MONTHLY

EPIC!

Supplementary reading material for MGP and Current Affairs classes of ForumIAS Academy

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Dear Forumites,

The new edition of EPIC magazine comes when the academic cycle has been refreshed after conduction of Civil Services Preliminary Examination, 2021. Also, the mains examination is just 2 months away, hence it is advised at this junction to revise all the EPIC magazines thoroughly before the mains exams. This edition of EPIC showcases an analysis of the Quad and AUKUS, the India's reservation system, the spirit of federalism and concurrent list etc. The edition also analysis the issues regarding the reforms in telecoms sector, PSBs and Governance etc. The EPIC team has tried to bring you the most relevant content to give you an edge during
the civil services preparation.

A special shoutout to the students who diligently write to us and provide feedback. Your opinion is important to us. Also, topics are regularly included in the subsequent editions of EPIC based on our student's demands. Keep writing to us at feedback@forumias.academy.

Stay safe and Happy reading!

I was a part of ForumIAS MGP (Mains Guidance Program) and Essay Test Series. The detailed evaluation with remarks helped me immensely in improving my performance over the previous attempt. MGP comprises of sectional tests for each portion of GS papers, this ensured that I didn't leave any part of the Syllabus.

I am grateful to the entire ForumIAS team for their help and timely evaluation and uploading of answer sheets.

Mamta Jaglan
AIR - 05, CSE - 2020

FORUM IAS has been my friend, philosopher and guide during my tedious UPSC journey.
I joined the Mains Guidance Programme (MGP) and current affairs (online) classes.
Presence of mentors like Ayush sir and Dipin sir acts as a bonus. I am truly grateful to the entire ForumIAS team for being the building block of my preparation.
THANK YOU !!

Apala Mishra

APALA MISHRA
UPSC AIR-09
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I had enrolled in the Mains Guidance Programme (MGP) 2020 for GS and Essay. The expansive coverage of questions, prompt correction of papers, toppers' answer copies and valuable feedback on answers, received from forumIAS has helped me in my answer writing.
I'm grateful to forumIAS for the same.

Karishma Nair
AIR 14
CSE 2020

(On a side note, very grateful for the long motivating emails by Nayan sir as well)

55+ Students in Top 100 Ranks List of CSE 2020 are ForumIAS Academy students. 43+ ranks in Top 100 excluding Interview Guidance Program.

TABLE OF CONTENT

TABLE OF CONTENT 4
Focus Article 6
QUAD and AUKUS 6
General Studies Paper - I 8
#1 Key to revitalize India's Reservation System 8
#2 Making the Paralympics count: India's disabled population and Paralympics 9
#3 Issue of Marital Rape in India: 9
#4 Climate change induced Migration 10
General Studies Paper - 2 12
#1 The Spirit of Federalism and the Concurrent List 12
#2 Fiscal Federalism 13
#3 The issue of pendency of cases in judiciary. 14
#4 Right to Government Aid not a Fundamental Right 15
#5 Linguistic Issues in India and the 3 Language Formula 16
#6 Issue of Reserving Cadre Posts in Civil Services 17
#7 Role of Digitization in India's Healthcare System 17
#8 Addressing sanitation issues to tackle nutrition challenges 19
#9 Urban Planning in India 19
#10 Women SHGs and Financial Inclusion 21
#11 Gender in Census and challenges faced by Transgenders 21
#12 Issues related with the NEET Exam 23
#13 Impact of US Exit from Afghanistan 24
General Studies Paper - 3 26
#1 Limitations of the GDP growth data and New Policy Reforms for Economic Growth 26
#2 PSBs and Corporate Governance 27
#3 Reforms Undertaken in the Telecom Sector 27
#4 Establishment of the National Asset Reconstruction Company Limited (NARCL) 28
#5 e-RUPI as a tool to improve Financial Inclusion 29
#6 Slowdown in India's Automotive Sector 30
#7 Digitization of Supply Chains 31
#8 Role of Millets in tackling Malnutrition and Climate Change 32
#9 SDG 12 33
#10 Offshore Wind Energy in India 34
#11 Rolling out EV infra in India 35
#12 Role of AI in achieving carbon neutrality 35
#13 Karbi Anglong Agreement 36
Factly 37

Polity **37**
#1 World Happiness Report 37
#2 Representation of Women in Judiciary 37
Policy **38**
#1 Academic Credit Banks and Glue Grant Scheme 38
#2 TMA Policy 38
Economy **39**
#1 Investment in the Electronics Sector 39
#2 Slow Credit Growth in Indian Economy 39
#3 Account Aggregator 40
#4 Early harvest Schemes 40
International Relations **41**
#1 13th BRICS Summit 41
#2 Indo US Clean Energy Partnership 41
#3 2+2 Ministerial Dialogue between India and Australia 42
Environment **42**
#1 Stubble Burning 42
#2 Endangered Raptor Species 43
#3 Threat to vulture population in India 43
#4 Coal based Hydrogen and Green Hydrogen 44
#5 Methanol Production 44
#6 Pollution in Yamuna 45
#7 Global Warming and Impact on Oceans 46
#8 Permafrost and threat of Global Warming 46
#9 Fluoride Toxicity 47
#10 Sukhet Model 47
#11 Impact of Water Diversion on Bhitarkanika Mangroves 48
#12 Battery Storage System in Khavda Renewable Energy Park 48
Science and Technology **49**
#1 Space Debris 49
#2 Biomethanation 50
#3 Corona virus Genome Sequencing 50
#4 Findings of the Chandaryaan Mission 51
Pointly **51**

Focus Article

QUAD and AUKUS

News: The first ever in-person summit of the leaders of the QUAD countries was held in Washington DC, US on 24th September 2021.

What is Quad? – Quadrilateral Security Dialogue (QSD) is a forum of India, US, Japan, and Australia. It is called as **"diamond democracies"**. It is founded with the objective of **free and open** Indo – Pacific and to **ensure prosperity** in the region.

What is the background of Quad? – Quad as an idea was first formulated during Humanitarian Assistance Disaster Relief in Tsunami of 2004. Later, Japan proposed it as an **"arc of democracy"**. However, it was only in November 2017 Quad was formally established.

What is the significance of Quad? – (1) The formation of quad signifies the **emerging geopolitical theatre of Indo- Pacific** and establishment of a **rule-based order**, (2) It is also to address the **Chinese unilateralism** and **string of pearls** strategy in the region. (3) It is intended to provide alternative to **China's economic model (debt trap diplomacy).** (4) It also seeks to protect the **sea lanes of communication** against China's assertiveness

What are the outcomes of recent summit of QUAD? – It was the first in person Summit Level Meeting of Quad Countries.

What are the challenges to QUAD? – (1) **China's consider Quad as an Asian NATO** - considers it as a grouping to contain China led by US (2) **QUAD becoming a talking shop**- lacks the action plan or implementation roadmap for talked vision (3) **Non – Institutionalization of Quad** - Quad neither shares a **strategic vision nor has any shared agenda**. Similarly, Quad **neither has a secretariat or a charter** (4) **De securitization of Quad** – India **don't want militarization of QUAD** which might provoke China and **disturb peace** in South and Southeast

Asian region. (5) **formation of AUKUS** – AUKUS is an **inner group of Quad** eventually leading to undermining of Quad. (6) **Expanding agenda of Quad** – the recent meet is a clear example Quad's expanding agenda where the **discussion has delved into areas like space, technologies, and climate change**, (7) **Dealing with China** – all Quad countries have **deep trade relationship** with China which makes them incapacitated to contain China.

PT Box:

Malabar Exercises: The Malabar Naval Exercises were first conducted between the **Indian and the US Navies** in 1992.
Since 2002, the exercises have been held annually in the **Indo-Pacific region** including Arabian Sea, Bay of Bengal, Persian Gulf, Philippine Sea and Japan.
Japan has been a regular participant since 2014 (also participated in 2007, 2009, 2011). Australia was also part of the exercises in 2007 and 2020.

What is the way ahead for QUAD? – (1) **QUAD+** - extension of quad by bringing more like-minded countries (like South Korea, NZ, and Vietnam) to the forum, (2) need **to institutionalize**, (3) need to work towards **achievement of common objective**, (4) work towards **bettering economic and trade relations** amongst the member countries.

Why AUKUS? – AUKUS is a **mini-lateral grouping** of Australia, UK, and US. It is essentially an **important component** of US's Pivot to **Indo Pacific Strategy** to counter Chinese aggressiveness in the region. US want to protect her and her allies' **interest in the region**.

What is AUKUS? – AUKUS is a **strategic and security partnership** which includes defence deals which involves delivering **nuclear powered submarines** to Australia. This will help Australia to become a **major naval power and counter adversaries** especially China in the **deep seas of Indo pacific region**.

What is the significance of AUKUS? – (1) this reflects **US shifting its focus** towards **Indo Pacific** after withdrawal from Afghanistan. This is US's strategy to **sustain the US led world order** in the future (2) **fill the security vacuum** in the Indo Pacific region through **Anglo – Saxon solidarity**, (3) to strengthen the **naval powers of Australia** and thereby providing **maritime security in the Indo Pacific region** and counter Chinese assertive actions, (4) it also complements other similar US led initiatives like **Quad ANZUS, and Five Eyes**.

What are the challenges to AUKUS? – (1) **deep trade relation** of member countries with China and increasing Chinese economic clout in the region and beyond through initiatives like BRI makes it difficult for AUKUS to challenge China in the region, (2) US **credibility crisis** post withdrawal from Afghanistan as a major power, (3) **discontentment of France** because of Australia's cancellation of conventional submarine deal, (4) **France is an extra regional player** in Indo Pacific due to its control of Reunion Islands, (5) undermine other initiatives in the region like QUAD.

Conclusion - What significance does AUKUS hold for India? – with increasing **China's hard power**, the regional **balance of power** is shifting towards China and challenging India's traditional sphere of influence and **her role as net security provider** in the region. Emergence of AUKUS as an **inner group of Quad** filling the security vacuum in the region will be beneficial to protect India's interest and ensuring strategic balancing.

#1 Key to revitalize India's Reservation System

News: The Union Government has decided to introduce reservations for OBCs in the NEET Examination.

What are the problems with the current system of reservation? – (1) **horizontal proliferation** of benefits, (2) More and more **demand for reservation** even from **socially dominant class**, (3) Reservation is moving from its original objective to a **poverty alleviation program**, (4) **Less jobs** are created in **public sector** creating **demands for reservation in private sector**, (5) It is also becoming an **agenda of vote bank politics**, (6) improper **classification of OBCs** and **issue of creamy layer**

PT Box:
What is Affirmative Action? - The term affirmative action refers to government's policies aimed at increasing economic, social, political or educational opportunities for weaker and underrepresented sections of society.

What are the observations of Justice G. Rohini Commission? - Based on the last five years data the commission concluded that **97% of central OBC quota benefits go to just under 25% of its castes**. As many as **983 OBC communities** — 37% of the total — **have zero representation** in both central government jobs and admissions to central universities. Also, the report states that **just 10% of the OBC have accrued 24.95% of jobs** and admissions.

How does insufficiency of data impact policymaking? - The Rohini committee data was based only on the institutions that come under the **purview of the central government**. The committee **hardly has any legible data on the socio-economic conditions of varied social groups** at more local levels of State and society.
There is a need for accurate data pertaining to the socio-economic condition of different social groups. Caste-based reservations are important to study upward mobility in society.

PT Box:
Constitutional Provisions related to Affirmative Action
Art 15 (4) (5): Reservation for socially and educationally backward classes
Art 16 (4) (4A) (4B): Reservation for socially and educationally backward classes in Government Services
Art 330: Reservation in the House of the People
Art 332: Reservation in the Legislative Assemblies of the States
Art 335: Claims of SCs/STs to services and posts under the Union or States

What needs to be done? - (1) There is need for an **objective definition of Creamy Layer**. (2) **income from salary and agriculture are not considered**, but "income from other sources" is considered. The differentiation is unfair, (3) efforts should be made to quickly fill the posts of OBC's. The parliamentary committee highlighted **OBC employees in 78 ministries constituted only 21.75%, against the stipulated quota of 27%.** (4) Additionally, the focus must be on making the **system more objective and data driven, *(5)*** There is a need to develop a **wide variety of context-sensitive, evidence-based policy options** that can be tailored to meet specific requirements of specific groups, (6) Additionally, there is need to create an institution like the **'Equal Opportunities Commission**' of the United States or the United Kingdom which can:

- **Make a deprivation index** correlating data from the socio-economic-based census of different communities including caste, gender, religion and rank them to make tailor-made policies.
- Undertake an **audit on the performance of employers and educational institutions** on non-discrimination and equal opportunity, and **issue codes of good practice in different sectors**.

#2 Making the Paralympics count: India's disabled population and Paralympics

News: The Indian contingent won its highest ever medal tally of 19 medals at the recently concluded Paralympics.

What are the problems faced by the persons with disabilities? – (1) Stereotyping and stigmatization: society doesn't treat them as equal may leading to undignified life for them, (2) **Access to Recreational activities and infrastructure:** lack of accessibility to different structures and activities owing to ignorant infrastructure planning to facilitate movement of persons with disabilities, (3) **unfriendly sports governance Framework:** policies like **Rights of Persons with Disabilities Act**' are enacted but not executed and funded and are stuck in bureaucratic corridors.

PT BOX

Paralympics are an international multi-sport event where athletes with disabilities compete. Paralympics has been held every 4 years since 1960; and from 1988 onward, are held at the same venue as the Summer Olympics.

The Paralympics are governed by the **International Paralympic Committee**. The games include athletes with a range of physical disabilities like **Physical Impairment** (like impaired muscle power, loss of limb, short stature, Hypertonia), **Visual Impairment** (Partial vision to total blindness) and **Intellectual Disability**.
The Summer Paralympics have 22 sports, while Winter Paralympics have 5 sports.

What are the steps taken by the Indian Government? - (1) At the systemic level, India brought **governance reforms to the Paralympic Committee of India**, (2) The Union Ministry of Sports and Youth Affairs brought **parity to the cash rewards structure for medal-winning** Paralympians by placing them on equal footing with their able-bodied counterparts at the Olympics.

What more can be done? – (1) At the individual level: creating opportunities, sensitizing the society to treat them as equal, (2) **Sports Broadcaster:** help in awareness and capacity generation among differently abled regarding opportunities in the field of sports, **(3) Media:** Pictures of the Paralympics in electronic media and on social media should be accompanied by image descriptions for the visually challenged.

#3 Issue of Marital Rape in India:

News: Recently, the **Kerala High Court** held that **acts of sexual perversions of a husband against his wife amounted to (mental) cruelty** and was, therefore, a good ground to claim divorce. In another case, the **High Court of Chhattisgarh** discharged a husband under exception to Section 375 while upholding charges under other sections.

What are the provisions on Marital Rape in India and Abroad? - India is one of the countries where marital rape is not even recognized and consequently there are **no legal provisions against it**. An **exception to Section 375** of the **IPC** (which provides for definition of rape) has been created to not recognise marital rape as a rape.
According to the **UN Women's 2011 report,** out of 179 countries for which data was available, **52 had amended their legislation to explicitly make marital rape a criminal offense**.

PT Box:

Marital Rape is **non-consensual sexual intercourse** (between married couple) without the spouse's consent. The essential element is the **lack of consent.** There may or may not be use of physical coercion or assault.

How prevalent is Marital rape in India? – (1) survey conducted by **International Centre for Research on Women** (2011): nearly 20% of Indian men have, reportedly, at least once carried out sexual violence against a female partner, (2) study conducted by the **Joint Women Programme**, an NGO, found that **one out of seven married women** had been raped by their husbands at least once. They frequently **do not report** these rapes **because the law does not support** them, (3) another study by **National Health and Family Survey (NFHS-4)** for

the year 2015-16, 5.6% of women have been reported as victims under the category of "physically forced her to have sexual intercourse with husbands even when she did not want to".

What is the Judicial position in this regard? – (1) Nimeshbhai Bharatbhai Desai vs State of Gujarat (2017) case: In this case, the Gujarat High Court elaborately dealt with the issue of marital rape. The court stated that "**making wife rape illegal** or an offense will **remove the destructive attitudes** that **promote the marital rape**". However, **due to the non-recognition** of marital rape as a crime, the court held that the **husband is liable only for outraging her modesty** and unnatural sex. **(2) Independent Thought v. Union of India (2017) case:** In this case, the SC has **criminalised sexual intercourse with a minor wife** aged between 15 and 18 years. But the **SC refused** to **delve into the question of marital rape** of adult women **while examining an exception to Section 375**, (3) **High Courts (HC)** have given various views. One HC backed marital rape as a valid ground for divorce, while others granted anticipatory bail to a man who was accused of marital rape.

What are the challenges in criminalising marital rape? (1) threat to the sacrosanct institution of family – marriage is a key component of family and in India specifically failed marriages lead to stigmatisation and harassment of women as well as associated family. Society recognises and prioritises collective identity of family over an individual's identity, **(**2) **invisibalisation of crime against women**: with **lack of economic opportunities** and **historic suppression** owing to patriarchy has made **women dependent on men** and family and being **treated as a property**. Women in work force **are majorly in unorganised sector**. Thus, crimes meted out to women are majorly ignored and unreported, (3) **Pressure**: a woman has to confront many people from her own family, her in laws family, kids for her rights. Any reporting of crime, she has to bear pressure from same set along with threat to her life and dignity.

How can we move towards identifying and criminalising Marital Rape? – (1) Justice Verma Committee strongly **recommended that the exception for marital rape be removed** in line with **Convention on the Elimination of All Forms of Discrimination Against Women** (CEDAW) **Committee recommendations, (2) Judicial interventions**: The Courts around the world have played a great role in shaping Jurisprudence. In matters of rape, the courts around the world, like the **European Commission of Human Rights (ECHR)** has held that "**a rapist remains a rapist, regardless of his relationship with the victim**". Further, while **decriminalising adultery**, the **Supreme Court** in **Joseph Shine vs. Union of India (2018)** said that **legislation that perpetuates stereotypes in relationships and institutionalises discrimination is a clear violation of the fundamental rights** guaranteed by the Constitution. Apart from that, **Article 142** grants exceptional powers to SC. Under this, SC has the equivalent power of a lawmaker. So, in failure of Parliamentary legislation, the Courts **can strike down the exception** to Section 375. **(3) Societal change**: The laws alone cannot be used to fight marital rape issues; societal change is pivotal. Societal change is important, as we need to challenge not just the issue of patriarchy, but the very notion of marriage as a sacrosanct institution.

#4 Climate change induced Migration

News: A World Bank report observed that climate change could push more than 200 million people to leave their homes by 2050 and create migration hot spots.

What are the findings of the report? – (1) impacts of slow-onset climate change, such as water scarcity, decreasing crop productivity and rising sea levels, could lead to millions of "climate migrants" by 2050 in six world regions. Those regions are Latin America; North Africa; Sub-Saharan Africa; Eastern Europe and Central Asia; South Asia; and East Asia and the Pacific. In fact, the report argues that water scarcity is a major reason for **internal migration** in the contemporary world. **(2) low rainfall events** account for 10-11% of the increase in migration between 1970 and 2000. **(3)** the water scarcity-driven waves of migration have been **more eminent in developing and poor countries, (4)** while dry spells or lack of water ranked just below education as a reason for migration, in many countries, this has become a more decisive driver of migration,

(5) in the last three decades, an average 25% of the world's population suffered abnormal rainfalls annually, (6) **increasing dry spells,** as predicted in a changed climate scenario, would fasten the rate of migration. The **poorest in a region would be left behind** to fend for themselves in areas ravaged by deficit rainfalls. It says that 80% of the poorest population would not be able to migrate out even though left with no adequate water as migration involves costs and certain skills.

PT Box

The **Cancun Agreements** adopted at the 2010 UNFCCC conference identify three forms of "climate change induced" movement:

- **Displacement:** situations where people are forced to leave their homes or places of habitual residence because of a disaster or to avoid the impact of an immediate and foreseeable natural hazard.
- **Planned relocation**: It is a planned process in which persons or groups of persons move or are assisted to move away from their homes or place of temporary residence and are settled in a new location. They are provided with the conditions for rebuilding their lives.
- **Migration**

Hence, climate induced migration is one of the three types of climate induced movement.

How does climate change causes migration? - (1) The **intensification of natural disasters**, (2) Increased **warming and drought that affects agricultural production** and access to clean water, (3) Rising **sea levels make coastal areas uninhabitable** and increase the number of sinking island states. *(44% of the world's population lives within 150 kilometers of the coast), (4)* Competition over natural resources may lead to conflict and in turn migration.

What is the scale of climate induced migration?

Global scenario

The World Economic Forum finds that between 2008 and 2016, extreme weather events forced over 20 million people each year to become climate refugees. **The World Bank** estimates that by 2050, 1.2 billion people could become environmental refugees. Over 40 million climate migrants are expected in South Asia alone. **According to the UN**, disasters and geophysical hazards have triggered an average 3.1 million displacements a year since 2008.

What is climate induced migration? - As per the International Organization of Migration (IOM), climate-induced migration is referred to as; the **movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change**, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border

Climate migration is thus a subcategory of environmental migration; it defines a singular type of environmental migration, where the change in the environment is due to climate change.

Note: As of today, there is no legal or internationally accepted definition of climate-induced migration. And it is a is a subtype of climate-induced movement

The situation in India is equally alarming. India is very vulnerable to climate induced migration problem. It ranks 7th in the **Global Climate Risks Index** 2021. There is now a **much higher scale of migration from the hills**, with entire ghost villages or empty habitations scattered across the Himalayas. According to 2011 census figures, of 16,793 villages in the state of Uttarakhand; 1,053 have no inhabitants and 405 villages have less than 10 residents. Due to Cyclone Phailin, which ravaged the coastal state of Odisha in 2013, the state witnessed an unprecedented scale of migration of fishing communities that had otherwise been based there for decades. In 2018, environmental disasters caused over 2.7 million displacements. 45 million, in India alone, will be forced to migrate from their homes due to climate disasters by 2050 in a business-as-usual scenario.

