakhpur terracotta	**Uttar Pradesh**	• It is a centuries-old traditional art form, where the potters make various animal figures like, horses, elephants, camel, goat, ox, etc. with hand-applied ornamentation. • The **entire work is done with bare hands** and artisans use **natural colour**, which stays fast for a long time. There are more

		than 1,000 varieties of terracotta work designed by the local craftsmen.
Sohrai Khovar painting	**Jharkhand**	• It is a **traditional and ritualistic mural art** being practised by local tribal women in the area of Hazaribagh district of **Jharkhand**. • It is done during local harvest and marriage seasons using local, naturally available soils of different colours
Telia Rumal	**Telangana**	• It involves intricate handmade work with cotton loom displaying a variety of designs and motifs in three particular colours — red, black and white.

7.11. AWARDS

Sardar Patel National Unity Award	• Recently, Government extended nomination for Sardar Patel National Unity Award. • It is the highest civilian award in the **field of contribution to the unity and integrity of India**. • It was instituted by **Ministry of Home Affairs** in 2019. • Award seeks to **recognize notable and inspiring contributions** to promote the cause of national unity and integrity and to reinforce the value of a strong and united India. • Award consist of a **medal and a citation. No monetary grant or cash award** would be attached to this Award. • **Not more than three Awards** would be given in a year.
Pulitzer Prize 2020	• Three photojournalists from Jammu and Kashmir - Channi Anand, Mukhtar Khan and Dar Yasin - are among 2020 Pulitzer Prize winners. • Pulitzer Prize awards across **22 categories in journalism and the arts** (newspaper, magazine and online journalism, photojournalism and literature) annually. • The award is **administered by Columbia University**. It is named after American newspaper publisher Joseph Pulitzer and is being **given since 1917**
Gandhi Peace Prize (GPP)	• Government has **extended last date for receipt of nominations** for 2020 **up to 15th of June** • It is annual award given by **Ministry of Culture** to **individuals, associations, institutions or organizations** who have worked selflessly for **peace, non-violence and amelioration of human sufferings**. • It was instituted in 1995 & is **open to all persons r**egardless of nationality, race, language, caste, creed or gender. • **Jury of GPP** is a **high level committee headed by PM**.

7.12. TRIBES

Gond Tribes	• Gonds are **one of largest tribal groups** in world. • They are mostly found in Chhindwara district of Madhya Pradesh, Bastar district of Chhattisgarh and parts of Maharashtra, Andhra Pradesh, Gujarat, Jharkhand, Karnataka, Telangana, Uttar Pradesh, West Bengal and Odisha. • Gonds are **subdivided into four tribes** - Raj Gonds, Madia Gonds, Dhurve Gonds and Khatulwar Gonds. • Their staple food are two kinds of millet: kodo and kutki. Rice is mostly consumed during festival feasts. • Gonds believe that earth, water and air are ruled by Gods.
Kandha (Kondhs) tribes	• They are primarily located in **Kandhamal district in Odisha, apart from** Andhra Pradesh, Bihar, Chhattisgarh, Madhya Pradesh, Maharashtra and West Bengal. • **Livelihood**: Hunting and gathering, subsistence agriculture i.e. shifting cultivation.
Katkari Tribe	• They are located **primarily in Maharashtra and in some places of Gujarat.** o Katkari is **one of the 75 Particularly Vulnerable Tribal Groups**, as per the classification by Ministry of Home Affairs. • A group of tribal youth from the Katkari community has come together to market **Giloy** through Pradhan Mantri Van Dhan Yojana run by TRIFED. • Giloy is a **herb used in treatment of viral fever, malaria as well as diabetes**. The herb has a huge demand from pharmaceutical companies.

7.13. ERRATA

- In PT 365 Culture on Page 20, the description of Kambala and Eruthu Vidum Vizha had been wrongly interchanged.

Correct information is as follow:

- **Kambala**
  - It is an annual buffalo race held in **Karnataka.**
- **Eruthu Vidum Vizha**
  - Its local name for bull race in **Tamil Nadu.** During the race bulls are made to run and the fastest wins the prize.