What are the major challenges related to the climate induced migration? - (1) **Lack of a clear definition**: There is a lack of clarity around definitions relating to human migration in the context of climate change. (2) **Lack of resources**: The UNHCR has thus far refused to grant these people refugee status, instead designating them as "environmental migrants," in large part because it lacks the resources to address their needs, (3) **Lack of data**: A persistent lack of data is one of the primary challenges to measuring the relation between migration and the environment, while data collection on migration and the environment represents a challenge in itself. The major challenges for India include (1) **Poverty and size**, (2) **Rising rural distress and the urban-centric nature of economic growth,** (3) **The unplanned expansion of Indian cities**

What are the major implications of climate induced migration? (1) **Migrants lack representation and rights**, (2) **Social conflict**: Climate change is fueling social conflicts, the desperation over existential resources is sharpening struggles, (3) **Human trafficking**: Displacement or rise in migration due to disasters has raised concerns on increasing human trafficking, (4) **Risk of the complete disappearance** of some Small Island Developing States (SIDS) due to sea-level rise opens new questions about the territorial sovereignty of these disappearing island States, as well as the human rights of islanders who could effectively become stateless, (5) **Increased vulnerability**

What are the suggestions/measures to improve the scenario? - (1) **Climate-resilient solutions**, (2) **Funding and support**: Most of the world's unsustainable increase in global temperatures was produced by wealthy, industrialised countries in Europe and North America. There should be a large pool of funds from these advanced economies to support developing nations, facing the brunt of the climate crisis now, (3) **Improving the migratory process**: to determine the best way to improve the migratory process itself—be it increasing migration monitors, providing safer modes of transport, and consolidating and expanding destination country integration resources.

What are the India specific measures required to address the challenge? - (1) In rural areas, this would involve **supporting the livelihoods of people and strengthening social support systems**, particularly for women, children, and SC and ST populations. There is already an extensive net of social security measures, including the PDS, NREGA, and the ICDS, which cater to different population segments, (2) Investment must be made in the **ecological infrastructure** which safeguards local economic well-being. This can be achieved via MGNREGA scheme, (3) Public policy response requires **creating more inclusive and resilient cities** that provide poor migrants and their families with decent and dignified jobs, affordable housing, access to health and education, and improved water and sanitation facilities to help them deal with climate shocks and improve their lot., (4) Higher urbanisation, if properly managed, can generate **greater economic prosperity** and create more plural urban spaces and communities.

General Studies Paper - 2

#1 The Spirit of Federalism and the Concurrent List

News: Several State Governments have raised concerns about enactment of laws by the Union Government on subjects listed in the Concurrent List without due discussions with the State Governments

What are the issues raised by the State Governments? – (1) The Chief Minister of Kerala stated that the unilateral legislation on the subjects in the Concurrent List is **not in the essence of federalism**. (2) The Chief Minister of Tamil Nadu also raised the issue by calling on other Chief Ministers against the Union government usurping powers under the State and Concurrent Lists.

What laws have been made by the Union Government without the consent of the States? – (1) Farm Laws, 2020: Parliament passed the farm laws without consulting the States. The laws, essentially, relate to Entry 14 (agriculture) of the State List. However, the Parliament passed these laws by citing Entry 33 (trade and commerce clause) in the Concurrent List. **(2) Major Ports Authorities Act, 2021:** The State of Goa objected to the law, observing that it would lead to the redundancy of the local laws,

PT Box:
The **Seventh Schedule** distributes the legislative subjects between the Union and States. Both the Union and the State Legislatures are empowered to enact laws on the Concurrent List. At present, **Concurrent List has 47 subjects**, including subjects like Criminal Law and Procedure, Contracts, Bankruptcy, and Insolvency, Economic and Social Planning, Social Security, Education, Shipping in Inland Waterways, Forests, Electricity, Price Control, Acquisition of Property, Marriage and Divorce etc. Education and Forests were transferred to the Concurrent List in 1976 through the 42nd Amendment Act.

including the Goa Town and Country Planning Act, the Goa Municipalities Act, the Goa Panchayat Raj Act, and various other local laws. **(3) Draft Indian Ports Bill, 2021:** It proposes to change the status quo by transferring the powers related to planning, developing, and regulating the non-major ports to the Maritime State Development Council (MSDC), which is controlled by the Union government. **Various coastal States** like Odisha, Andhra Pradesh and others have **objected to the Bill** as it proposes to **seize the power of the State government** with respect to non-major ports. **(4) Electricity (Amendment) Bill, 2020:** The field related to electricity is traceable to Entry 38 of the Concurrent List. The power to regulate the sector was vested with the State Electricity Regulatory Commissions (SERCs). However, the proposed amendment seeks to change the regulatory regime.

What are the powers of the Parliament with respect to the Concurrent list? – Under the **Government of India Act, 1935**, certain subjects were put in the Concurrent List by giving the Union and the State Legislatures concurrent powers regarding them. State's power to legislate on these subjects was to be shared with the Union so that there is uniformity in laws across the country.

What is the view of Judiciary in this regard? – The Supreme Court has made the following observations**: (1) State of Bombay vs F.N. Balsara case (1951)**: The SC ordered in case of conflict between Centre and state, after employing the doctrine of "**pith and substance**", the laws of the State Legislature must prevail.
***S.R.* Bommai vs Union of India case (1994)**: The SC said that the States are not mere appendages of the Union. The Union government should ensure that the **power of the States is not trampled with.**

PT Box:
Doctrine of Pith and Substance: The doctrine of Pith and Substance states that within their respective spheres the state and the union legislatures are made supreme. They should not encroach upon the sphere demarcated for the other.

What are the recommendations of various commissions/committees on the issue? – (1) Sarkaria Commission: It recommended that there should be **mutual consultation,** guided by **coordination in all areas of concurrent or overlapping jurisdiction.** It was further recommended that the **Union government**, while exercising powers under the Concurrent list, **should limit itself to the purpose of ensuring uniformity** in **basic issues of national policy** and not more**. (2) National Commission to Review the Working of the Constitution (NCRWC), or the Venkatachaliah Commission**: It recommended that individual and collective consultation with the States should be undertaken through the **Inter-State Council** established under Article 263 of the Constitution.
Thus, the **essence of cooperative federalism lies in consultation and dialogue**, and not in unilateral legislation.

#2 Fiscal Federalism

News: The Government of Tamil Nadu released a white paper regarding the fiscal condition of the State attributing the poor condition of State Finances to the Union Government

How has Fiscal federalism changed over time? – (1) In the context of resource transfer to the States and the autonomy of their use, the circumstances have shifted gradually in the favor of States e.g. In the **original constitution:** States only got a share of two central taxes i.e., **Personal Income Tax and Union excise duties**. Later, this was changed through a Constitution Amendment in 2000 after which the States got a share in the **total taxes collected by the Union Government**. (2) With the **abolition of the Planning Commission**, the States' autonomy has increased further. Earlier, the **Commission used to decide the amount and purpose of the money** that was to be transferred to the States. Now States get that **money as part of statutory transfers (based on the recommendations of the Finance Commission)** with full discretion over where they want to spend it.

PT Box:
Fiscal Federalism: refers to the financial relations between the country's federal government system and other units of government. It is the mechanism for sharing expenditure and revenue allocated across different vertical layers of the government administration. Article 246 and Seventh Schedule of the Indian Constitution distributes powers and allots subjects to the Union and the states with a threefold classification type: Union List, State list and Concurrent List.

Are the States justified in putting the blame on the Union Government? - The States often cite 3 major issues with the Union Government on the fiscal front: **(1) Centrally Sponsored Schemes (CSS):** States see CSS as an assault on their autonomy. However, the resources transferred to the States through the CSS are provided under the purview of **Art 282 of the Constitution**. CSS are used by the Center as a signal to the States regarding the national priorities and is consistent with the letter and spirit of the Constitution. **(2) GST:** States **sovereign power to tax** was taken away with implementation of GST. It has also taken away states **autonomy in deciding the rate of taxes** as that is taken up by **GST council which is now a constitutional body**. The states were to be compensated by Centre for giving up their revenue, but the Centre has failed to compensate properly leaving the state with option to borrow to meet their fiscal demand. (3) **Cess and Surcharge**: The Union Government is **increasingly resorting to cess and surcharges** instead of increasing the rate of taxes. This is advantageous to the Union Government as the **funds raised though levying of cess/surcharge are not shared with the States**.

PT Box

The **80th Constitutional Amendment Act in 2000** implemented the recommendations of the **Tenth Finance Commission**. With this amendment, the **divisible pool of taxes** between the Union and State Government was expanded to **include all the Taxes collected by the Union**. Prior to this Amendment, proceeds from only Personal Income Tax and Union Excise duties were shared with the States. With this Amendment, the aggregate **buoyancy of all the taxes** was shared with the States.

PT Box

Difference between Cess and Surcharge

Cess is **charged for a specific purpose** and is generally named after the identified purpose e.g., Education Cess.

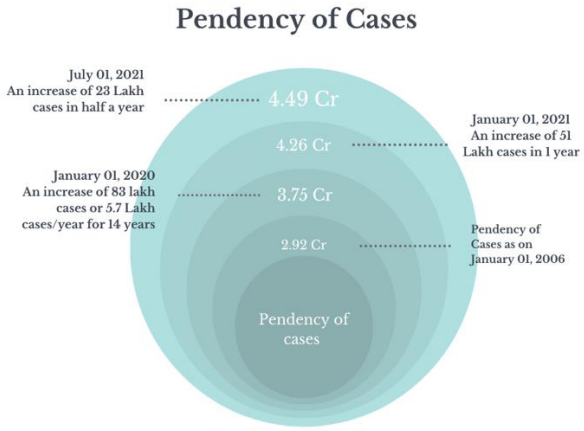
Surcharge is **a tax on tax** (i.e., charged on tax already paid) imposed for the purposes of the Union Government. The money thus collected can be spent for any purpose.

The proceeds of both Cess and Surcharge **go the Consolidated Fund of India** and need not be shared with the State Governments.

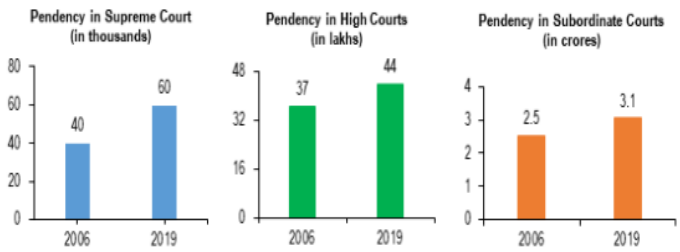
#3 The issue of pendency of cases in judiciary.

News: The Chief Justice of India has raised concern over the pendency of cases. He said people do not seek the court to be modern, instead, they want **early resolution of their cases** in a cheaper way.

What is the present status of pendency of cases in India? – (1) In India, more than **40% of cases are decided after three years**. While in many other countries less than 1% of cases are decided after three years. (2) 3.5 crore cases are pending of which 87.3% of cases are in subordinate courts, 12.5% in High Courts and 0.2% in Supreme Court (3) Data shows that about **70% of prisoners in India are undertrials** and are mostly poor citizens.



What are the reasons behind high pendency of cases? – (1) the courts are working below their **sanctioned strength**, (2) cases are dragged due to **collusive corruption by lawyers**, (3) **inefficiencies by police** in conducting speedy and impartial investigation, (4) **rigid procedural requirements** and **lot of paperwork**, e.g., Vishnu Tiwari was acquitted of false rape case after 16 years of his appeal due to missing paperwork, (5) law education in Indian **focusses more on developing lawyer than judicial officers**, (5) and finally



increasing literacy levels, awareness and citizen friendly tools like PIL have resulted in large influx of cases in courts.

What are the impacts of pendency cases? – The impacts can be divided into (a) political, (b) economic and (c) social. The political impacts are – (1) **undermine right to life**: SC held in **Hussainara Khatoon v. Home Secretary, State of Bihar case,** right to speedy and fair trial is implicit under Art. 21, (2) **overcrowding of prisons**: 4.78 lakh prisoner lodged in Indian jails, 69.05% are undertrials, (3) **burden on judges**: judges are seem hearing more than 100 cases a day leading to reduced average time devoted to a case, (4) **undermine judicial credibility**: the **faith and trust of the common man** in the judicial setup are also lost if he/she didn't receive timely justice, (5) **unsatisfactory disposal rate**: disposal rate (number of cases disposed of) has stayed between 55 -59% in the Supreme Court, 28% in the High Courts, and 40% in the subordinate courts.

PT BOX

Appointment of Judges in the Courts

Article 124(2) of the Indian Constitution provides that the Judges of the Supreme Court are appointed by the President. He/she should consult such a number of the Judges of the Supreme Court and of the High Courts in the States as he/she may deem necessary for the purpose.

Second Judges Case (1993) – **Collegium system** was created to make recommendations for appointments and transfers. It comprises the Chief Justice of India and two other senior most SC judges.

Post the **Third Judges case**, the number of senior-most judges was increased to four.

Article 224A – The Chief Justice of a High Court can request a former high court judge to act as an ad hoc judge. He/she can do this with the previous consent of the President.

The economic impacts are – (1) **constraint to ease of doing business** – though India jumped 14 places to rank 63 on ease of doing business it **fares poorly on parameter of enforcing contracts where it is ranked 163rd** (2) **deteriorating ease of investment** – lengthy litigation and delayed judgement creates apprehension among investors to put their money in Indian market and companies, (3) According to the State of the Indian Judiciary report, it is estimated that the **cost of the delays** in the judicial system could be as high as 1.5% to 2% of GDP. This includes cost incurred on case, travel time of litigants and their impact of work, etc., (4) **constraint to infrastructure development** - the **Economic Survey, 2018-19** also mentioned that government projects in six infrastructure ministries to the tune of Rs 52,000 crore were put on stay by court injunctions. The survey also mentioned that the project costs of these projects was increased by close to 60% due to the average duration of stay.

The social impact - The pendency causes harassment of the accused and victim. As they need to go through **significant financial, physical, and mental stress** for years due to the pendency. It also leads to **stigmatization of undertrials and harassment of the family** in the hands of society.

What can be done to reduce pendency of cases? – (1) timely appointments, (2) usage of retired High Court judges as AdHoc judges to fast track the disposal of cases, (3) augmenting **the quality of judges** and setting up **All Indian Judicial Services**, (4) **digitization of judiciary** to ensure smooth interaction between different institutions of judiciary, (5) use of **AI to decide on case listing, allocation and adjournments**, (6) adoption of **virtual hearing or hybrid virtual hearing** model, (7) **e-filing** of petitions and affidavits and **online payments**, (7) proper institution of **Alternative Dispute Resolution mechanism**, (8) **periodic and constructive survey** by media on pendency of cases.

#4 Right to Government Aid not a Fundamental Right

News: SC while hearing an appeal on decision of the Allahabad High Court to declare a provision of the Intermediate Education Act of 1921 unconstitutional, the apex court opined that t**he right of an institution, whether run by a majority or minority community, to get government aid is not a fundamental right**.

What is the Judgment? – (1) for both majority and the minority institution, **all conditions that have relevance to the proper utilisation of the grant-in-aid** by an educational institution can be imposed. **(2) Art 30 (2)** mentions that while granting aid, **State can't discriminate on the ground that the institute is being managed by a minority** (linguistic or religious), thus the conditions of aid remain same irrespective of the management belonging to majority or minority community, (3) if the **Government made a policy call to withdraw aid**, an institution **cannot question the decision as a "matter of right"**, (4) a grant of **Government aid comes with accompanying conditions**. An institution is **free to choose** to accept the grant with the conditions or go its own way, (5) an institution can **never be allowed to say that the grant of aid should be on its own terms**.

PT BOX
TMA Pai vs State of Karnataka Judgment (2002)
An 11 Judge Bench of the Supreme Court ruled that the **rights under Art 30(1) are not absolute**. Rights under Art 30(1) can't override the national interest and the regulations framed by the Government in national interest must necessarily apply to all institutions whether being managed by a majority or minority community. All institutions must adhere to the regulations imposed to ensure educational standards and maintain excellence.

Why cannot institutions view government aid as a "matter of right"? - (1) Government aid is a **policy decision**. It **depends on various factors** including the interests of the institution itself and the ability of the government to understand the exercise. **(2) Financial constraints and deficiencies** are the factors which are considered relevant in taking any decision regarding aid. It includes both the **decision to grant aid** and the **manner of disbursement of an aid**.

What are the challenges associated with decision? - Even in a case where a policy decision is made to withdraw the aid, an institution **cannot question it as a matter of right**. Such a challenge would still be available to an institution when a grant is given to one institution as against the other institution which is similarly placed.

#5 Linguistic Issues in India and the 3 Language Formula

NEWS: Hindi Diwas was celebrated recently, and it has reignited the debate over National Language and the Linguistic issues.

Why is Hindi Diwas celebrated? - The Constituent Assembly adopted **Hindi in Devanagari Script as one of the official languages** of the Union of India on 14th September 1959. This day is thus celebrated as Hindi Diwas.

PT Box:
Apart from Hindi, English is another official language of India. Moreover, India presently has 22 languages specified under the Constitution's eighth schedule.

Why was Hindi adopted as an official language? – (1) To avoid any conflict between all the diverse languages. **(2)** Hindi is India's most widely spoken language. According to, **Census 2011 43.63% of the people has Hindi as their mother tongue**.

How language is part of a political project? - Language is **not just a medium of communication**, it also evokes **strong emotional responses**. Thus, we find that it needs to be handled with political wisdom. This is evident in many cases. **Erstwhile Pakistan** fell apart when it tried to impose Urdu as the state language on its Bangla-speaking population in what was East Pakistan. **Switzerland,** with a population of only 8.4 million, has four national and official languages.

Considering all these, India adopted a **unique three-language model** that suited its needs. Through this, three Indian languages were to be taught in the schools. This would

PT BOX
The Three Language Formula
The three-language formula first formulated by the Ministry of Education in National Policy on Education, 1968. This formula was implemented in the country except for Tamil Nadu.
It is commonly understood that the three languages referred to are Hindi, English, and the regional language of the respective States.
NEP 2020 continued with this policy, but it provided flexibility to the states in its implementation. It means it is not mandatory to adopt Hindi as one of the languages under the formula.

promote brotherhood and unity amongst fellow Indians. However, despite these, there have been numerous challenges for this Indian project.

What are the threats? - Linguistic extremism: It is a scenario when a particular group adopts a tough stand towards other languages.

What should be the way forward? – (1) Linguistic extremism can be avoided by ensuring that it does not become a political project. (2) there should be a lot more investment in translations of the works of one language into other languages. Translations will enrich Indian languages.

#6 Issue of Reserving Cadre Posts in Civil Services

News: The State Government of Haryana appointed an IPS Officer as Principal Secretary, Transport; a cadre post of the IAS.

What is the present system regarding appointments? - Certain posts, both at the Union and State level, are **reserved for certain services by declaring them as cadre posts**. For example, a Collector in any district must be from the IAS. Similarly, a Superintendent of Police will always be from the IPS. The same procedure has been adopted for the State Administrative Services.

What are the demerits of the present system? – (1) Glass ceiling Effect: It acts as a glass ceiling for all the members of the service as for most of the officers, the top post will remain out of reach irrespective of their skills. This acts as a de-motivator, (2) **Fewer choices:** Since officers from a particular service must be posted to a particular post, the selection pool is smaller and hence results in sub-optimal choices, (3) **Promotion based on service**: It creates anomalies as batch mates from the same examination are promoted slower or faster just because they belong to different services, not because they are less or more competent, (4) **Less use of talent**: It prevents the government from optimally utilizing the talent it possesses. This has also compelled the Government to fill the gap by hiring from the private sector, (5) **Skill limitation**: Every service has a core role for which it has been trained. For example, a customs officer is trained differently than a police or income tax officer. However, some people may grow beyond their core functional areas and pick up new skills. But the cadre system ensures that they cannot fully utilize the skills that they may have developed, (6) **Exclusionary behaviour**: has given rise to an unhealthy competition among various services, wherein each service wants to get as many posts as possible declared as exclusive cadre posts limited to that service only. This is evident through the ongoing tussle between CAPF and IPS

What can be done to address the issue? Certain practices can be adopted to remedy the situation **– (1) Training:** It may not be advisable to do away with the cadre system completely. Instead, specialized departmental officers can be trained at lower and middle level for ensuring smooth governance, (2) **Cadre Neutral posts:** Certain senior posts can be made cadre neutral. Officers from multiple services with relevant experience can be made eligible for certain posts.

#7 Role of Digitization in India's Healthcare System

News: Recently launched A**yushman Bharat Digital Health Mission** aims to provide digital health IDs for all Indian citizens to help hospitals, insurance firms and citizens access health records electronically when required. and has the potential to revolutionize the Healthcare sector.

What are the issues plaguing India's Healthcare Sector? – (1) Inadequate spending: At 1.26% of the gross domestic product (GDP), the government's spending on healthcare has been very low, (2) **Poor quality of services**: When it comes to the quality and accessibility of healthcare, India's rank is poor (145 out of 195 countries), according to the Lancet's global disease burden study, (3) **Issues related to health resources**: Besides low public investment, there are also issues of efficiency, absenteeism, and availability of specialists

in government facilities. Further, there are both manpower and infrastructure shortages, (4) **Lack of accountability**: The biggest bottleneck the Government health centers face are attitudinal issues. There is an accountability crisis. There are very limited implications for poor performance and outcomes, (5) **Narrow outlook**: Government healthcare, focused on women and children in primary care, must also accord attention to other areas that deserve attention, such as diabetes, (6) **Lack of coordination**: The healthcare machinery is fragmented and works in silos. There are different programs for different diseases, from HIV to TB. And there are two parallel systems, one funded by the State Governments and the other centrally funded under the National Health Mission, which often do not coordinate with each other, (7) **Lack of proper tracking**: At present there is lack of proper tracking of patients. The tracking is manual, and the paper records contain very little detail to analyse and interpret with accuracy. It is very difficult for the doctors to get all the medical data required to make accurate clinical diagnosis by the patient's bedside.

What are the features of Digital Health Mission? – (1) will provide **Digital Health ID**, a **unique 14-digit health identification number** to be created using a person's mobile number or Aadhaar. The digital health ID will allow users, hospitals, and companies to **access health records digitally**. Health IDs will have all health-related information of a person, but **the sharing of the records** will be done with the **consent of citizens**. (2) The Health ID will be **free of cost and voluntary**. (3) creation of a **Healthcare Professionals Registry** (HPR) and **Healthcare Facilities Registry** (HFR), allowing easy electronic access to medical professionals and health infrastructure. The HPR will be a **comprehensive repository of all healthcare professionals** involved in delivering healthcare services across both modern and traditional systems of medicine. The HFR database will **have records of all the country's health facilities**.

How will the Digital Health Mission benefit the Healthcare Sector? – (1) electronic Medical Records (EMR) will help us document real-time events happening around a patient, inside the hospital with seamless movement of data between various stakeholders on a mobile platform, **(2) Affordability, Accessibility**: Providing smart digital tools to doctors, nurses and technicians, morbidity mortality in healthcare will come down significantly, access to healthcare will improve and the cost of healthcare will come down**, (3) Facilitates globalisation of India's health care:** it will open the door for Indian digital health start-ups to dominate the global digital health industry, **(4) Mobility**: will help chronic patients carry their medical records on their phones which can be seen by doctors on their computers anywhere, **(5) Avoids repetition**: Since most of the blood tests, CT scan, MRI, ultrasound reports will be available on the cloud from anywhere, patients do not need to go for painful and expensive repeat tests, **(6) Facilitate analysis of Data**: Soon data analytics will build clinical decision support systems on EMRs which will suggest alternative diagnosis based on the patient's condition, **(7) Abolition of Quackery**: Since only registered doctors will be allowed to prescribe medication on digital prescription pads. With the barcoding of medicine strips, fake medicines will also disappear,

How growing digitalization is helping revolutionize the health sector? – (1) Health is being prioritized: COVID has **accelerated the digitization** wave everywhere, including in health. Both the State as well as Union Governments are finally prioritizing the health sector. The most prominent use of digital technologies during the COVID pandemic has been vaccination implementation and monitoring (**COWIN** for monitoring the status of vaccination administered, **eVIN**: Electronic Vaccine Intelligence Network for vaccine stock monitoring), case load monitoring (**Aarogya Setu**) and tele-medicine (**e-Sanjeevani**). **(2) Unified Health Interface (UHI)**: Plans are underway to build a digital backbone for healthcare. The National Health Authority is building a unified health interface or UHI as part of the National Digital Health Mission (NDHM). UHI will **help connect patients** and **healthcare service providers**, aiding them in discovery, payments and access to health services across applications. It is also working to digitize and standardize patient health records to ensure easy access and interoperability. **(3) Increased use of digital platforms**: The government is increasingly using digital (platforms/services) to act as a force multiplier. This is catalyzing the growth of HealthTech startups and venture capital investments in HealthTech startups. With over 5,000 HealthTech startups, health industry is estimated to grow at a compound annual growth rate (CAGR) of 39% to touch $5 billion by 2023.

What is the way forward? – (1) intent and investments, must increase sharply to help millions of poor people access better healthcare services, (2) instead of one size fits all, **policies and models must be customized to specific geographies** to make it more effective, (3) at a policy level, India needs a **more flexible, practical, and modular approach to train and upskill healthcare professionals**. In Ethiopia, nurses can train to upgrade themselves to become surgeons. India could do the same with ASHA workers.

#8 Addressing sanitation issues to tackle nutrition challenges

News: A recent report by the UNICEF stated that more than 12 Lakh children could die in the low-income countries due to lack of health services and increase in wasting

What are the findings of various National/International Organizations? – (1) UNICEF: It indicated that nearly **12 lakh children could die** in low and middle-income countries **in the next six months** due to a decrease in routine health services and an increase in wasting. About three lakh such children would be from India. **(2) National Food Health survey (NFHS 5):** It indicated that ever since the onset of the pandemic, acute undernourishment in children below the age of five has worsened, with one in every three children below the age of five suffering from chronic malnourishment. According to the latest data, 37.9% of children under five are stunted, and 20.8% are wasted. This is much higher than in other developing countries where, on average, 25% of children suffer from stunting and 8.9% are wasted. **(3) NFHS 4**: It said that approximately 9 percent of children under five years of age in India experience diarrheal disease. **(4) World Health Organisation (WHO):** It said that 50% of all mal- and under-nutrition can be traced to diarrhea and intestinal worm infections, which are a direct result of poor water, sanitation and hygiene (WASH). WHO has estimated that access to proper water, hygiene and sanitation can prevent the deaths of at least 8,60,000 children a year caused by undernutrition.

PT BOX

According to the WHO, there are 4 broad forms of **undernutrition:**

Wasting: **Low weight for height** (*Weight for Height Nutritional Index, or Mid-Upper Arm Circumference (MUAC)*); loss of weight due to lack of food or due to a disease like diarrhea. Wasted children are at higher risk of death.

Stunting: **Low height for age** (*Height for Age Nutritional Index*); occurs due to *chronic undernutrition* attributable to poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, lack of adequate childcare after birth. Stunting is associated with cognitive impairments like delayed motor developments, impaired brain functions and poor learning outcomes in schools.

Underweight: **Low weight for age**, can be due to either stunting, wasting or both.

Deficiencies in Vitamins/Minerals like Iodine, Iron, Zinc, Folate, Vitamin A, B12 etc. These minerals and vitamins are essential for production of enzymes, hormones which are essential for proper growth and development.

What should be the strategy to counter diarrhea and malnutrition? – (1) In the Indian scenario, a **simultaneous approach to nutrition and WASH** should be adopted. It will not only aid India's fight against malnutrition but also bolster Covid resilience amongst the most vulnerable sections of society. **(2)** A **coordinated, multi-sectoral approach** amongst the health, water, sanitation, and hygiene bodies, along with **strong community engagement** can help India achieve the goal of a safe and healthy population.

#9 Urban Planning in India

News: NITI Aayog has launched a report titled 'Reforms in Urban Planning Capacity in India'.

How urbanization acts a driver of growth? – (1) New York City has GDP equal to that of Russia with a population just 6% and area just 0.00005% of that of Russia. (2) Twenty-six of the world's 33 megacities are in developing countries because their **rural areas lack rule of law, infrastructure and productive commerce**.

What is India's challenge regarding urbanization? - India's challenge is not that of land, labour, or capital but of **increasing the productivity of urbanization** or its cities. It should also simultaneously look at improving

the productivity of local self-Government and rural areas. If 50% of our population in rural areas generate only 18% of the GDP, they are bound to live a life of poverty.

What are the challenges faced by the rural areas and local governments? – (1) Rural areas are characterized by poor infrastructure, poor facilities, poor law and order etc. All this leads to poor villagers migrating to cities. It is estimated that **two lakh villages** out of 6 lakh villages **have less than 200 people**. **(2)** The annual spending of our central and state government is about Rs 34 lakh crore and Rs 40 lakh crore respectively. **15th Finance Commission** estimates that 2.5 lakh plus local government bodies only spend Rs 3.7 lakh crore annually. This discrimination has many reasons:

PT BOX

11th and 12th Schedule

The 11th and 12th Schedules of the Constitution list down the subjects which are under the purview of the Local Governments. 11th Schedule has 29 subjects and 12th Schedule has 18 subjects.

11th Schedule: Agriculture and Agriculture extension, Land Improvement, Minor irrigation, Animal Husbandry, Fisheries, Social and Farm Forestry, Khadi and cottage industries, Drinking Water, Rural Electrification, Poverty alleviation, Family welfare, Women and Child Development, PDS

12th Schedule: Urban Planning, Planning for Socio-economic development, Roads and bridges, Water supply, Public Health, Urban poverty alleviation, Slum improvement, Safeguarding interests of the weaker sections.

(a) **Power:** Local government power is curtailed by the State Government in various departments like water, power, schools, healthcare, etc. (b) **Independence** — only 13 % and 44 % of the budget of rural and urban bodies is raised from internal sources. (c) **Control:** There is excessive control over local bodies, which is deeply embedded in the structure of governance. For example, a Union ministry controlling finance and governance of the states would be unacceptable at the Centre. But at the State level, we have the **Department of Local Self Government**, which **has almost unlimited powers** like suspension/removal of mayors and other elected representatives, (d) **Separate central rural and urban ministries:** Joint policymaking is difficult, as each ministry wants to pull the policy in its direction, (e) **Lack of power and resources:** It drives away talented resources as they feel powerless in those positions. (f) **Centralised Structure:** Our democracy gives more power to the Centre. Then rest of the power is concentrated in states, leaving local governments powerless, (g) **Leadership and power:** Empowering local governments is not taken seriously by the state governments. The city leadership is either 'unelected with Power' (bureaucrats) or 'elected with limited power and unreasonable conditions, (h) **Good Urbanisation:** Poor quality urbanisation has led to **'men-only migration'**. It leaves the women dealing with all matters like farm work, raising the children, and looking after in-laws, no proper health services etc. Even the village children, who go to poor quality government schools, will always be at a disadvantage when compared to urban English educated school children.

What are the Key Findings of the NITI Report? – (1) India is home to 11% of the total global urban population. (2) By 2027, India will surpass China as the most populous country in the world.
However, unplanned urbanisation will exert great strain on our cities. Hence, there is an **urgent need for planning and management** of our cities.

What are the recommendations of the report on Urban Planning? – (1) Healthy Cities Programme: Every city must aspire to become a '**Healthy City for All**' by 2030. For this purpose, the report **suggests a central sector scheme** titled "**500 Healthy Cities Programme**" for a period of five years, where priority cities will be selected jointly by the states and local bodies, **(2) Ramping Up of Human Resources:** To combat the shortage of urban planners in the public sector, the report recommends that states/UTs may need to expedite the filling up of vacant positions of town planners and additionally sanction new posts as lateral entry positions. **(3) Re-engineering of Urban Governance:** The report recommends the c**onstitution of a high-powered committee** to re-engineer the present urban-planning governance structure. The report also suggests the government to **revise the Town and Country Planning Acts. (5) Citizens Participation:** The report recommends a '**Citizen Outreach Campaign**' for enabling citizens participation in urban planning. **(6) Enhancing the Role of the Private Sector:** The report recommends strengthening the role of the private sector to improve the overall planning capacity in the country.

What are the recommendations of the report on Urban Planning Education? – (1) Postgraduate Programmes in Urban Planning: The Central universities and technical institutions in all the other States/UTs are encouraged to offer postgraduate degree programmes (M. Tech Planning) to cater to the requirement of planners in the country in a phased manner. **(2) Faculty Shortage:** Faculty shortage in educational institutions conducting degree and PhD programmes in planning needs to be resolved in a time-bound manner by 2022.

What are the other Recommendations of the report? – (1) National Council of Town and Country Planners: The report recommends the constitution of a '**National Council of Town and Country Planners**' as a **statutory body** of the Government of India. **(2)** a '**National Digital Platform of Town and Country Planners'** is suggested to be created within the **National Urban Innovation Stack** of MoHUA. This portal will enable the **self-registration of all planners** and evolve as a marketplace for potential employers and urban planners.

#10 Women SHGs and Financial Inclusion

News: A World Bank Report has observed that SHGs supported under the National Rural Livelihood Mission have done remarkable work in eliminating poverty gaps in rural India.

What has been the contribution of women centric SHGs? – (1) During the pandemic, they manufactured essential medical products such as masks, sanitisers, protective equipment and ran community kitchens, provided financial support to the vulnerable and communities. (2) The World Bank gave $750 million in financial support to National Rural Livelihoods Mission whose aim is to eradicate poverty in India.

How SHGs sustained during COVID-19 pandemic? - (1) **Financial initiatives**: The government of India announced financial support to over 0.4 million under the Atmanirbhar Bharat (self-reliant India) programme. The central government has provided financial support to Micro Food Processing Enterprises (PMFME) and Farmer Producer Organizations (FPOs) as well. (2) **Government initiatives have also encouraged women citizens to have a bank account,** which has made it easier to procure loans for SHGs. SHGs, in turn, have shown satisfactory results by bringing down banks' non-performing assets.
What are the challenges faced by the women-SHGs? - (1) **Lack of understanding about core values** of business, (2) A **loss of interest in doing business** due to socio-cultural pressure, (3) **Poor presentation skills**, (4) **Zero knowledge transfer**, (5) **Poor financial knowledge**, (6) **Feeble management framework**, (7) **Lack of understanding** on importance of United-Nations mandated Sustainable Development Goals, (8) **Poor marketing and promotional skills**.

How can the problems faced by the SHG be alleviated? - (1) The government should work on creating a **gender-neutral ecosystem for women entrepreneurs**, develop adequate infrastructure, provide training and destroy red-tapism, (2) **Specialised training** should be given on climate change, clean energy, disaster management, water, etc, (3) Women SHG members should **be inspired to explore other sectors** as agriculture, handicrafts, renewables, watershed development, alternative tourism, finance, education, (4) **CSR support, international funding, multilateral bank support** should be given to SHGs so that they can shape themselves into a corporate entity, (5) **Innovative ideas should be incubated** by the top-most institutes of India, (6) A **dedicated grievance resolving mechanism** should be set up, (7) **Assessment and livelihood support plan** will help stakeholders to support women SHGs, (8) **Integrated common facility centre** will help promote activities

#11 Gender in Census and challenges faced by Transgenders

News: Census data is important as it acts as a base for many other surveys in the country. This is because the census data is a better enumeration of categories of gender. But still, the Census is far from perfect.

When were the persons of 'trans' identity first identified in the Census? – The census of 2011 was the **first census to incorporate the number of 'trans' population** of the country. The survey provides sex-related data in a binary male/female format. It **tagged the rest as 'other'** and assumed them to be 'trans'. Those with

transgender, intersex and other non-binary identities are **excluded from the representation**. The report estimated that 4.8 million Indians were identified as transgender.

Who is considered a transgender and non-binary person? - Transgender: It is an umbrella term that includes transmen and transwomen. It refers to someone who does not identify with their assigned sex at birth.

Non-Binary: It is a diverse term of expression. For example, it may refer to transgender, intersex people, demi gender, multigender and others.

According to World Health Organization Transgender is an umbrella term for people whose gender identity and expression does not conform to the norms and expectations traditionally associated with the sex assigned to them at birth. They are referred to as transsexuals if they desire medical assistance in order to make the transition from one biological sex to another.

What are the problems associated with transgenders/non-Binary people? – (1) Discrimination: Transgender population remains one of the most marginalized groups. Sexuality or gender identity often makes transgender a victim of stigmatization and exclusion by the society **(2) Education:** Transgender people are unable to access equal educational opportunities because of harassment, discrimination and even violence. Most transgender children are forced to drop out of schools as Indian schools remain unequipped to handle children with alternative sexual identities. **(3) Employment:** They are economically marginalized and forced into professions like prostitution and begging for livelihood or resorting to exploitative entertainment industry. **(4) Health:** Transgenders frequently experience discrimination when accessing health care, from disrespect and harassment to violence and outright denial of service. The community remains highly vulnerable to sexually transmitted diseases like HIV AIDS. According to a recent UNAIDS report, the HIV prevalence among transgenders in India is 3.1% (2017). Mental health issues include depression and suicidal tendencies, and violence-related stress. **(5) Access to Public spaces and shelter:** Transgenders face direct discrimination and denial while accessing houses or apartments. Further, they also face problems due to lack of provision of gender neutral/separate transgender toilets and discrimination in accessing public toilets. In 2017, the Centre issued guidelines under the **Swachh Bharat Mission (Gramin)**, making it mandatory for transgender people to be allowed into public toilets designated for both men and women, depending on their choice. But still, access has been denied to them or they are often bullied. **(6) Civil Status:** Possessing accurate and consistent identification documents has always been challenging for the transgender community. **(7) Gender-based violence:** Transgenders are often subjected to sexual abuse, rape and exploitation. **(8) Inadequate amount of data:** There is lack of granular data on transgenders and even the data available generally uses the umbrella term "others". There is a **need to have data on every subgroup** for developing proper solutions. Sex is biologically determined, but gender is a social construct. **Data collection has been sex-focused and not gender-focused**. **(9) Scarcity of information:** There is a lack of proper information on how many intersex people live with their families, the percentage of Trans people who are homeless, their education and employment structures, types of housing they live in, migration rates and others.

What are the Constitutional and Legal safeguards provided to the Transgender community? – (1) Article 14. The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India. **(2) Article 15.** The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, and place of birth or any of them **(3) Article 19:** Right to freedom of speech and expression **(4) Article 21**. No person shall be deprived of his life or personal liberty except according to procedure established by law. **(5) Article 23:** Traffic in human beings and beggar and other similar forms of forced labour are prohibited and any contravention of this provision shall be an offence punishable in accordance with law. **(6)** The Supreme Court also passed the **NALSA Judgment in 2014** which upheld that **transgender should be treated as third gender** for the purpose of safeguarding their fundamental rights. The Court acknowledged that **article 21 of the Constitution guarantees right to choose one's gender identity**. It directed the State to **provide reservations in public education and employment** as socially and educationally backward class of citizens and frame socio-welfare schemes for their all-round development. **(7)** The Parliament enacted the **Transgender Persons (Protection of Rights) Act, 2019** which gave the right to self-determination to the Transgenders and prohibited discrimination against transgender persons in accessing education, employment, and healthcare. It also has the provision to create the **National Council for Transgender persons**

(NCT): It would advise the central government on related policies and legislation and act as a centre for grievance redressal.

What are the solutions to the problems faced by the Transgenders? – (1) It is important to evolve an **effective system to sensitize schools and universities** as regards to the needs and the nature of the transgender community. (2) Schemes and measures should direct towards **skill development among transgender communities**. Further, bank credit, micro loans, subsidized loans should be provided to support self-employment or entrepreneurial initiatives. (3) **Separate policies related to health care must be framed** and communicated in all private and public hospitals and clinics. The focus should not only be on HIV prevention but also on mental health issues and measures to address alcohol and drug abuse. **(4) Legal and the law enforcement systems need to be empowered and sensitized** on the issues of Transgender community. **(5)** A **multi-prolonged approach with focus on public awareness campaigns** is needed to eliminate the social stigma associated with the transgender community. **Large scale sensitization needs to happen starting from the school level** to accept the transgender community integral component of societal life. **(6)** The Government should **segregate data between gender and sexualities**. First, the respective options for gender could be man, woman, transman, transwoman, non-binary or other. **(7)** Male and female (which stands for sex) also **need to be replaced with terminologies like man, woman** (which stands for gender). **(8)** Census should also include a **'doesn't want to disclose' category** for those who don't want to associate with any gender trait or doesn't want to divulge gender information.

#12 Issues related with the NEET Exam

News: The Tamil Nadu Assembly passed an Act to dispense with the National Entrance cum Eligibility Test (NEET)

What is the Act passed by the Tamil Nadu Legislative Assembly? - The Tamil Nadu Assembly has passed a Bill to dispense with the National Entrance cum Eligibility Test (NEET). This bill is passed based on the recommendation of the high-level committee led by retired Madras HC judge AK Rajan. The committee report was prepared after looking into around 86,000 representations from various stakeholders, a majority of whom said they don't want NEET. The immediate trigger to the bill was the suicide of an MBBS aspirant just before the NEET this year. The Bill allows admission to medical courses based on Class 12 marks to "**ensure social justice**". But, in various instances, NEET is considered the best option by the judiciary as it promotes merit.

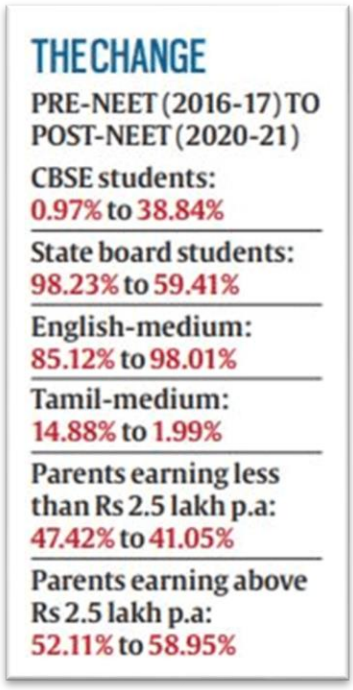
What is the National Eligibility cum Entrance Test (NEET)? – (1) The **Medical Council of India (MCI)** and **Dental Council of India (DCI)** in **2012** had introduced the common medical entrance examination or NEET. Later, it has been statutorily incorporated under Section 10D of the **Indian Medical Council (IMC) Act**. The Supreme Court also upheld the validity of the law. **(2)** The NEET is a **qualifying test for any graduate and postgraduate medical course in India.** The NEET is mandatory for all Indian institutions except certain institutions including AIIMS, PGIMER, and JIPMER. **(3)** The exam is conducted by **National Testing Agency (NTA). (4)** The NEET exam is **conducted online and in 11 languages**. These include English, Hindi, Marathi, Odia, Tamil, Marathi, Urdu, Bengali, Telugu, Kannada, and Assamese. **(5) Medical colleges in a particular state have 85% seats reserved** for the native students and **15% (All India Quota) seats** for the students from other states.

What are the changes introduced in the NEET so far? – (1) Applicable to Minority Educational Institutions: Last year, the Supreme Court ruled that the NEET is mandatory for admission to medical colleges run by religious and linguistic minority communities. **(2) Reforms in All India Quota: In Abhay Nath v University of Delhi and Others case, 2007**, the SC directed that reservation of 15% for Scheduled Castes and 7.5% for Scheduled Tribes be introduced in the All-India Quota.

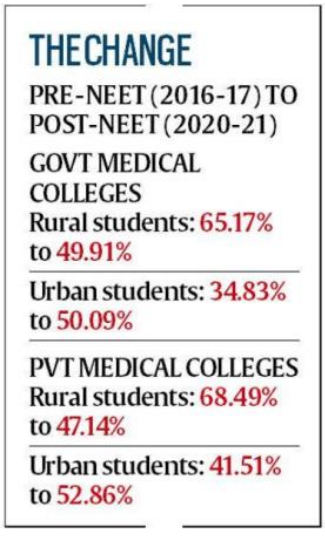
The government earlier implemented this reservation in all the Central Educational Institutions. But recently, the Central government announced the **extension of OBC, EWS quota within the AIQ Scheme** for state medical and dental colleges also.

Scores valid for three years: In 2019, the government has cleared a proposal to extend the **validity of the NEET score by three years**. This is done to help students who are planning to pursue medical courses abroad.

What are the advantages of the National Eligibility-cum-Entrance Test? – (1) One Nation, One Exam: Bottom line of NEET is One Nation, One Exam. The exam has single syllabi for all the students. It has **standardized entrance tests to medical institutions**. Further, NEET will also provide the **Right to Choice for students**. As, with NEET, a student can write a single exam and apply to different Universities with the same test score. **(2) Improve the performance of State Boards**: As the syllabus of the exam is based on CBSE/NCERT syllabus, the state boards will also be prompted to adopt a syllabus similar to that of CBSE. This will improve the quality of education of state boards. **(3) Bring transparency to the admission process of private medical colleges**: In 2020, the Supreme Court held that **NEET is important for better administration** of admissions, in view of many instances of maladministration by several private medical colleges. **(4) Help students studying in Native language**: NEET is conducted in regional languages. This helps students of different state boards, studying in their native language, in achieving their goal of becoming a doctor or a surgeon.



What are the challenges associated with the NEET? – (1) Against the State's power to hold admissions: "**Public health, hospital and dispensaries**" is a **state subject**. **(2) A disadvantage for State board and Rural background students**: The NEET syllabus is framed based on the CBSE/NCERT syllabus. (3) Further, research from the USA mentions that **standardisation of common tests goes against the poorer and underprivileged sections** of the population, women, and minorities. (4) Further, **urban students** are predominantly securing admissions in NEET. So, in future, they will **shy away from rural postings and weaken the entire public health system**. **(5)** Apart from that, after the introduction of NEET, there is a significant drop in the "first-generation" students who do medical courses. **(6) Promote Coaching Factories**: The standardisation of exams will lead to mushrooming of Coaching institutes to bridge the gap in School education. This is seen in India with NEET and similar other national tests such as the Joint Entrance Examination and Common Law Admission Test. (7) **Transparency**: The NEET paper was leaked twice in the past. Therefore, there is not much confidence in NEET's fairness and transparency. **(8) Translation-related problems**: Even though the test is conducted in 11 languages, they are still far from perfect.



What should be the way forward? – (1) Improve the syllabus of States, (2) **Improve coaching in school to avoid Coaching Institutes**, (3) **Maintain State Autonomy**: Centre can adopt a **Uniform domicile rule.** So that, candidate can claim seat only in his/her state, this will maintain state autonomy, (4) **Improve the transparency and performance of NTA**, (5) **Address the skewed societal trend**: need to **address the irrational high social value placed on medical and engineering college education** across India

#13 Impact of US Exit from Afghanistan

News: The US Government announced withdrawal of forces from Afghanistan after a two-decade long war.

What are the latest developments in Afghanistan? - After the withdrawal of the US forces, the Taliban took over Kabul in mid-August and established a new government in early September 2021. There have been

differences within **various Taliban factions** over the **government's structure, composition, and cabinet portfolios**.

What has been the impact of withdrawal of the US on Pakistan and China? – (1) **Pakistan:** Pakistan has to **deal with an enormous refugee crisis**. Due to the poor fiscal condition of Afghanistan, the key assistance that Afghans will expect in terms of food, fuel and power will have to come from Iran and Pakistan. **Iran** has already signed a deal and is **allowing export of its oil in exchange for cash**. Pakistan is facing **awful economic situations due to restrictive IMF conditions**. So, the Pakistan will find it exceedingly **difficult to send supplies to Afghanistan**. Pakistan was already in FATF grey list. So, any activity of Pakistan to promote terror could **jeopardize its attempts to exit the FATF grey list**.

PT BOX
Afghanistan Vital Statistics
Official Name: Islamic Emirate of Afghanistan
Neighbouring Countries: Iran (West), Pakistan (South and East), Turkmenistan (North), Uzbekistan (North), Tajikistan (North), China (East), India (Southeast, through POK)
Major languages: Pashto (Indo-European), Dari (Dialect of Persian)
Major Ethnic Groups: Pashtuns, Tajik, Hazara, Uzbek, Aimak, Baloch
GDP per Capita (Nominal): USD 493 (177th, IMF)
HDI Rank: 169

(2) China: The Chinese have the **technology to extract the rare-earth metals** and huge deposits of **copper** in Afghanistan. China is also engaging with the Taliban, to complete the new **Belt and Road Initiative (BRI)** investment.

Why is China making huge investments in Southeast Asia and Africa? – (1) the **cost of production is lower** in Southeast Asia. (2) investing in these regions meant **access to bigger markets** for Chinese firms and **more uniform regional development**. For instance, the relatively underdeveloped Kunming region in Yunnan province became a commercial hub due to these investments. **(3)** Chinese firms **could evade protectionist measures** targeted at their exports. For instance, by investing and start exporting from Africa and Southeast Asia to other developed nations the Chinese companies can evade protectionist measures on Chinese goods and services. **(4) reduce some of China's energy requirements**: Investments in these countries enable China to access cheaper foreign energy (oil and power) and minerals. For example, Chinese firms have constructed hydropower plants and a thermal power station in Myanmar, invested in copper processing activities in Vietnam.

PT BOX
Components of GDP (Expenditure Approach)
Consumption (C): Private consuption of households (on durable and non-durable goods, services)
Investment (I): Business Investment in Equipment, household investment in new houses, excludes financial investment
Government Spending (G): Government expenditure on Goods and Services like salaries, new military equipment, investment expenditure by the Government, excludes transfer payments like pensions
Net Exports (X-M) = Exports (X) - Imports (M): Difference between exports and imports.

How is Afghanistan different from Southeast Asian countries? – Afghanistan and Pakistan are not comparable to the economic potential of the Association of Southeast Asian Nations (ASEAN) countries. For instance, **Pakistan is unable to repay a China-funded energy project**, built under the BRI. **Business decisions in Pakistan** are not economically driven but are **motivated by vested interests with the army.**
The **Taliban** are known to have a **soft corner for the East Turkestan Islamic Movement** — a militant group active in the Uighur province of China. The **Taliban ruling groups are far from united**, making it **impossible to make any reliable domestic and international policy** predictions. Further, the **dependence on opium export makes Afghanistan vulnerable** to world mafias and corruption. Hence, the **Chinese investments in Afghanistan and Pakistan will constantly face a risk of interruption**.

General Studies Paper - 3

#1 Limitations of the GDP growth data and New Policy Reforms for Economic Growth

News: India's GDP grew by 20.1% (YoY Basis) in the first quarter (April-June) of FY 2021-22.

What are the latest figures on GDP growth? - India's GDP grew by 20.1% on a Year-on-Year basis in the first quarter of FY 2020-21 (April-June 2021). The higher growth rate is due to **base effect** as the economy had shrunk by 24% in the corresponding period last year due to lockdown.

Is India on path of Economic recovery? – Yes, many economic indicators show an upward trend (1) **Consumer spending grew by 19.3%** from same period in the last year, (2) **Investments rose by 55.3%** compared to 10.9% growth in the previous quarter (Jan-March 2021), (3) **Manufacturing grew by 49.6%** against 6.9% growth in the previous quarter (Jan-March 2021).
No, certain other economic indicators have grown worse (1) **Employment seekers under MGNREGA have risen** showing lack of skilled jobs, (2) **Manufacturing activity**, although improving compared to last year, has remained **at the same level as in 2017**, (3) **Construction and Transportation activities have remained at 2015-16 level**, (4) **Production in textiles** sector was **lower than that in 2014-15**, (5) Consumption levels in June 2021 are 12% below that of 2019, (6) **Proportion of workers in agriculture increased first time in 5 decades** indicating distress employment, (7) Fall in real wages in both agricultural and non-agricultural sectors, (8) Farm incomes have fallen, (9) Fixed Capital Formation is 18% below the corresponding level in FY2019-20

Does the Indian Economy require new set of reforms? – Yes, (1) The reforms undertaken so far have focused on the technical nature of the economy rather than system, process and people. As a result, primary drivers of the economy, **the human capital, technology readiness, labour productivity**, disposable income, capital expenditure, process innovation in setting up businesses, and institutional capacity have not got enough recognition, (2) **Human resource capital (HRC) formation:** The HRC rank for India stands at 103 which is poor than Sri Lanka (70), China (34), and South Korea (27) (Global Human Capital Report, 2017), (3) **Low per capita income** (USD 2,014 per annum), (4) **Low hourly wages at $1.7** which is very low compared to the US ($38), Japan ($24), South Korea ($20.7), China ($3.3) which lowers demand, (5) Expenditure on R&D is minuscule. It stands at 0.8% of GDP, which is resulting in lower capacity for innovation in technologies and reduced 'technology readiness', (6) **Time and cost overruns:** difficulties in acquiring land for businesses and inefficient utilization of economic infrastructure, (7) Low labor productivity.

PT BOX
Types of Economic Recoveries
V shaped: The economy experiences a sharp decline but then bounces back almost immediately to its pre-recession level.
U shaped: The economy declines and then spends a significant period of time at the trough before improving.
W shaped: This is also known as a double-dip recession. There is a brief economic comeback but then the economy falls a second time.
L shaped: L-shaped recovery has the lengthiest recession period of all. The long period of recession is dubbed as depression. After a sharp decline, GDP begins to increase, but recovery is very gradual and lengthy. It can take years for the economy to get back to where it was pre-downturn.
K shaped: One segments of the economy recovers rather quickly (more like V or U-shaped recovery) while the other segment recovers much slowly (like L shaped). The divergence between the two segments is similar to two lines of the letter K. Many economists predict that economic recovery post COVID pandemic will Be K shaped.

What reforms can be implemented to drive the economy? – (1) Address the underlying structural issues like HRC formation, skills, research and development (R&D), land management and institutional capacity, (2) **Attract large investment in manufacturing and advanced service, (3) Build the capacity of public institutions**: Policy reforms should **promote a business-centric approach** to create a friendly ecosystem and for efficient internal supply chain management, (4) **Promote labor intensive sectors**: Government needs to support such labor-intensive sectors to increase employment.

What are the recent reforms undertaken by the Government?- (1) Scrapping of retrospective taxation laws, (2) Asset monetization program aims to raise Rs 6 lakh crore, by letting private players harness public sector assets for a certain duration, without any transfer of ownership, (3) **Reforms in the telecom sector:** like a four-year moratorium for companies from paying statutory dues, changing the definition of revenues on which levies are paid, allowing for 100% investment through the automatic route and permission to share spectrum, (4) Sale of **Air India**, (5) The Ambitious infrastructure plans, for example, The Delhi-Mumbai expressway also count as a major reform. Digitisation and online services projects done or underway in all major government departments also count towards reform.

#2 PSBs and Corporate Governance

News: There has been considerable delays in appointments of Chiefs of Public Sector Banks. This and other related issues are affecting the Corporate Governance in the Public Sector Banks

What are the issues affecting the performance of PSBs? - (1) Delay in appointments of CEO's and MD's of PSBs: Except for the Bank of Baroda, none of the 11 PSBs, in the group of nationalized banks, currently has a chairman (non-executive though). (2) **Inadequate board of directors:** Most of the nationalized banks do not have an adequate number of directors on their boards. Under the Banking Companies (Acquisition and Transfer of Undertakings) Act, every government-owned bank should have whole-time directors (MD and CEO, and EDs). **(3) Non parity in tenure and salary of PSB chiefs and Private bank:** A private bank can be run by a CEO till the person is 70 years old, whereas chief of a PSB have to step down at 60, barring the State Bank of India. PSB chief does not receive market-based salary. It is way below the compensation of the chairman of any private bank. (4) **inadequate number of independent directors.**

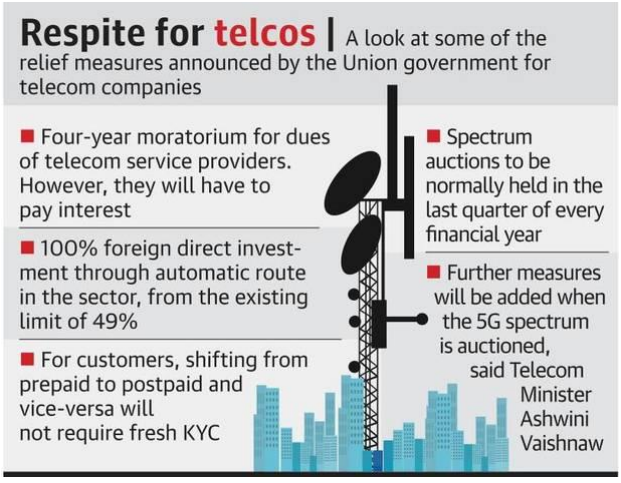
What are its negative consequences? - While the whole-time directors run a bank, the **non-official directors** or NoDs (independent directors) are critical in formulating strategies and ensuring governance. In the absence of the required number of NoDs, many PSBs are **not able to meet the quorum** at the meetings of critical sub-committees of the board.

What is the way forward? in June 2010, the finance ministry had appointed a **committee on HR issues of PSBs**. It had made 105 recommendations on **performance management, capability building and freedom for banks** to increase variable compensation and offer stock options, among other things. The government accepted 56 of these recommendations, leaving out the key ones. To improve the governance of PSB's government needs to implement the other important recommendations made by the committee on HR in true spirit.

#3 Reforms Undertaken in the Telecom Sector

News: The Union Govt has introduced a range of reforms for improving the ailing telecom sector. These reforms are important in light of the recent Vodafone Idea crisis, which could possibly result in a likely duopoly of Airtel and Jio in India's telecom space.

What are the major reforms that have been announced? These structural and process reforms for telecom sector are expected to boost 4G proliferation, infuse liquidity and create an enabling environment for investment in 5G networks.



Structural reforms: (1) **Rationalization of Adjusted Gross Revenue**: Non-telecom revenue will be excluded on prospective basis from the definition of AGR. Companies availing of the moratorium will have to pay a reasonable interest rate of marginal cost of funds-based lending rate (MCLR) plus 2%. (2) **No Bank Guarantees (BGs)** for auction will be required to secure instalment payments. (3) **100% Foreign Direct Investment (FDI)** under automatic route permitted in Telecom Sector. Currently, 100% FDI is allowed in the sector, but only 49% was on the automatic route.

Procedural Reforms: (1) Ease of doing business promoted: cumbersome requirement of licenses under 1953 Customs Notification for wireless equipment removed. Replaced with self-declaration, (2) **Know Your Customers (KYC) reforms:** Self-KYC (App based) permitted. Shifting from Prepaid to Post-paid and vice-versa will not require fresh KYC.

PT BOX
Adjusted Gross Revenue
It is a License Fee and Spectrum Usage Charge paid by telecom companies to Department of Telecommunications (DoT).
There has been a difference between the Government and the Telecom Companies regarding the definition of Revenue. The **Telecom companies wanted to include revenue from only the Core Services** in the definition of Revenue but the **DoT wanted to include other non-telecom related services** as well viz., **Installation Charges, Value Added Services, Foreign Exchange Gains etc**. The Supreme Court agreed with the DoT's definition of the AGR in September 2019.

What measures have been taken to address liquidity issues of Telecom Service Providers (TSPs)? - (1) 4-year Moratorium on payment of dues arising due to the AGR judgement and the dues arising out of the spectrum purchased in past auctions, (2) **Payment by equity:** At the end of the moratorium period, the telecom player can pay the interest amount arising out of the deferment of payment by way of equity.

#4 Establishment of the National Asset Reconstruction Company Limited (NARCL)

News: Cabinet has cleared a ₹30,600-crore guarantee programme for securities to be issued by the National Asset Reconstruction Company Limited (NARCL) for taking over and resolving non-performing assets (NPAs).

What is NARCL? - NARCL has been set up to **acquire and consolidate stressed assets for their subsequent resolution**. It has been incorporated as an **Asset Reconstruction Company (ARC) under the Companies Act**. Public Sector Banks (PSBs) will maintain 51% ownership in NARCL and private lenders will hold the rest. It is thus **India's first Bad Bank**.

How will the NARCL and IDRCL work? - The NARCL will acquire assets by making an offer to the lead bank. It will acquire nearly Rs 2 lakh crore of stressed assets from banks. These will be high value stressed loan assets of more than Rs 500 crore.
NARCL will **pay banks 15% cash upfront** for these assets and issue "**security receipts" for the remaining 85%** of the asset value. The stressed assets acquired by NARCL will then be handled by IDRCL (India Debt Resolution Company Limited). IDRCL will **focus on the resolution of the assets and employ turnaround professionals**. When the assets are sold, the commercial banks will be paid back the rest.
If NARCL-IDRCL is **unable to sell** the stressed assets or has to sell it at a loss, then the **government guarantee will be invoked**. Under this, the difference between what the commercial bank was supposed to get and what they were able to raise will be paid from the Rs 30,600 crore that has been provided by the government.

What benefit do banks get from this new structure?- (1) It will **incentivize quicker action on resolving stressed assets** thereby helping in better value realization, (2) This approach will also permit freeing up of personnel in banks to **focus on increasing business and credit growth**, (3) it will **improve the bank's valuation** and enhance their **ability to raise market capital**.

#5 e-RUPI as a tool to improve Financial Inclusion

News: The Government has launched e-RUPI, a cashless and contactless instrument for digital payment.

What is e-RUPI? - It is a cashless and contactless instrument for digital payment based on Unified Payment Interface (UPI) platform. **Developed by:** National Payments Corporation of India (NPCI) in collaboration with the Department of Financial Services (DFS), the Union Health Ministry, and the National Health Authority (NHA).

PT BOX

Unified Payments Interface (UPI)

It is a **real time payment transfer system** developed by the **National Payments Corporation of India that was launched in 2016**. It allows to **transfer money from one bank account to another by a mobile platform**. The transfers are enabled by UPI Client Apps. The **payments can be made simply through mobile numbers registered with a bank account,** or the **UPI ID linked with the account**. UPI can also be used to pay directly for various online services like food delivery services, online rent or recharge payments etc.

UPI is distinct from mobile wallets:

1. UPI is direct bank to bank transfer but mobile wallets are intermediaries between banks
2. UPI transaction can be undertaken between any two banks but mobile wallet transactions are limited to same wallet only

UPI uses virtual payment address or the UPI ID, whereas the wallets use mobile numbers.

What is the significance of e-RUPI? (1) No need of an internet connection: The e-Rupi system allows transfers of prepaid vouchers to the user as an SMS (for non-smartphone users) or QR Code (for smartphone users). This will enable particular digital payments, not just from phones to digital recipients, but also from digital senders to offline payees. **(2) Confidentiality:** This contactless payment system is expected to be easy, safe and secure, as it promises to keep the **details of beneficiaries completely confidential.** The entire process is both reliable and fast, as these vouchers are preloaded with money. **(3) Social Benefits:** e-RUPI can be used in several Government initiatives Like **cash transfers, PDS program, fertilizer subsidies, etc. (4) Ayushman Bharat**: Beneficiaries of scheme will receive e-RUPI vouchers of designated value tenable at empanelled healthcare facilities, providing them portability and facility choice. The service provider will benefit from the immediate payment.

A case study of M-pesa in Kenya: M-Pesa in Kenya is an example of **innovative use of technology,** where 'M' stands for mobile and 'Pesa' for money. The initiative was launched for **financial inclusion** of its unbanked or under-banked population. This is a **virtual banking system** that provides services through a SIM card with no requirement of internet access and bank accounts. Started to buy airtime and make micro-loan repayments, M-Pesa later expanded for transferring or withdrawing money, saving or borrowing money, making merchant payments and paying bills. Transactions worth half of Kenya's gross domestic product are carried out over M-Pesa, as reported by its central bank, and this platform claims over 49 million customers across Africa.

What are the issues hampering India's vision of digital financial inclusion? - (1) Rural-urban digital divide both in terms of technology and access to banking infrastructure. For instance, a large gap still exists in terms of internet access. As per the latest data available from TRAI, there are 34.6 rural internet subscribers per 100 people in the country, as opposed to 104 in urban areas (as of December 2020). **(2) Digital disparity among states**: Internet penetration also varies widely across states. Internet subscribers per 100 persons ranges from 210 in Delhi and 87.6 in Punjab to 40.8 in Uttar Pradesh and 32.9 in Bihar. **(3) Inadequate banking facility to rural areas**: Further, of the country's total bank branches, 33.5% are in rural areas, 27.5% in semi- urban, 19.3% in urban and 19.7% in metropolitan zones, as on end-June 2021. There are around 190 million unbanked citizens in our country, residing mostly in rural parts.

#6 Slowdown in India's Automotive Sector

News: Several Global Automakers have exited India in recent times and shut down their manufacturing facilities in India

Which Global Automakers have exited Indian market? - Ford is the most recent automaker to shut down their manufacturing facility. Earlier **Harley-Davidson, General Motors, UM Motorcycles, Fiat and Eicher Polaris** have exited the Indian market.

Why are the big global automakers exiting India? - (1) Demand slowdown: Auto sales have registered a combined annual growth rate of just 1.5% in India over the past five years, (2) **Shift from ICEs to EVs**: The existing trend underscores the pressure on global automakers to **invest more in electric, automated, and connected vehicle technology**. Global automakers are shutting down money-losing ventures and **redirecting capital to electrification & investment in technology**, (3) **Rise in demand for shared mobility**: increase in traffic, increase in fuel prices, lack of parking spaces, more economical than personal vehicle, less pollution, etc. have increased demand for shared mobility **lowering demand for private vehicles,** (4) **High ownership costs,** (5) **Shortage of semiconductor chips used in automobiles** Automakers from across the world are lowering production due to the global shortage of semiconductor chips, (6) **India's tax structure favors small cars** due to lower duties, (7) **Dominance of Japanese and Korean carmakers** Maruti Suzuki has a roughly 48% share in the Indian market, while Hyundai India has around 17% and other car manufacturers find it difficult to compete, (8) **Impact of the pandemic** factory shutdowns due to lockdown and lower demand impacted profitability.

PT BOX

Steps taken to boost the electric vehicles in India

Ministry of Heavy Industries: **FAME India Scheme** [Faster Adoption of Electric (& Hybrid) Vehicles in India]

Ministry of Road Transport and Highways: Grant of license to age group of 16-18 years to drive gearless E scooters/ Bikes up to 4.0 KW.

Ministry of Power: **Policy on charging infrastructure**, also issued a notification clarifying that charging electric vehicles will be a service, not a sale of electricity.

ISRO: Commercialized indigenously developed lithium-ion battery technology and has selected 14 companies for transfer of technology.

Ministry of Housing and Urban Affairs: Amended the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines to provide for electric vehicle charging stations in private and commercial buildings.

NITI Aayog: Initiative to provide a Model Concessionaire Agreement (MCA) document for introducing Electric-Bus Fleet in Cities for Public Transportation on Public-Private Partnership (PPP) mode on Operational Expenditure (per km basis) Model rather than paying upfront capital cost.

Ministry of Road Transport and Highways: Registration number plates for Battery Operated Vehicles is to be in yellow (commercial) and white (private) colors on a plate with green background.

What is the market size of the Automobile sector? - The Indian automobile sector is currently valued at $118 billion and is likely to become the world's third-largest automobile market by 2026. The Electric Vehicle market is expected to grow at a CAGR of 44% between 2020-2027 and is expected to hit 6.34 million-unit annual sales by 2027. The EV industry will create five crore direct and indirect jobs by 2030.

What are the implications of the exit? - (1) **Job loss**: The recent Ford exit will affect 4000 employees and the car dealerships who had invested for the long term, (2) **Make in India program**: Exits by global automaker brands not only hamper this process but also lands a blow to Brand India's image worldwide.

What are the ways to improve the situation? - (1) **Giving industry status for the auto retail sector**: Industry status will help the sector to get **(a)** priority lending from banks, **(b)** external commercial borrowing, financing from top lenders, **(c)** private equity investments, **(d)** easier access to domestic and global funds, and **(e)** more tax benefits, **(2)** Better financing options (since the sector is capital-intensive in nature), will boost the confidence in the sector to scale up of the infrastructure with new investments, **(3) Upskilling the workforce** to work in the areas like electric vehicles automation and connected systems, (4) **Boost domestic demand** to ensure that global manufacturers find it equally attractive to both make in India and sell in India.

PT BOX
About PLI Scheme for Auto Industry
Aim: To overcome the cost disabilities to the industry for the manufacture of Advanced Automotive Technology products in India.
Eligibility: The scheme is open to existing automotive companies as well as new investors who are currently not in the automobile or auto component manufacturing business.
Components: The scheme has two components viz
Champion OEM Incentive scheme: It is a 'sales value linked' scheme, applicable on Battery Electric Vehicles and Hydrogen Fuel Cell Vehicles of all segments.
Component Champion Incentive scheme: It is a 'sales value linked' scheme, applicable to Advanced Automotive Technology components of vehicles.
Significance of the Scheme
The scheme will encourage the industry to make fresh investments for indigenous global supply chains of Advanced Automotive Technology products.

#7 Digitization of Supply Chains

NEWS: India has risen on the World Bank's Ease of Doing Business Index from 77 in 2018 to 63 in 2019 across 190 countries. Its 68th rank in "trading across borders" can be improved upon through **digitalization**.

What is the need for digitalization of the supply chain? - (1) T**o reduce inefficiencies, improve transparency, reduce logistics costs:** It will enhance the overall global competitiveness of Indian industries, especially small and medium enterprises. **(2) Higher logistic cost:** Logistics cost in India is estimated at around **13% of gross domestic product** (GDP). In 2018, India's rank on the **World Bank's Logistics Performance Index** was 44 among 160 countries, below countries, such as China (26), Chile (34), and South Africa (33). **(3) No seamless connectivity:** The interaction between importers and customs is not seamless. Data has to be submitted via a customs broker or authorized courier in most cases. **(4) To ease governance**: Digitalization will enable direct tracking and traceability and enhance tertiary processes like audits, financial transparency, and risk management through data feeds, collection and abstraction.

What are the steps taken by the government? - Digitalization measures: 1) Initiatives such as the Goods and Services Tax Network, GST, have improved the experience of importers, exporters, and logistics service providers. 2) **ICE GATE:** Indian Customs Electronic Gateway (ICEGATE) is the national portal that provides e-filing services to the Trade, Cargo Carriers and other Trading Partners electronically. 3) **Express Cargo Clearance System** for express delivery and **Single Window Interface for Trade** for electronic data interchange across multiple agencies involved in customs clearance have also eased business processes. 4) **eSanchit** mechanism for paperless processing and the uploading of supporting documents to facilitate trade. **Private sector initiative: DHL Import Easy Tool** is a first-of-its-kind website-based platform. It globally offers a single interface where importers can view and manage all their transactions pertaining to the import process in real-time. It is being piloted in India and is designed to be **a one-stop intuitive platform for importers**.

PT BOX
Parameters of Ease of Doing Business
The World Bank measures 12 areas of Business regulation: (1) Starting a Business, (2) Dealing with construction permits, (3) Getting electricity, (4) Registering property, (5) Getting credit, (6) Protecting minority investors, (7) Paying taxes, (8) Trading across borders, (9) Enforcing contracts, (10) Resolving insolvency, (11) Employing workers, (12) Contracting with the Government

What are the suggestions to improve digitization? 1) The Indian industry must **develop and integrate innovative tools** and government should facilitate their use and secure technology interfaces in partnership

with the industry for their implementation. 2) Companies can be given **some incentives to adopt digitalization**. For example, subsidizing logistics costs.

#8 Role of Millets in tackling Malnutrition and Climate Change

News: In 2021, the United Nations General Assembly adopted a **resolution declaring 2023 the International Year of Millets**. It was proposed by India to the Food and Agriculture Organization (FAO).

India is the largest global producer with a 41% market share. A compound annual growth rate of 4.5% is projected for the global millet market in the coming decade.

PT BOX

Millets are coarse grains that include Jowar (**Sorghum**), Bajra (**Pearl Millet**), Ragi/Mandua (**Finger Millet**), Kangni/Navane (**Foxtail Millet**), Haraka/Arikalu (**Kodo Millet**), Sawai/Same (**Little Millet**), Cheena/Barargu (**Proso Millet**) and Madira/Sanwa (**Barnyard Millet**). Millets are primarily Kharif crops and are generally grown in Rajasthan, Uttar Pradesh, Gujarat, Madhya Pradesh, Haryana, Maharashtra, Karnataka and Tamil Nadu. As of 2020, Rajasthan, Maharashtra and Karnataka were the top producers.

What is the significance of millets for India? (1) Social benefits: Millets are good source of fiber, several vitamins (Vitamin B6, Niacin, Folic Acid (B9)) and minerals like calcium, iron, zinc and phosphorus. They are more wholesome compared to other grains like wheat, rice and corn. Millet farming has led to **women's empowerment.** The Odisha Millet Mission saw 7.2 million women emerging as **'agri-preneurs'**. **(2) Economic benefits:** They are very economical compared to them thus can prove to be vital in ensuring food security for all. Millets also offer a significant cost advantage over maize as a feedstock for bio-ethanol production. **(3) Environmental benefits:** Millets are less water intensive compared to rice and help reduce groundwater usage in agriculture. Land degradation has been a major problem in India. Drought-tolerant crops like millets with low dependence on chemical inputs would put far less pressure on ecosystems.

What steps have been taken by the Government? (1) Millet Mission: It was launched in 2018 as part of the National Food Security Mission, which has led to the promotion of **technological interventions, improvement in seed quality and a minimum support price (MSP)** for bajra and jowar. **(2) Millet Network of India and the M.S. Swaminathan Research Foundation:** Both are involved in collective formation efforts to boost the domestic growth of millets.

What are the challenges? (1) Market and economic barriers: Unjust pricing and intermediaries have led to farmer distress. Market dynamics don't favour the growth of millets. **(2) Barriers to growth:** Income growth and urbanization, together with inadequate government policies has led to millets discourage use of millets for **consumption**.

What measures can be taken by the Government? (1) Incentivizing the adoption of inter-cropping and **providing crop insurance**: The inter-cropping of millets with other crops is beneficial because the fibrous roots of millet plants help in improving soil quality, keep water run-off in check and aid soil conservation in erosion-prone areas, thereby restoring natural ecosystems. **(2) Re-introduction of cultural associations and festivals**: such as the **North-East Network** in Nagaland organized in 2020 and **Mandukiya** in Vishakhapatnam celebrated annually in June/July, has helped promote the growth of millets. In 2018, **the #LetsMilletCampaign** in Bengaluru saw the experimental use of millets in dishes such as risotto and pizza by restaurateurs. **(3) State support:** The Odisha Millet Mission has reportedly managed to motivate about 70,000 farmers to take up millet farming as part of this program, more such efforts are required.

#9 SDG 12

News: India is working towards achieving sustainable development goal related to **responsible consumption and production**, but much more needs to be done. A look at India's progress and associated challenges.

What is SDG-12? - The United Nations-mandated Sustainable Development Goal 12 (SDG 12) deals with **resource usage.** SDG 12 is focused on ensuring **sustainable consumption and production patterns**. India has prepared multiple sustainable consumption and production plans that are put in the mainstream priority. India's progress regarding the SDG 12 is fair enough but not satisfactory.

PT BOX
SDGs
Sustainable Development Goals were **adopted by all the UN Member States in 2015** under the **2030 Agenda for Sustainable Development**.
All the Member States have **pledged for collective action** on the **17 identified goals** to achieve "sustainable future for all" by 2030.
The 17 goals include (1) No Poverty, (2) Zero Hunger, (3) Good Health and Well-Being, (4) Quality Education, (5) Gender Equality, (6) Clean Water and Sanitation, (7) Affordable and Clean Energy, (8) Decent Work and Economic Growth, (9) Industry, Innovation and Infrastructure, (10) Reducing Inequality, (11) Sustainable Cities and Communities, (12) Responsible Consumption and Production, (13) Climate Action, (14) Life Below Water, (15) Life On Land, (16) Peace, Justice and Strong Institutions, (17) Partnership for the Goals

How has been India's progress on SDG 12? – (1) The SDG 12.3 focuses on **reducing per capita global food waste by 2030. About 50 kg of food is wasted per person per year in India**, UNEP highlighted in its 2021 report. Still, India, among South Asian countries, has lower level of food wastage compared to its neighbouring countries, **(2) SDG 12.6 and 12.7** require **large companies to adopt, promote and integrate sustainable practices and publish the related reports**. Some companies are realising the need for greener ways of operation. Flipkart, an e-commerce company, has replaced paper cups for ceramic and glass ones.

Why food wastage should be addressed? - (1) Impact on Greenhouse emissions: Food wastage reduction can have a significant effect on greenhouse gas emissions, hunger, pollution and money-saving during recessions, **(2) Will fulfill multiple SDGs**: Curbing food loss and wastage can serve to fulfil multiple SDGs at once as well as help bridge the food gap by 2050.

What are some steps being taken by the Union & State Governments? - One important aspect of SDG 12 is the education of people so that they are aware of sustainable development and lifestyles. This would help them make smarter and evaluated choices that are in harmony with nature. (1) **Environment education**: The Indian government has included environment education as a compulsory component in the formal curriculum. This is not new as the roots of such an education system date back to the 1960s, (2) **Sustainable tourism**: A very closely tied goal is sustainable tourism. **Kerala** has been the leading state with respect to innovative initiatives for sustainable tourism. The project of '**Responsible Tourism'** in Kumarakom takes the help of the local community by linking them to the hospitality industry and sustaining eco-friendly tourism. Similarly, **Himachal Pradesh** has introduced a '**Homestay Scheme**' to draw tourists to rural areas with natural, comfortable and budget-friendly accommodation and food. These initiatives give a raw experience to the tourists and also boost local incomes.

PT BOX
The **average lifestyle material footprint of India** according to 2015 statistics is around 8,400 kg per capita per year, which when compared to sustainable material footprint of 8,000 kg per capita per year is quite acceptable.
Municipal waste: The population of China and India together constitutes 36% of the global population, but generates only 27% of the global municipal waste. Whereas, the United States constitutes only 4% of the global population that produces 12% of the waste.

Among all the states and union territories in India, Jammu & Kashmir and Nagaland are top performing till date with respect to SDG 12, according to the Niti Aayog's SDG dashboard 2020-21.

What are the current challenges in recycling the waste? – (1) Less efficient methods: India is using the method of 'phytoremediation', (bioremediation through the usage of plants) for recycling the waste. This involves tree

plantation to restore environment as well as degraded soil restoration. This method is, however, less efficient, (2) **Lower recycling capacity**: A considerable part of the total hazardous waste that India produces is recyclable, but only 4% is recycled. Efforts are required to upgrade recycling mechanisms.

What needs to be done? - (1) Reducing fossil fuel usage: After 2017 there has been a slight upward trend in the total energy subsidy. While the increase in renewable energy subsidy is worth appreciating, there is a need for shifting more resources to this area and reducing fossil fuel usage.
India can achieve self-sufficiency in recycling in the next 10 years if **National Recycling Policy is implemented properly** and scrap care techniques are shifted in the recycling industries.

#10 Offshore Wind Energy in India

News: While India has rapidly increased its renewable energy capacity, no offshore wind energy project has been launched till date.

What is the need to decarbonize the energy sector? - A forecast of International Energy Agency has noted that the India's energy demand will increase by 6-7% annually over the next decade. India has planned to provide 24×7 electricity to every home. With exacerbating global warming and obligations under the Paris Agreement, it is imperative to decarbonize the energy sector. This transition to clean energy can be facilitated by offshore wind energy.

What is India's offshore wind energy potential? - As per India's nationally determined contributions, India plans to generate 450 GW of renewable energy by 2030 — including five GW of offshore wind energy by 2022 and plans to scale it further to 30 GW by 2030. A World Bank report has noted that India's Exclusive Economic Zone has 195 gigawatts (GW) of technological offshore wind potential (112 GW fixed and 83 GW floating).
There is 36 GW and 35 GW offshore wind potential off the Gujrat and Tamil Nadu coast, respectively.

What is the status of offshore wind projects in India? - (1) Gujarat had invited an expression of interest (EOI) for India's first offshore wind project of 1 GW in 2018, which attracted nearly 35 major companies. It **did not move forward. (2)** In 2019, India's Ministry of New and Renewable Energy (MNRE) applied for €800 million in **viability gap funding** to help support the construction of India's first 1 GW offshore wind project in Gujarat.
To date, **India has not begun any offshore wind projects**.

How can the offshore wind project development be accelerated? - (1) Pass the final tender for the one GW project at Pipavav in the Gulf of Khambhat, Gujarat, which is in the pipeline, **(2) Conduct an offshore wind measurement campaign** for a minimum of 10 GW of accurate on-site measurements, **(3) Install five LiDARs (Light Detection and Ranging) by 2021** to gather precise bankable data that will be critical to developing offshore wind projects of up to 7.4 GW indicative installable capacity.
As India already has cheaper onshore wind and solar power, the MNRE is seeking **feasible cost interventions from stakeholders for offshore wind.**

PT BOX
Wind Energy Statistics
Total Installed Capacity, Global: 698 GW(Onshore), 34 GW(Offshore), (International Renewable Energy Agency, 2020)
Total Installed Capacity, India: 39.2 GW (Ministry of New and Renewable Energy, March 2021)
Total Wind Potential: 302 GW (100m), 696 GW (120m)
Highest Potential* (120m): Gujarat (142 GW), Rajasthan (128 GW), Karnataka (124 GW), Maharashtra (98 GW)

* **National Institute of Wind Energy (NIWE)** has installed over 800 wind-monitoring stations all over country and issued **wind potential maps** at 50m, 80m, 100m and 120m above ground level.

What are the key steps/measures to enhance offshore wind capacity? - India has huge offshore wind market potential, but this requires closer Government-Industry coordination. Some key steps that can be taken are: **(1) Customize the technology and business models** for the offshore wind sites off Gujarat and Tamil Nadu, **(2) Frame a visionary policy** towards long term cost reduction and energy, **(3) Use LiDAR data** to identify bankable offshore wind zones collected through offshore wind measurement campaign, **(4) Demonstrate offshore wind**

capacity factors, technology optimization and initial costs, **(5) Promote engagement among decision makers** at the federal, state and local levels, **(6) Promote collective understanding** of offshore wind's socioeconomic benefit.

#11 Rolling out EV infra in India

News: There is a need of massive investment and large-scale charging infrastructure development to achieve the electrical vehicle adoption target by 2030.

What is the status of charging infrastructure in India? - According to the Society of Manufacturers of Electric Vehicles, there are 1,800 charging stations in India as of March 2021 for approximately 16,200 electric cars. To achieve the electric vehicles adoption targets by 2030, India will need 29,00,000 charging points at an investment of Rs 21,000 crore, in addition to in-home charging points.
On the rollout of a charging network for electric vehicles (EVs), India faces the classic **chicken and egg problem—EVs require charging infrastructure and that requires EVs**.

What steps are being taken by govt to increase charging infra in India? - (1) Guidelines by Min of power: The **Ministry of Power has issued guidelines applicable to EV charging stations**. Public charging stations shall be a delicensed activity and any individual or entity is free to set these up, obtaining electricity under open access, **(2) Regulated Tariff**: The tariff, determined by the **state electricity regulatory commission**, shall not be more than the average cost of supply plus 15%. Private charging at residences is permitted, and domestic tariff is applicable., **(3) FAME policy** laid out by the **Department of Heavy Industries** provides upfront incentives on the purchase of EVs as well as for development of charging infrastructure, **(4)** The **Department of Science** and Technology and the **Bureau of Indian Standards** are collaborating on **developing indigenous charging options and standards**, **(5)** The **GST Council has reduced the rates** on charging station equipment from 18% to 5%, **(6) Energy Efficiency Services Limited** (EESL) is involved in facilitating partnerships among state governments, public sector partners and private companies to enter this space, **(7) NITI Aayog** is spearheading the **Mission for Transformative Mobility and Battery Storage**, that seeks to proliferate low-cost charge-points for two-wheelers and three-wheelers across Bharat.

PT BOX
Li-ion Batteries
Li-ion batteries are the rechargeable batteries which **generate and store energy through the movement of Lithium ions between the electrodes** (during charging and discharging).
These are the most common batteries in **consumer electronics** and are popular because of **high energy to weight ratios, low self-discharge rate, no memory effect, high power density** etc. The downside of batteries are **safety concerns, durability, thermal breakdown and cost.**

What are the other alternatives to e-Vehicles? - Hydrogen fuel cell has been provided as another solution for adoption of green automobiles. However, there are **concerns regarding energy efficiency** in hydrogen fuel cell as 50 units of electricity are required to produce a kilogram of hydrogen.
What is the way forward? - (1) These is a need to sort out the issues related to **uniformity of standards and "interoperability"**, **(2)** The **concern over EV charging time** can be resolved by **battery swapping**. Battery-swapping facilities are to be set up alongside charging infrastructure, **(3) The three types of interoperability** i.e., plug type, charger-to-network communication, and network-to-network communication, need to be aligned.

#12 Role of AI in achieving carbon neutrality

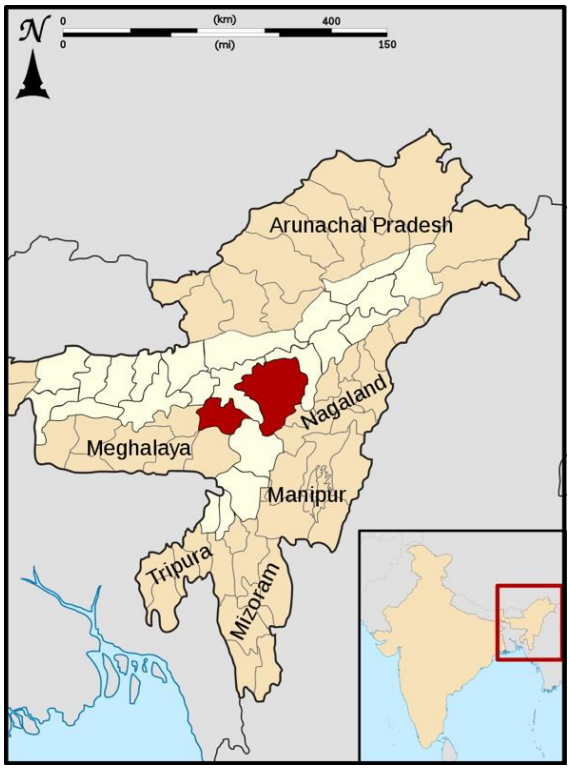
News: A new report by **World Economic Forum (WEF)** says that the transition to low-carbon energy can be accelerated and deepened by focused application of **artificial intelligence to accelerate energy transition.**

How can AI help in accelerating transition to a low-carbon economy? - (1) Renewable energy is intermittent due to ever-changing weather conditions which can destabilize the electric grid. AI can help **manage the load**

in a more optimal manner, (2) **Increasing efficiency:** The supply of renewable energy is increasing in grids which have been built for fossil fuel-based power. AI can help in management of existing electricity grids with more efficiency to **cope with rising supply and usage of renewable energy, (3) Deal with unanticipated scenarios:** With predictive analysis, AI can anticipate the amount of power that will reach the grid by combining weather conditions with supply parameters, this will help cope with scenarios like **power frequency imbalances, blackouts and brownouts, (4) Manage overloading:** With improved access and increased usage, vastly more physical assets will be connected to the power and distribution grid. AI will **allow grid managers to be better prepared to manage increased load, (5) Track real-time usage:** In future, a household will have the option of switching between battery power, on-site solar source (like rooftop solar panel) and the grid based on the situation. Such **switching at a large scale across millions of homes will require an AI platform** to track usage in real-time to ensure grid stability and continuity of supply, (6) **AI can help in efficient designing and location of solar, wind and other renewable farms:** According to German Energy Agency, 56% of power generation could be provided by solar and wind in 2050. This would need huge investments in power grid by 2050. Power system costs would be higher if intelligence automation systems are not used.

#13 Karbi Anglong Agreement

News: A tripartite agreement was signed between the Government of India, Government of Assam and five insurgent groups to put an end to years of violence and bring peace and prosperity in the state of Assam.



What is the background of the insurgencies in the Karbi-Anglong? - Karbi-Anglong district (largest in Assam) comprises of various tribes and ethnic groups including the **Kukis, Dimasas, Garos, Rengma Nagas, Tiwas and Karbis**. This diversity led to different **outfits promoting their own narrow interests** which fuelled an insurgency that did not allow the region to develop. This is one of the many insurgencies going on in the Northeast like the ULFA (United Liberation Front of Asom), Naga and Mizo insurgencies along various **ethnic, linguistic and cultural identities of the tribes**.

What have been the demands of these groups? - The groups make wide-ranging demands; from a **separate nation-state** to **statehood within the Indian Constitution** and **autonomy under the State government**. This has forced the center to adopt various policies to counter the insurgency. Special provisions have been provided to the tribal regions under the Sixth schedule of the Constitution. However, in Assam's hill districts of Dima Hasao and Karbi Anglong, **separatist movements** have **rejected Sixth Schedule status**. This transformed into a demand for an autonomous state under Article 244(a) of the Constitution.

What has been the approach of the Union Government? - The Government adopted a **double-barreled approach (1)** it **offered autonomy under the Constitution, (2)** The Government **used security forces to crush the militancy**. Insurgent groups which negotiate for peace, are being accommodated in the state legislatures or Autonomous Councils. This approach has had varying degrees of success, in Mizoram, Tripura, the Bodo areas.

What are the key features of the Agreement? - Under the agreement, 5 militant organizations **laid down arms** and more than **1000 of their armed cadres have given up violence** and joined the mainstream society in February 2021.The provisions include **(1) Development Package** of ₹1000 crore will be allocated over five years by the Central Government and the Assam Government to take up special projects for the development of Karbi areas, **(2) Greater Autonomy to the Karbi-Anglong Autonomous Council** in exercising their rights, without affecting the territorial and administrative integrity of Assam, **(3) Protection of Culture,** identity, language etc. and all-round development of the region, (4) **Karbi Welfare Council** will be set up to **f**ocus on the development of the Karbi people living outside the Karbi-Anglong Autonomous Council area, **(5)** The Consolidated Fund of the State will be amended to meet the resources of the Karbi Anglong Autonomous Council.

What should be the way forward? - The peace deal alone cannot ensure peace, as **Autonomous councils are often captured by ex-militants** who promote their own narrow self-interests. So, there is a need to look beyond peace deals towards **transitioning society into a democratic construct**. The region must undergo equitable development and have greater trade and connectivity for better economic integration for lasting peace to be established.

Factly

Polity

#1 World Happiness Report

NEWS: The World Happiness Report 2021 was released by the UN recently.

Published by: UN - Sustainable Development Solutions Network (SDSN)
India's Rank: 139 out of 149 countries.

Why is India unhappy? - The main reason behind unhappiness in Indian society is the **way the law and its institutions operate**. People remain unhappy as their legitimate grievances remain unaddressed by the legal system.

What does the United Nations World Happiness Report signify?
The report shows that countries with a higher GDP and higher per capita income are not necessarily the happiest. This year, the reports also **measured the impact of COVID-19** on the people and their evaluation of the performance of governance systems. It was found that Covid has impacted happiness, as sharing and community life was hugely affected during this period.

What measures have been adopted by countries to address the happiness gap?
United Arab Emirates is the first country in the world to have set up a **Ministry of Happiness**. The Ministry monitors the impact of policies through a happiness meter and takes measures to ensure a better life.
Bhutan has introduced **Gross National Happiness** as a measure of good governance.

#2 Representation of Women in Judiciary

News: The Chief Justice of India has backed 50% representation for women in the judiciary.

What is the status of representation of women in Judiciary? – (1) Women constitute only about 30% of the subordinate judiciary, (2) in High Courts, women judges constitute 11.5%, (3) in the Supreme Court, there ae

four women Justices out of the sitting 33. That makes it just 12%. The Supreme Court has the highest ever number of women judges serving now, (4) one of the women judges, Justice B.V. Nagarathna may become the first woman CJI in 2027. **(5)** Of the 1.7 million advocates, only 15% are women (6) Only 2% of the elected representatives in the State Bar Councils are women.

What are the reasons for Low Women Representation in Judiciary? - (1) Lack of infrastructure, **(2)** gender stereotypes and social attitudes, **(3)** "Clients' preference for male advocates, **(4)** the uncomfortable environment within courtrooms, crowded courtrooms and lack of washrooms for women.

What steps should be taken? – (1) the basic facilities in the courts, especially for women, need to be addressed immediately, (2) Government should form a separate entity — National Judicial Infrastructure Corporation — to introduce inclusive designs for court complexes and create a more welcoming environment for them, (3) There is a need to **bring structural reforms in the legal profession**. It is important to promote talented women and bring more women into the legal system.

Policy

#1 Academic Credit Banks and Glue Grant Scheme

News: On the first anniversary of the New Education Policy, **Academic Bank of Credit** will be rolled out for students in over 290 top institutions from the current academic year 2021-22 onwards. Also, Forty Central universities will be implementing innovative measures such as the academic credit bank and the Glue Grant Scheme.

What is Credit transfer system: Academic Credit Banks? - Under this, students can attain qualifications by earning credits rather than specific durations on campus. A certain number of credits would add up to a certificate, then a diploma and then a degree. This would allow for multiple entries and exit points.
All institutions in the top 100 of the National Institutional Ranking Framework as well as those who have achieved an A grade under the National Assessment and Accreditation Council will be allowed to participate in the credit transfer system. This system will also allow multiple entry and exit options for students.

Academic Bank of Credit: will keep records of the academic credits of a student. It will **not accept any credit course document directly from the students** for any course they might be pursuing, but **only from higher education institutes**, who will have to make **deposits in students' accounts**. This will help in credit verification, credit accumulation, credit transfer and redemption of students, and promotion of the students
Moreover, students can earn up to 40% of their credits in online **Swayam c**lasses. In the future, the credits will be valid across institutions.

About Glue Grant Scheme: under the scheme, institutions in the same city would be encouraged to share resources, equipment and allow their students to take classes from each other. The faculty of different institutions would be able to design joint courses. Students will be able to take classes from different colleges and Universities e.g., a Delhi University (DU) student will be able to take a few classes at IIT-Delhi or vice versa. This also means that institutions need not duplicate work by developing the same capacities but would be able to build on each other's expertise.

#2 TMA Policy

News: The Centre has revised the "Transport and Marketing Assistance" (TMA) scheme for Specified Agriculture Products'.

About Transport and Marketing Assistance (TMA) for Specified Agriculture Products Scheme

The scheme has been launched by the Ministry of Commerce & Industry in 2019. The scheme aims to aid with the international component of freight and marketing of agricultural produce. The assistance will help mitigate the disadvantage of higher freight costs faced by the Indian exporters of agriculture products.

Coverage: All exporters, duly registered with relevant **Export Promotion Council** as per **Foreign Trade Policy**, of eligible agriculture products, shall be covered under this scheme. The scheme covers freight and marketing assistance for **export by air as well as by sea** (both normal and reefer cargo).

Duration of the Scheme: The scheme was initially applicable for exports affected during the period from 01.03.2019 to 31.03.2020 and was later extended for exports affected up to 31.03.2021.

About 'Revised Transport and Marketing Assistance (TMA) for Specified Agriculture Products Scheme'
The revised TMA scheme will be available for exports affected on or after 01.04.2021 up to 31.03.2022.
The following major changes have been made in the revised scheme:
Dairy products, which were not covered under the earlier scheme, **will be eligible for assistance** under the revised scheme.
Rates of assistance have been increased, by 50% for exports by sea and by 100% for exports by air.

Economy

#1 Investment in the Electronics Sector

News: India's automobile industry is facing a major shortage of semiconductors.

Why is there a semiconductor shortage? - (1) the rapid **growth of 5G Technology**, (2) the **ever-growing need for greater computing power**, (3) the Covid pandemic induced **demand for information communication technology and digital entertainment products**. (4) Private firms **cannot easily set up manufacturing plants** to produce semiconductors. Establishing foundries is **hugely capital intensive and has a gestation period of up to three years**.

What has been done by India already? - The government has offered **more than $1 billion in cash incentives** to each semiconductor company that sets up manufacturing units.

What should India do to improve the availability of semiconductors? – (1) India should **increase the base for semiconductor manufacturing** and must **formulate policies to promote domestic chip manufacturing**. (2) The Government has already released the **National Policy on Electronics** in 2019 and launched the 2nd round of **Production Linked Incentive Scheme for Large Scale Electronics Manufacturing** from April 2021. India should follow the US, China and South Korea's path. These countries invested huge public money on-chip manufacturing.

#2 Slow Credit Growth in Indian Economy

News: The data released by the Government show that there are signs of recovery in the economy as evident from the GDP growth and macroeconomic indicators but the Credit to GDP ratio is still lagging.

Why India's Credit to GDP ratio is low? - (1) Lack of credit to small enterprises, (2) Reduced short term loans, (3) inability to transmit interest rate cut to the borrowers, a booming stock market and private equity funding which has **brought down the cost of equity making it more attractive than debt**. The **debt equity ratio has improved** in the economy.

Why is credit growth going to increase in the future?

With the **"account aggregator" model** now underway. It will allow users to share digital data about their financial and economic transactions with potential lenders, penetration should rise further. That means an increase in the Credit to GDP ratio.

#3 Account Aggregator

News: State Bank of India, ICICI Bank, Axis Bank, IDFC First Bank, Kotak Mahindra Bank, HDFC Bank, IndusInd Bank and Federal Bank have joined the **Account Aggregator (AA) network** that will enable customers to easily access and share their financial data.

Account Aggregator: is **a non-banking financial company** that facilitates **sharing of financial information in a real-time manner between regulated entities**. The Account Aggregator is engaged in the business of providing the **service of retrieving or collecting financial information** pertaining to its customer. It is also engaged in consolidating, organizing and presenting such information to the customer or any other financial information as may be specified by the bank. The **licence for Account Aggregators (AAs)** is issued by the **Reserve Bank of India (RBI)**.

Account aggregator systems will **act as an intermediary** to collect data from **Financial Information Providers (FIP)** like Bank, NBFC, mutual funds that hold the consumer's personal financial data. The data will be shared with the **Financial Information Users (FIU)** like the lending bank that wants access to the borrower's data to determine if the borrower qualifies for a loan. Banks can play a dual role – as a FIP and as an FIU. However, for sharing customer data, the bank or financial institution will have to take the customer's consent.

Benefits of Account Aggregator: (1) Customers: Account Aggregator framework allows customers to avail various financial services from a host of providers on a single portal based on a consent method under which the consumers can choose what financial data to share and with which entity. **(2) Less Physical Interaction**: Account Aggregator creates secure, digital access to personal data at a time when Covid-19 has led to restrictions on physical interaction. **(3) Reduction in Frauds:** It also reduces the fraud associated with physical data by introducing secure digital signatures and end-to-end encryption for data sharing.

#4 Early harvest Schemes

NEWS India UK will begin negotiations on a Free Trade agreement in November 2021. This has brought focus on the Early Harvest Deals signed before the Agreement.

What is an Early Harvest Scheme (EHS)? – An early harvest deal is a precursor to an FTA, in which the trading partners reduce tariff barriers on limited goods to promote trade.

What has been India's progress in signing the FTAs? – India has not signed any major FTA in the last 10 years, when the cumulative number of regional trade agreements in force globally has increased from 224 to 350. India last signed a **Comprehensive Economic Cooperation Agreement (CECA)** with Malaysia, in 2011. India withdrew from the Regional Comprehensive Economic Partnership (RCEP) in 2019 after seven years of protracted negotiations.

What are the reasons for India's poor success in converting EHS into full-fledged FTAs? – (1) **Higher domestic tariffs:** India has higher domestic tariffs in some of the most trade dynamic sectors, relative to other developing countries, (2) **India hesitates to offer "more" preferential tariff lines** in its FTAs, (3) **Industrial lobby from domestic sectors limits the potential of trade liberalization**, (4) **Persisting Issues in the negotiations of trade**: For example, liberalization of the dairy sector was among the major contributory factors for India's withdrawal from the **RCEP**.

How Early Harvest trade deals could run into trouble? – (1) against WTO's principle of Most Favoured Nation (MFN), (2) Legal Disputes from other multilateral agencies.

What is the Most Favoured Nation (MFN) status? - MFN is a treatment accorded to a trade partner to ensure non-discriminatory trade between two countries vis-a-vis other trade partners. Under WTO rules, a member country cannot discriminate between its trade partners. If a special status is granted to a trade partner, it must be extended to all members of the WTO.

International Relations

#1 13th BRICS Summit

News: The Indian PM chaired the 13th BRICS Summit, which was held virtually. The BRICS nations also collectively adopted the "**New Delhi Declaration** ".

The theme of the 13th BRICS Summit: BRICS@15: Intra-BRICS Cooperation for Continuity, Consolidation and Consensus.

What are the initiatives/key provisions of the New Delhi Declaration? – (1) Terrorism: It suggested adopting a **comprehensive approach** for the whole international community to effectively curb terrorist activities. (2) **BRICS Counter-Terrorism Action Plan:** It is aimed at implementing the **counter-terrorism strategy and defines the approach** and actions of the five countries towards counter-terrorism cooperation. This includes ensuring coordinated efforts to understand, identify and collaboratively respond to persistent and emerging terrorist threats. (3) "**Inclusive intra-Afghan dialogue"**: Under it, leaders stressed the need to ensure peace, stability and order in Afghanistan. They also condemned the terrorist attacks at the Hamid Karzai International Airport. In the declaration, they called for **addressing the humanitarian situation** in Afghanistan. They urged the need to uphold the rights of women, children and minorities. (4) **Space cooperation**: BRICS countries signed an **Agreement** on **Remote Sensing Satellite Constellation** among the space agencies of BRICS countries.

BRICS: It is the acronym coined for an association of five major emerging national economies that have similar economic development. The five countries are Brazil, Russia, India, China and South Africa.
The acronym was first used in 2001 by economist Jim O'Neill. Originally, the first four were grouped as "BRIC". In 2010, South Africa was officially admitted as a BRIC nation. Thus, making the current acronym BRICS.

Structure of BRICS
The Chairmanship of the forum is rotated annually among the members, in accordance with the acronym BRICS. Currently, India is holding the chairmanship of the BRICS. India was the chair in 2012 and 2016 too.

#2 Indo US Clean Energy Partnership

News: The **Minister of Petroleum and Natural Gas** has co-chaired a virtual Ministerial meeting with the U.S. Secretary of Energy to launch the revamped **U.S.-India Strategic Clean Energy Partnership (SCEP)**.

About the U.S.-India Strategic Clean Energy Partnership (SCEP) - It was launched at the **Leaders' Summit on Climate** held in April 2021. **The partnership** is in accordance with the **U.S.-India Climate and Clean Energy Agenda 2030 Partnership.**

Pillars: It organizes inter-governmental engagement across five pillars of cooperation: (1) Power and Energy Efficiency; (2); Responsible Oil and Gas; (3) Renewable Energy; (4) Sustainable Growth and (5) Emerging Fuels.

Other Initiatives

Partnership to Advance Clean Energy (PACE): It was launched in 2009 by India and the United States to accelerate inclusive, **low carbon growth by supporting research and deployment of clean energy technologies**.

Hydrogen Task Force: It is a public-private initiative launched by India and the US to help **scale up technologies to produce hydrogen** from renewable energy and fossil fuel sources and to bring down the cost of deployment for enhanced energy security and resilience.

#3 2+2 Ministerial Dialogue between India and Australia

News: Recently, India and Australia held the inaugural 2+2 talks. The focus of the dialogue is to implement the vision of a peaceful and prosperous Indo-Pacific Region.

What are the recent developments in India-Australia Relations? – (1) Strategic Partnerships: They elevated their bilateral strategic partnership to a **Comprehensive Strategic Partnership (CSP)** in June 2020. Both countries have completed one year of their **CSP**. (2) **Elevated 2+2 Dialogue:** The two countries have elevated their '2+2' Foreign and Defence Secretaries' Dialogue to the ministerial level, emphasizes the positive trajectory of their transforming relations. (3) **Co-operation in Indo-Pacific Region:** Security cooperation has enhanced due to common interest in freen , open, inclusive, and rule-based Indo-Pacific region. Security dialogues also have been done with key partner countries who share similar interests to strengthen coordination in Indo-Pacific. For example, the **Malabar Naval Exercise** is a step in this direction, (4) **Trade:** There is a growth in trade between both countries in recent years on various sectors like infrastructure, health, education etc. Two-way trade between India and Australia stands at $24.4 billion in 2020.

What are the present challenges hampering India Australia relations? - Challenges in India: India has a **high tariff for agriculture and dairy products,** which makes it difficult for Australian exporters to export these items to India. **Challenges in Australia:** India faces **non-tariff barriers** imposed by Australia. Also, Indian skilled **professionals face discrimination** in the Australian labour market.

What is '2+2 Dialogue'? - '2+2 Dialogue' is a term adopted in foreign diplomacy that implies a dialogue between two countries' Defence and External Affairs ministries. **The goal of the 2+2 dialogue is to facilitate** the highest-level dialogue on the bilateral, regional, and global issues between the countries. **India holds such talks** with the **US, Japan and Australia.**

About India-Australia 2+2 Ministerial Dialogue: India-Australia 2+2 dialogue is the outcome of a decision made at the **India-Australia Leaders' Virtual Summit** in 2020 to elevate bilateral relations to a comprehensive strategic partnership.

Environment

#1 Stubble Burning

News: Despite the punitive as well as incentive efforts the incidents of stubble burning have continued and are expected to get worse this year as the season of rabi sowing is approaching.

Why do farmers prefer stubble burning? – (1) The farmland needs to be cleared of the stubble residue of the harvested crops before the fields are ready for sowing for the next crop cycle. Burning the stubble is a quick method to clear the residue and have a short turnaround time and planting the wheat crop. **(2)** Despite government subsidies, **alternative methods** are costly, which makes farmers reluctant to adopt them. **(3)** The alternative method takes time to get rid of stubble, which delays the sowing season of wheat. **(4)** The **absence of a lucrative market** for wheat straw, compels farmers to go for stubble burning.

PUSA Decomposer - is a low-cost capsule that can convert paddy stubble into bio-manure. The capsule consists of a fungi-based liquid solution that can soften hard stubble to the extent that it can be easily mixed with soil in the field to act as compost

#2 Endangered Raptor Species

News: A new analysis by '**International Union for the Conservation of Nature (IUCN)** and **BirdLife International**' remarks about the threats faced by the birds of prey. The study claims, **30 percent of the 557 raptor species around the world are threatened by extinction** to some degree.

Utility of raptors: The study noted that the **raptors prey on a wide range of vertebrates** and thus, **facilitate long-distance seed dispersal**. This **indirectly increases seed production and pest control**.

What are threats to the raptor's population? The threats to the birds are a **result of habitat loss, deforestation, pollution, human-wildlife conflicts and climate change**.

What is the status of raptors globally? The population of **Philippine eagles**, the **largest variety of eagles in the world**, and the hooded vulture decreased rapidly in the last decades. The **Annobon scops-owl** has an estimated population of fewer than 250 and is **restricted to Annobon Island off West Africa**. Recently, it has been classified as '**critically endangered**' because of rapid habitat loss and degradation.
The **vulture population** in India has **declined by over 95 percent** because of the widespread use of **diclofenac**, a non-steroidal anti-inflammatory drug.

What are Raptors?
Raptors are also known as **birds of prey**. These are species of birds that primarily hunt and feed on vertebrates. This includes birds such as a hawk, eagle, owl, vulture, etc.

#3 Threat to vulture population in India

News: India has lost 99% population of the three species, **White-backed Vulture, Long-billed Vulture** and **Slender-billed Vulture**. The **Red-headed** and the **Egyptian Vulture** populations have also crashed by 91% and 80% respectively.

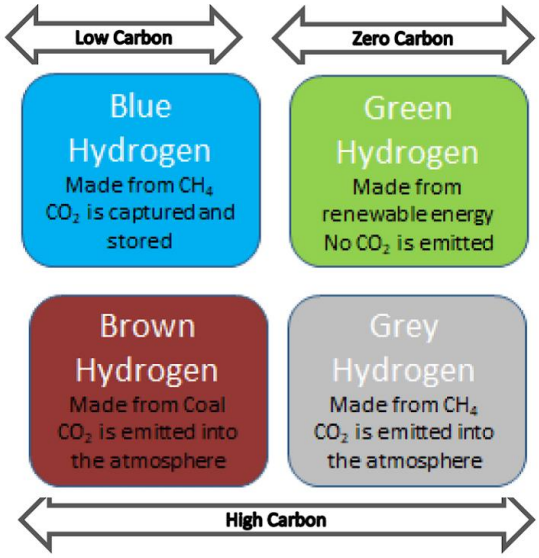
Why is vulture more vulnerable? – (1) Though the usage of diclofenac in India has reduced considerably now, it is still being misused in some places. Moreover, the vulture population is more vulnerable because of **small population**: Population is still small to recover quickly. **(2) Slow breeding**: Also, vultures are slow breeding birds, laying only one egg a year and having a longer immaturity duration after fledging. The remnant population will double only after 10-15 years in the absence of any adverse events. **(3) Availability of other NSAIDs**: Other NSAIDs like aceclofenac, ketoprofen, nimesulide, etc., that are harmful to vultures are still available for veterinary use in India. Aceclofenac metabolizes into diclofenac and is much more toxic to vultures.

What steps should be taken? – (1) Check toxicity & use of NSAIDs: In the revised **National Vulture Conservation Action Plan (2020-2025)**, the Government plans to set up eight new captive-breeding centres (eight are functioning). But without a check on the toxicity of NSAIDs and their use (misuse of diclofenac), releasing the captive-bred populations in the wild will not be considered feasible. **(2)** With more **robust policies and enforcement of rules** that are immediate, the remnant vulture populations in the country can be safeguarded. **Better practices, collective motive to change human behaviour** and the usage of safe drugs for cattle treatment, vultures can be saved from extinction.

#4 Coal based Hydrogen and Green Hydrogen

NEWS: The Ministry of Coal has constituted a Task Force and Expert Committee to prepare a road map for Coal based Hydrogen Production.

What is Coal Based Hydrogen Production? - Coal is one of the important sources of producing Hydrogen (**Brown Hydrogen**). The other sources of Hydrogen making are **Grey Hydrogen (produced from natural gas)** and **Green Hydrogen (produced through electrolysis of water using renewable energy)**. Moreover, production of Hydrogen from coal can be cheaper and less sensitive to imports for India in comparison to Grey Hydrogen and Green Hydrogen.



Challenges in Coal Based Hydrogen Production - Coal has not been encouraged to produce Brown Hydrogen because of the fear that while extracting hydrogen via coal (from the moisture embedded in coal) there may be carbon emission. Hence, due to this, 100% of Hydrogen produced in India is through Natural Gas. Moreover, production of hydrogen from coal has challenges in terms of **Carbon Capture, Utilisation and Storage (CCUS).**

Note: CCUS is a process that captures carbon dioxide emissions from sources like coal-fired power plants and either reuses or stores it, so it will not enter the atmosphere.

What is Green Hydrogen?

Green Hydrogen is the clean hydrogen generated by using renewable energy such as solar power and wind energy. The by-products are water and water vapor. Green hydrogen is produced via **the electrolysis of water.**

What are the advantages of Hydrogen? – (1) Low-carbon footprint, (2) Less capital imports, (3) Good storage material, (4) Higher energy value

What are the potential challenges? – (1) Highly reactive, (2) Dedicated infrastructure, (3) Pressure on land, (4) Cost is an issue, (5) Storage and transport issues, (6) Limitations on use in certain sectors:

#5 Methanol Production

News: **Bharat Heavy Electricals Limited (BHEL)** has successfully demonstrated a facility to create methanol from high ash Indian coal.

About Methanol - Methanol is a clean-burning fuel that can replace both petrol & diesel in transportation & LPG, Wood, Kerosene in cooking fuel. It can also replace diesel in Railways and could be an ideal complement to Hybrid and Electric Mobility. **Methanol can also be used to generate di-methyl ether (DME),** a liquid fuel that is very similar to diesel. The existing diesel engines require minimal changes to use DME instead of diesel.

Benefits of using Methanol – (1) Methanol burns efficiently in all internal combustion engines, produces no particulate matter, no soot, almost nil SOX and NOX emissions and hence causes NEAR ZERO POLLUTION). Adoption of Methanol as a transport fuel requires, **(2) minimal infrastructure modifications and capital** both

in vehicles and in terminal and distribution infrastructure. (3) A 15% blend of Methanol with Petrol (M15) will **reduce pollution** by 33%.

Challenges in Production of Methanol in India: (1) India doesn't have much of natural gas reserves. Hence, producing methanol from imported natural gas leads to outflow of foreign exchange and is sometimes uneconomical due to excessive prices of natural gas. **(2)** The next best option is to utilise India's abundant coal. However, due to the **high ash percentage of Indian coal**, most internationally accessible technology will not be adequate for our demands.

India's Initiatives to increase Methanol Production: (1) NITI Aayog's **'Methanol Economy' programme** is aimed at reducing India's oil import bill, greenhouse gas (GHG) emissions, and converting coal reserves and municipal solid waste into methanol. **(2)** The **Bureau of Indian Standards has notified 20% of DME blending with LPG**, and a notification for other blends has been issued. **(3) Railways is working towards blending methanol** in the range of 5-2% through direct fuel injection in locomotives. **(4) In 2018, Assam Petrochemicals** launched Asia's **first canister-based methanol** cooking fuel programme. **(5) Five methanol plants** based on high ash coal, five DME plants, and one natural gas-based methanol production plant with a capacity of 20 MMT/annum in a joint venture with Israel, have been **planned**.

#6 Pollution in Yamuna

News: Recently, the draft **NCR Regional Plan-2041 was prepared by the National Capital Region Planning Board (NCRPB).** It has fixed **2026** as the new deadline to ensure '**zero discharge of untreated sewage and industrial discharge into the Yamuna**'.

About the Yamuna: The Yamuna **originates in the Yamunotri glacier** in the Himalayas. It travels through Himachal Pradesh, Uttar Pradesh, Uttarakhand, Haryana, and Delhi before it merges with the Ganga.

What is the pollution concentration in the Yamuna? - Presently, levels of **fecal coliform** (microbes from human and animal excreta) are **beyond the desirable levels** in all points except for Palla. At some points, the concentration is **760 times the desirable level**. **A committee by the National Green Tribunal (NGT)** states that Delhi accounts for 76% of the pollution load on the river.

What are the major causes of pollution in Delhi? – (1) Less water in the river in Delhi, (2) **Sewage:** Drains dumping sewage and industrial effluents into the Yamuna, (3) Under YAP-III entire sewage load of Delhi is to be intercepted and treated. It is **the duty of the Delhi Jal Board (DJB) to treat the city's sewage.** The city generates 720 million gallons per day (MGD) of sewage of which 123 MGD remains untreated. DJB had informed NGT that it will increase its **sewage plant treatment** to 99%, but it **still remains at 86%**.

What can be done to reduce pollution in the Yamuna? – (1) The **immediate technological way** forward would be **Zero untreated discharge** into the Yamuna. **(2)** More water can dilute the pollutants, thereby reducing the relative pollution load. (3) As per the study by **National Mission for Clean Ganga (NMCG), a flow of 23 cusecs is needed in the lean season**. This flow is not easy to attain, as it is constrained by interstate river water treaties.
Ministry of Jal Shakti observed that the **1994 water-sharing agreement between Uttrakhand, HP, UP, Haryana is due for revision in 2025**. This can act as an **opportunity to divert more water towards the Delhi** stretch of Yamuna. The Experts are of the view that the Yamuna can be cleaned only if the government takes it in a **mission mode approach**.

#7 Global Warming and Impact on Oceans

News: Recently, **Copernicus Marine Environmental Monitoring Service published a report "The Ocean State Report 5"**. The report has documented the impact of warming waters on the Oceans.

What are the findings of the report? – (1) As per the report the **global ocean covers 71% of the Earth's surface** and regulate the Earth's climate and sustains life. Currently, global oceans are undergoing severe changes from natural variations, over-exploitation and anthropogenic influences. (2) These changes caused the **sea level** to rise by 3.1 millimeters each year on an average from January 1993 through May 2020.

The following are the observations of the report:
First, warming ocean waters have caused many marine species to move towards cooler waters. This migration has led to the introduction of non-native and invasive species to different marine ecosystems.
Second, increasing temperatures in the eastern Mediterranean basin saw the lionfish (Pterois miles) entering the Mediterranean Sea from the Suez Canal to the Ionian Sea.
Third, a series of strong Acqua Alta (high water) events occurred in Venice in 2019. It was due to an unusually high mean sea level, a high spring tide and extreme local and regional weather conditions.
Fourth, around 50% of Earth's oxygen production takes place in the ocean, sustaining marine life cycles. This is threatened by growing human activities leading to climate change and eutrophication. This deoxygenates the oceans and seas and has adverse consequences on the marine life.
Fifth, In the Arctic, sea ice is steadily decreasing; in September 2019, sea ice followed a decreasing trend of -12.89 per cent per decade — a record low in sea ice extent in the last two years.
Note: ***Eutrophication*** *is the enrichment of a lake or other water body with chemical nutrients, typically compounds containing nitrogen, phosphorus, or both.*

#8 Permafrost and threat of Global Warming

NEWS: The recent **IPCC report** has warned that increasing global warming will result in reductions in Arctic permafrost. This will result in releasing of greenhouse gases like methane and carbon dioxide.

What is Permafrost? - Permafrost is any ground that remains **completely frozen**—32 °F (0 °C) or colder—**for at least two years or more continuously**. **Permafrost covers** about 15% of the land area of the globe. They are most common in regions with high mountains and in the higher latitudes—near the North and South Poles.

What is Permafrost made of? - Permafrost is made of a combination of soil, rocks and sand that are held together by ice. The soil and ice in permafrost stay frozen all year long. **Near the surface**, permafrost soils also **contain large quantities of organic carbon**—a material leftover from dead plants—that couldn't decompose, or rot away, due to the cold. Lower permafrost layers contain soils made mostly of minerals.
A **layer of soil on top** of permafrost does not stay frozen all year. This layer is called the **active layer**. This layer thaws during the warm summer months and freezes again in the fall. In colder regions, the ground rarely thaws—even in the summer.

How Does Climate Change Affect Permafrost? - As Earth's climate warms, the permafrost is thawing. When the permafrost thaws the ice inside the permafrost melts, leaving behind water and soil. Thawing permafrost can have dramatic impacts on our planet and the things living on it.
Firstly, many northern villages are built on permafrost. When permafrost is frozen, it's harder than concrete. However, thawing permafrost can destroy houses, roads and other infrastructure.
Secondly, when permafrost is frozen, the plant material in the soil—called organic carbon—can't decompose, or rot away. As permafrost thaws, microbes begin decomposing this material. This process **releases greenhouse gases** like carbon dioxide and methane into the atmosphere, further increasing the greenhouse impact through **positive feedback loop.**

Thirdly, when permafrost thaws, so do **ancient bacteria and viruses** in the ice and soil. These newly unfrozen microbes can cause diseases in humans and animals. Scientists have discovered microbes more than 400,000 years old in thawed permafrost.

NASA's Mission to monitor Permafrost - NASA's Soil Moisture Active Passive (SMAP): The mission orbits Earth, collecting information about moisture in the soil. It measures the amount of water in the top 2 inches (5 centimetres) of soil everywhere on Earth's surface. It can also tell if the water within the soil is frozen or thawed.

#9 Fluoride Toxicity

News: A new study has pointed out that crops and vegetables that use fluoride-contaminated groundwater have been contributing to an increase in consumption of fluoride among locals in Bengal.

Background - West Bengal has been fighting with groundwater contamination for decades. About 12% of the population in eight of the State's 23 districts is impacted by water contaminated by fluoride. The contamination is higher in western parts of the state.

What are the three stages to fluoride toxicity? - First, the groundwater used for agricultural purposes deposits a good amount of fluoride in the soil. **Second,** this fluoride is absorbed by crops. **Third,** it enters the food chain system, causing harm to the human body.

What are the harmful effects of the Fluoride contamination? - Fluoride is an essential micronutrient and has both beneficial and detrimental effects on human health. Exposure to high levels of fluoride causes **dental fluorosis, skeletal fluorosis** and **non-skeletal fluorosis**.
Fluoride is **not carcinogenic** like arsenic. It attacks the calcium in the body. It leads to painful and stiff joints. Ligament calcification, liver and kidney dysfunction, nerve weakness, developmental disorder, organ tissue damage, bending of legs etc., are some commonly seen health issues.
As a result of fluoride contamination, **pregnant women** show a lower birth rate.

What are the methods to control fluoride contamination? - (1) Nano **technology** and **electro-coagulation methods** can be used to filter out the contaminated water. (2) **Rainwater harvesting** is also useful as it will lead to less dependence on groundwater. (3) **Water pipelines** need to be installed in affected areas to provide large scale water supply. (4) **Constant monitoring** of the fluoride-endemic regions is needed. (5) **Proper watershed management** through treatment of surface water is another solution.

#10 Sukhet Model

News: The rising price of LPG cylinders was making life difficult for women in rural areas. The instalment of Sukhet model in the village has brought ease to the household. The program was lauded by Prime Minister Modi in his latest episode of 'Mann ki Baat'.

What is Sukhet's model? - It is an initiative by Dr. Rajendra Prasad Central Agriculture University (RPAU) at Pusa. It allows **women to get their LPG cylinders refilled every two months in exchange for cow dung and farmyard waste**.
Furthermore, it provides four-fold benefit: (1) **ensures a pollution-free environment** at home, **(2) waste disposal**, (3) **monetary assistance** for LPG cylinders, and (4) **availability of organic fertilizers** to the local farmers.

How does Sukhet's model work?
Under Sukhet's model, two local workers visit households that have cattle to collect dung and farmyard waste and bring it to a vermicomposting yard.

Criteria to avail the benefit: A family must provide 1200 kgs of cow dung and wet garbage waste every two months to get their LPG gas cylinders refilled for free. The family needs to meet the target of 20 kg of cow dung and garbage waste every day.

Significance of the Sukhet model - Implementing the Sukhet model in various districts of Bihar will also generate employment for the local youth and to make village soil nutrient self-sufficient. Villagers get good quality vermicompost which is cheaper than the market price.

#11 Impact of Water Diversion on Bhitarkanika Mangroves

News: The Wildlife Society of Orissa (WSO) has expressed concern over the massive diversion of fresh water from the Brahmani river basin which could pose a grave threat to the Bhitarkanika mangroves in Odisha.

About Bhitarkanika Mangroves

Bhitarkanika Mangroves is a mangrove wetland in Odisha. It covers an area of 650 km in the Brahmani and Baitarani River deltas.

Ramsar Site: It was designated as a Ramsar Wetland of International Importance in 2002.

Fauna: It is home to 62 mangrove species. Besides, 1,600 saltwater crocodiles crawl on the mudflats of the Bhitarkanika mangrove forest.

Significance: Mangroves grow in brackish water. Proportionate freshwater flow from the Brahmani river basin and the Kharasrota river keep the salinity level of the water along the shore down. Hence, the brackish water becomes ideal for the mangroves to grow and stay healthy.

What is the issue? – (1) Talcher-Angul coal mines as well as the Kalinganagar steel and power hub are using enormous quantities of freshwater from the Brahmani river. Moreover, a huge amount of water flow would also be withdrawn for a mega drinking project. **(2) This diversion and reduction in water flow in Brahmani river** would lead to drastic changes in the water regime of the Bhitarkanika mangroves. **(3) Moreover,** lack of normal flow of freshwater would increase saline ingression upstream. This would affect the local flora and fauna as well as the livelihoods of the farmers and fishermen. **(4) Besides,** there could be a quantum increase in the man–crocodile conflict since the estuarine crocodiles would leave the core sanctuary area and migrate upstream once salinity increases.

#12 Battery Storage System in Khavda Renewable Energy Park

News: India has planned to set up around 14 gigawatt-hour (GWh) grid-scale battery storage systems at the **Khavda renewable energy park** in **Gujarat**.

About Khavda Renewable Energy Park

Khavda Renewable Energy Park is the **world's largest renewable energy park** in Gujarat's Kutch. The Park will be built along the Indo-Pak border at Khavda.

The Park will generate 30GW of clean energy. It will be a **hybrid renewable energy park,** as it will produce power using both **solar energy and wind energy**.

What are Large Battery Storage systems used for?

Large battery storages can help keep power grids stable, given electricity is produced intermittently from clean energy sources such as solar and wind.

One of the most critical advantages of battery storage is the **ability to store energy as it is generated and then redistribute it when needed** rather than as it is produced.

This ability reduces the need to curtail renewable generation and allows the energy to be deployed during periods of high electricity demand.

India's Renewable Energy Capacity and the need of Battery Storage systems

India has already crossed 100GW of installed solar and wind capacity, with another 63GW under construction.

The plan is to have **175GW renewable energy capacity by 2022 and 450GW by 2030**. This huge injection of electricity in the grid from sources such as solar and wind **requires a battery storage mechanism** that can help balance the national electricity grid.

According to the **Central Electricity Authority**, there will be a need for 27GW of grid-scale battery energy storage systems by 2030 with four hours of storage.

Science and Technology

#1 Space Debris

News: A collapsed Chinese military satellite collided with a piece of junk leftover from a Russian Rocket in what was the first major collision in Earth's orbit since 2009.

What is space junk? - The dead and unwanted craft (rockets or satellites) left behind in the Earth's orbit is referred to as space junk. As this junk increases, so does the probability of collisions; each collision would in turn produce debris that would make further collisions more likely. The result could be a belt of space junk so dense that it would make certain low-Earth orbits unusable. More than 100 million pieces of space junk are now orbiting the Earth.

Recent instances: In 2007, **China** launched a ballistic missile at one of its old weather satellites, producing the **largest cloud of space debris** ever tracked. In 2009, a non-functional **Russian communications orbiter** collided with a functioning one operated by an Iridium Satellite, producing almost 2,000 pieces of debris measuring at least 4 inches in diameter.

What are the initiatives taken to manage space junk?

In 1995, NASA issued the **world's first set of debris-mitigation guidelines**. It proposed that satellites should be designed to re-enter Earth's atmosphere within 25 years of mission completion. Other space-faring countries and the United Nations follow their own guidelines. But urgency and compliance were lacking, partly because no catastrophic collision between a spacecraft and debris has been experienced yet.

Way forward:

Updating the **1967 Outer Space Treaty** is the need of the hour. Provisions that give countries permanent property rights to their objects in space may complicate efforts to clean up debris. There is a need for greater clarity on common issues, required to boost trust and cooperation.

NASA should fund research into debris-removal technologies—such as those recently demonstrated by Astroscale, a Japanese startup, which hold promise.

The US should also seek to expand **the Artemis Accords**, a framework for space cooperation that includes (so far) 11 other countries.

Artemis Accords: The Artemis Accords are a **political commitment between governments participating in the Artemis Program**, an American-led effort to return humans to the Moon by 2024, and to ultimately expand and deepen space exploration.

#2 Biomethanation

News: Indian Scientists have developed a high rate biomethanation technology for the integrated treatment of sewage and organic solid waste.

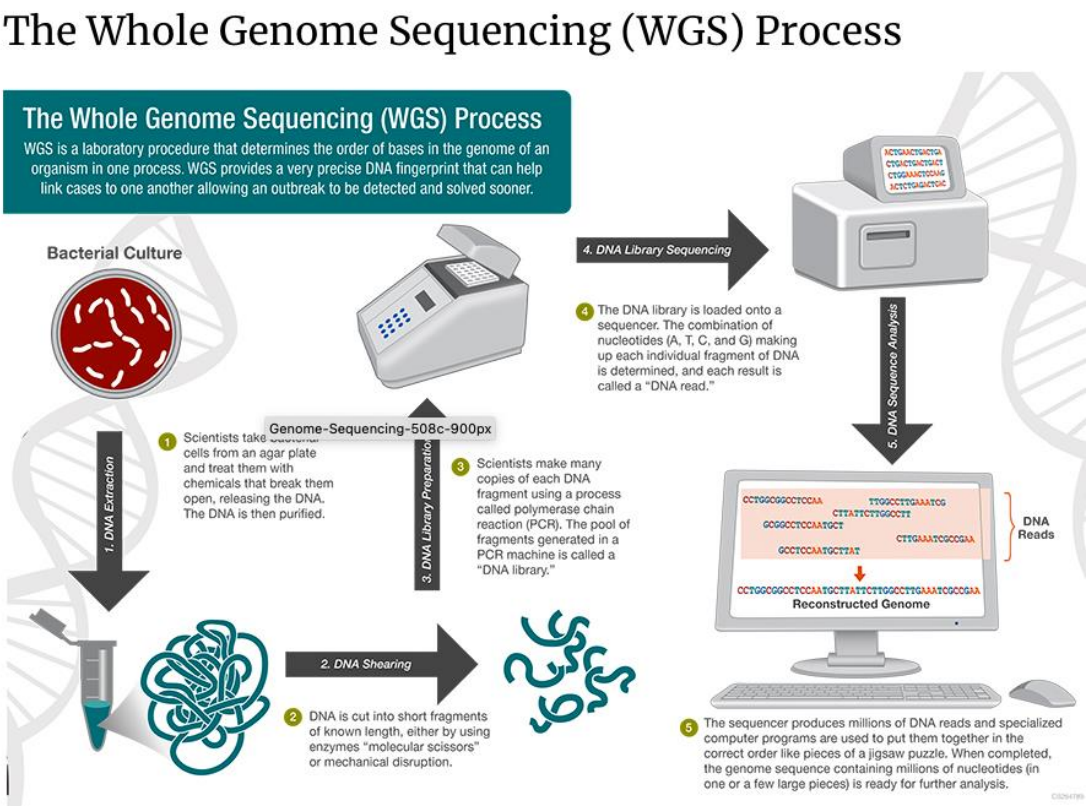
What is Biomethanation Technology? Biomethanation is a process by which **organic material is microbiologically converted under anaerobic conditions to biogas.** High Rate Biomethanation Technology has been developed to convert sewage into clean water, biogas and manure. It has been developed with the support of the 'Waste Management Technology' program. Biogas contains mixture of gases, predominantly **Methane and Carbon-dioxide** generally produced from raw materials like agriculture and plant waste and sewage waste etc. through anaerobic process.

About Waste Management Technology Program: It has been launched by the **Department of Science & Technology (DST)** in 2015 in alignment with **Swachh Bharath Abhiyan**. The aim of the program is to promote the development of suitable technologies with the potential to clean the environment from the huge number of residuals generated by industrial development and consumption lifestyles.

#3 Corona virus Genome Sequencing

News: The number of Corona Virus samples sequenced and analysed in the country plummeted by 76 per cent in July compared to June 2021.

What is the Corona Virus Genome Sequencing Project? - India formed the **Indian SARS-CoV-2 Consortium on Genomics** (INSACOG), a consortium of 10 genome sequencing labs, in December 2020 to boost efforts for genome sequencing. A consortium of 28 National Laboratories is involved in coronavirus sequencing since then. The network carries out **whole genome sequencing** of SARS-CoV-2 virus across the nation.



What is the purpose of Genome sequencing? The main purpose of sequencing is **surveillance**. It helps to get the true picture **of prevailing variants, emerging variants** (some of which, like delta, may lead to fresh surges) and those causing reinfection and vaccine breakthrough, impacting vaccine efficacy.

What is whole genome sequencing (WGS)? - The genome, or genetic material, of an organism (bacteria, virus, potato, human) is made up of DNA. Each organism has a unique DNA sequence which is composed of bases (Adenine (A), Thymine (T), Cytosine (C), and Guanine (G)). If you know the sequence of the bases in an organism, you have identified its unique DNA fingerprint, or pattern. **Determining the order of bases is called sequencing**.
Whole genome sequencing is a **laboratory procedure** that determines the order of bases in the genome of an organism in one process.

#4 Findings of the Chandaryaan Mission

News: The Chandrayaan 2 Mission has provided some valuable information about the moon and its environment.

About Chandrayaan-2 Mission: It is an Indian lunar mission to explore the unchartered south pole of the celestial body by landing a rover

What information has been gathered by the orbiter? – Presence of H_2O molecules: The Imaging Infra-Red Spectrometer (IIRS) on board Chandrayaan-2 has been able to distinguish between hydroxyl and water molecules.
Places with water molecule: Chandrayaan-2 has found signatures of water at all latitudes.
Potential water ice: The **Dual Frequency Synthetic Aperture Radar** has reported detection of potential water ice at the poles as it has been able to distinguish properties of surface roughness from that of water ice.
Presence of Minor elements: The Large Area Soft X-Ray Spectrometer (CLASS) has **detected the minor elements chromium** and **manganese** for the first time through remote sensing. Sodium was detected without any ambiguity for the first time. It will help in understanding **magmatic evolution** and deeper insights into the nebular conditions.

Additional Information
LUPEX is a robotic lunar mission by the Indian Space Research Organisation (ISRO) and Japan Aerospace Exploration Agency (JAXA). The mission aims to send a lunar rover and lander to explore the South Pole region of the Moon in 2024.

ARTEMIS stands for Acceleration, Reconnection, Turbulence and Electrodynamics of the Moon's Interaction with the Sun. It aims to (1) establish a lunar outpost, (2) Investigate the Moon's resources and how they might be exploited, (3) Using Moon as a base to explore Mars and further into deep space, (4) Broaden commercial and international partnerships, (5) Inspire a new generation and encourage careers in STEM
Artemis is named after the Greek goddess of the Moon and twin sister of the god Apollo.

International collaborations: Some key future Moon missions that hope to make use of such data include the Japan Aerospace Exploration Agency (JAXA)-ISRO collaboration **Lunar Polar Exploration (LUPEX)** mission scheduled for launch in 2023/2024, NASA's **Artemis missions.**

Pointly

1. CORBEVAX: A subunit vaccine for the children, is an indigenously produced COVID-19 vaccine candidate developed by the Indian pharmaceutical firm Biological E. Limited (BioE). **It is a "recombinant protein sub-unit" vaccine** which means it is made up of a specific part of SARS-CoV-2 — the **spike protein** on the virus's

surface. A **subunit vaccine** is one that **only uses the very specific parts (the subunits) of a virus** or bacterium that the immune system needs to recognize. It doesn't contain the whole microbe or uses a safe virus as a vector. The subunits may be proteins or sugars.

2. **Right to Sit:** The Tamil Nadu Government has tabled a bill in the State Assembly that recognizes workers '**right to sit'.** Kerala is the only other State to have legislated on the 'right to sit' in 2018. The bill seeks to amend the **Tamil Nadu Shops and Establishments Act, 1947**. The amendment makes it **mandatory for business establishments to provide seating arrangements for their employees** who stand for long hours. The bill, if passed, will ensure a chair to each worker and a whole lot of dignity besides helping the employees avoid the discomfort and health issues that arise from standing throughout the day.

3. **HMIS of the Indian Railways:** HMIS is an initiative of Indian Railways to bring the entire Railway Health System on a **single architecture to provide faster, seamless, and hassle-free healthcare**. It is being i**mplemented by: RailTel**- a miniratna PSU of Ministry of Railways and **C-DAC under Ministry of Electronics & Information Technology**.

4. **SIMBEX Exercises:** The 28th edition of the Singapore-India Maritime Bilateral Exercise (SIMBEX) was conducted recently. **SIMBEX (Singapore-India Maritime Bilateral Exercises)** is a joint maritime bilateral exercise between Indian and Singapore navies. The first edition of the exercise was conducted in 1994.

5. **SITMEX Exercise:** It is a bilateral **maritime exercise** between the **Republic of Singapore Navy (RSN), Royal Thailand Navy (RTN) and Indian Navy (IN)**. It was conducted for the first time in 2019.

6. **AUSINDEX Exercises:** The Navies from Australia and India have commenced the bilateral maritime exercise named **Exercise AUSINDEX 2021**. It was started in the year 2015.

7. Pollen Calendar: Chandigarh has got its **first pollen calendar**. Pollen Calendar can help identify potential allergy triggers and provide a clear understanding for clinicians as well as allergy sufferers about the causes (of allergy) to help limit their exposure during high pollen loads. **Pollen calendars** represent the time dynamics of airborne pollen taxa in graphical form in a particular geographical area.

8. **Pollen:** Pollen is a fine yellowish powder released by plants. They are essential for the sexual reproduction of flowering plants and plants that produce cones. Each pollen grain contains male gametes necessary for fertilisation. **Pollen** produced by plants are considered major outdoor airborne allergens responsible for allergic rhinitis, asthma, and atopic dermatitis in humans.

9. **Heatwave: A Heat Wave** is a period of abnormally high temperatures, more than the normal maximum temperature, that occurs during the summer season in the North-Western parts of India. Heatwaves have emerged as a deadly health hazard, claiming thousands of lives across the globe with episodes strengthening in frequency, intensity and duration in the past half-century in India as well.

10. **Inspiration 4: SpaceX** launched the Inspiration4 mission on September 16. **Inspiration4** is a spaceflight planned for four people aboard the SpaceX *Resilience* capsule. The three-day flight is the first human spaceflight to orbit Earth with exclusively private citizens on board. The flight was privately operated by SpaceX using a previously flown **Crew Dragon** capsule launched to low Earth orbit.

11. **Drugs & Cosmetics Act, 1940:** It is the central legislation that regulates India's drug and cosmetic import, manufacture, distribution, and sale. The Act clearly **defines spurious drugs, adulterated drugs, and misbranded drugs**. This also **established the Central Drugs Standard Control Organization (CDSCO).** The Act also establishes regulatory control over the manufacture and sale of drugs. The **State Health department** has to regulate the manufacturing, sales and distribution of drugs.

12. **Fragile X Syndrome:** Fragile X syndrome (FXS) is a genetic disorder. It is also known as **Martin-Bell syndrome or Marker X syndrome**. **The syndrome is the leading inherited cause of** autism in 4% of the population worldwide. The syndrome is caused by changes in a gene called FMR1, which makes an **important protein (FMRP).** This protein is required **for brain development**. Children with **Fragile X syndrome make too little or none of it**. The symptoms are learning difficulty, speech delay, aggressive behaviour, hyperactivity, attention deficit, problems in motor skills, etc.

13. **Swacch Sarvekshan Gramin: Swachh Survekshan Gramin 2021** is organized by the Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti under Swachh Bharat Mission (Grameen) Phase -II. The aim is to support the acceleration of Open Defecation Free plus (ODF+) interventions, increase momentum for improving ODF Sustainability as well as Solid and Liquid Waste Management (SLWM) activities across the villages in the country. An expert agency has been hired to conduct the Survekshan 2021.

14. **Coronal Mass Ejections: Coronal Mass Ejection (CME)** is an ejection of highly magnetised particles from the Sun. During a CME, enormous bubbles of superheated gas – called plasma – are ejected from the Sun. The underlying cause of CMEs is not well understood. However, astronomers agree, that the Sun's magnetic field plays a major role. Though CMEs can occur anywhere on the Sun, it is primarily those which originate from regions near the centre of the **visible solar surface** (called the **photosphere**) that are important for study, since they may propagate directly towards the Earth. When a really strong CME blows past the Earth, it can damage the electronics in satellites and disrupt radio communication networks on Earth. Plasma is known as the fourth state of matter. At high temperatures, electrons are ripped from an atom's nuclei and become a plasma or an ionised state of matter.

15. **NIRF Rankings:** The National Institutional Ranking Framework (NIRF) was launched in 2015 by the **Ministry of Education**. The objective of the Framework is to rank higher educational institutions in the country based on objective criteria to promote competitive excellence. The institutions are assessed and ranked based on five parameters (1) Teaching, Learning and Resources (TLR), (2) Research and Professional Practice (RP), (3) Graduation Outcomes (GO), (4) Outreach and Inclusivity (OI), (5) Peer Perception.

16. **New Island emerged off Greenland:** Recently, a new island has been discovered off the coast of Greenland. The newly discovered island measures 60×30 metres. It is three metres above sea level and has now become the new northernmost piece of land on Earth. Before this, **Oodaaq** was marked as the Earth's northernmost terrain.

17. **LCA-Mk2:** Light Combat Aircraft-Mk2 is a **single-engine multirole fighter aircraft** designed by **Aeronautical Development Agency (ADA)** in collaboration with Hindustan Aeronautics Limited (HAL). It is a 1,350 mm longer aircraft. It can carry a payload of 6,500 kg compared to the 3,500 kg the LCA can carry. The aircraft features enhanced range and endurance, including an **onboard oxygen generation system**, which is being integrated for the first time.

18. **Stealth Technology**: Stealth technology is a low observable technology that makes aircraft, fighter jets, ships, submarines, satellites, missiles less visible to radar, infrared, sonar and other detection methods. Stealth technology uses methods like specific shape of the aircraft, the use of radiation absorbent material to deflect or reduce the reflected signals from RADAR, and the use of chemicals to reduce the infrared signature etc.

19. **Arjun Mk-1A**: The development of Arjun Tank was started by the Defence Research and Development Organisation (DRDO) in the late 1980s. The Mark 1-A is a new variant of Arjun main battle tank. The work on this variant began in 2010 and the tank was fielded for trials in 2012. Arjun Mk-1A is designed and developed by the **Combat Vehicles Research and Development Establishment** (CVRDE) along with the other laboratories of the **Defence Research and Development Organisation** (DRDO).

20. **PRANA Portal for air pollution:** The Union Ministry of Environment, Forests and Climate Change has launched 'PRANA' (prana.cpcb.gov.in) Portal. It has been d**eveloped by the Central Pollution Control Board (CPCB)** in partnership with Knowledge Lens (a B2B product company). PRANA stands for Portal for Regulation of Air-pollution in non-Attainment cities. It is a portal for monitoring the implementation of the National Clean Air Program (NCAP). It will support tracking of physical as well as financial status of city air action plan implementation and disseminate information on air quality management efforts under NCAP to the public.

21. **National Clean Air Programme (NCAP):** The National Clean Air Programme was launched in 2019. It is being implemented by the Ministry of Environment, Forest and Climate Change and CPCB. It is a comprehensive initiative in partnership with various Ministries and States to improve air quality at city, regional and national level. **It is a focused and time bound scheme** to implement various sectoral policies, strengthen monitoring and enhance public participation in more than 100 cities for effective air quality management. It has a target of 20%–30% reduction of Particulate Matter (PM10 and PM2.5) concentration by 2024.

22. **Digital Agriculture Mission:** Digital agriculture is the use of new and advanced technologies, integrated into one system, to enable farmers and other stakeholders within the agriculture value chain to improve food production. Digital agriculture has the potential to make agriculture more productive, more consistent and to use time and resources more efficiently. **Digital Agriculture mission has been launched by the Ministry of Agriculture & Farmers Welfare** It aims to achieve rapid development in the Indian Agriculture Sector using the latest technologies. These include technologies such as artificial intelligence, blockchain technology, remote sensing, and Geographic information systems technology (GIS), usage of drones and robotics. The duration of the mission is from 2021 -2025.

22. **Farmers Database** For better planning, monitoring, policymaking, strategy formulation and smooth implementation of schemes for the farmers, a nationwide **Farmer's Database** linked with land records is being created with the following objectives: (1) Develop a nationwide database of farmers, (2) Keep a record of unique farmers, (3) **Unique farmer ID** (FID) to uniquely identify a farmer, (4) to know benefits availed by a farmer under various schemes
This Centralized Farmers Database shall be useful for various activities like issuing soil health cards, dissemination of crop advisories to the farmers, precision farming, smart cards for farmers to facilitate e-governance, crop insurance, settlement of compensation- claims, grant of agricultural subsidies, community/village resource centers etc. So far, the database is ready with details of around 5.5 crore farmers.

23. **Raja Mahendra Pratap:** Raja Mahendra Pratap Singh was born in 1886. He was a freedom fighter, social reformer and an internationalist. He gave up his own residence in Mathura, UP to be converted into a technical school named **Prem Mahavidyalaya** in 1909. It is **said to have been** the country's **first polytechnic college**. He established a "**Provisional Government of India**" at Bagh-e-Babur in Kabul in the middle of World War I in 1915. He declared himself president and his fiery fellow revolutionary **Maulana Barkatullah** of Bhopal, prime minister, of the Provisional Government. However, as the British government targeted him for his activities, later he based himself in Japan.
In 1929, he launched the **World Federation in Berlin**. Moreover, he was also **nominated for the 1932 Nobel Peace Prize**. He returned to India a year before Independence and immediately began work with Mahatma Gandhi. In free India, he diligently **pursued his ideal of Panchayati Raj.** He also won Lok Sabha elections as an independent candidate from Mathura in 1957. Raja Mahendra Pratap went to the Muhammadan Anglo-Oriental College in Aligarh, which later came to be called Aligarh Muslim University.

24. **Toxic 3Os:** Toxic 3 Os are three chemicals namely **Oxybenzone, Octinoxate and Octocrylene.** These chemicals are active ingredients present in more than two-thirds of all sunscreens. They are considered harmful as they pose a threat to public health, marine life and coral reefs. Octocrylene degrades into **benzophenone**, a **carcinogen** that can also interfere with key hormones and reproductive organs. They cause

human cell damage that has been linked to cancer, disrupt hormones, have been found in breast milk, blood and urine and are known allergens. =

25. **Hybodont Shark**: Recently, teeth of new species of hybodont shark of Jurassic age (approximately, between 160 and 168 million-years-old) have been reported for the first time from Jaisalmer, Rajasthan. Hybodonts, an extinct group of sharks, was a dominant group of fish in both marine and fluvial environments during the Triassic and early Jurassic time.

26. **Shoonya Initiative**: NITI Aayog along with Rocky Mountain Institute (RMI), an independent non-profit organization has launched Shoonya Initiative. **Shoonya** is an initiative **to promote zero-pollution delivery vehicles** by working with consumers and the industry. It aims to accelerate the adoption of electric vehicles (EVs) in the urban deliveries segment and create consumer awareness about the benefits of zero-pollution delivery.

27. **Euro Green Bond**: Power Finance Corporation Ltd (PFC) has issued its maiden Euro Green Bond. It is the first-ever **Euro denominated green bond** issuance from India. It is the first-ever Euro issuance by an Indian NBFC and the first Euro bond issuance from India since 2017.

28. **Green Bond**: A **green bond** is like any other bond where a debt instrument is issued by an issuer for raising funds from investors. The proceeds of a Green Bond offering are **'ear-marked' for use towards financing 'green' projects**. The Green Bonds may come with **tax incentives such as tax exemptions and tax credits** to attract investors.
The **World Bank** is a major issuer of green bonds. It has issued 164 green bonds worth $14.4 billion since 2008. **In India**, **YES Bank was the first bank to issue green bonds** in 2015 for financing renewable and clean energy projects. **Ghaziabad Municipal Corporation**, a civic body in Uttar Pradesh, has become **India's first municipal corporation** to successfully list the country's first green municipal bonds on the Bombay Stock Exchange (BSE) in April 2021.

29. **Naga Cucumber**: Nagaland's "sweet cucumber" was awarded a geographical identification (GI) tag as an agricultural product under provisions of **The Geographical Indications of Goods (Registration and Protection) Act, 1999**.
Naga cucumber is recognised for its sweetness and unique green colour.

30. **Judima**: Judima has been awarded the geographical indication (GI) tag. Judima is a **rice wine** made from sticky rice (glutinous rice called Bora) which is steamed and mixed with traditional herbs called **Thembra** (Acacia pennata). The wine is a specialty of the **Dimasa tribe** of the state of **Assam**.

31. **Bioeconomy**: The term Bioeconomy generally refers to an economy that uses renewable natural resources to produce food, energy, products, and services. The important renewable natural resources include the biomass in forests, soil, fields, bodies of water and the sea and freshwater. The Bio Economy sector has huge growth potential. It will more than double from 70 billion dollars at present to 150 billion dollars by 2025.

32. **Xenon1T Experiment:** The XENON1T experiment is the world's most sensitive dark matter experiment and was operated deep underground at the **INFN Laboratori Nazionali del Gran Sasso in Italy**.

33. **Dark Energy and Dark Matter**: The visible matter makes up less than 5% of the universe. The rest of the Universe is made of dark matter (27%) and dark energy (68%). **Dark energy** is the mysterious form of energy that makes up about **68% of the universe.** Dark energy has been noted as "the most profound mystery in all of science". **While dark matter attracts and holds galaxies together, dark energy repels and causes the expansion of our universe.** Both components are invisible. More is known about dark matter, since its existence was suggested as early as the 1920s, while dark energy wasn't discovered until 1998. Large-scale

experiments like XENON1T have been designed to directly detect dark matter, by searching for signs of dark matter 'hitting' ordinary matter while dark energy is more elusive.

34. **Subramania Bharati**: was a poet, freedom fighter and social reformer from Tamil Nadu. He was known as ***Mahakavi Bharathiyar*** which means a great poet. His songs on nationalism and freedom of India helped to rally the masses to support the Indian Independence Movement in Tamil Nadu. He **edited and published** the weekly journal "***India",*** which was the first paper in Tamil Nadu to publish political cartoons. **"Kannan Pattu"** "**Nilavum Vanminum Katrum**" "**Panchali Sabatham**" "**Kuyil Pattu**" are examples of Bharathi's great poetic output. He also published the sensational "***Sudesa Geethangal***" in 1908.

35. **Thamirabarani Civilization:** Porunai river [Thamirabarani] civilization, Tamil Nadu belongs to 1155 BCE which is 3,200 years ago.

36. **INSPIRE MANAK Awards**: is one of the components of the **Innovation in Science Pursuit for Inspired Research (INSPIRE) Scheme**. The aim of the awards is to motivate students in the age group of 10-15 years and studying in classes 6 to 10 to become future innovators and critical thinkers.
The award is being executed by the **Department of Science & Technology (DST)** with the **National Innovation Foundation – India (NIF)**, an autonomous body of DST.

37. INSPIRE Scheme: INSPIRE is an innovative program sponsored and managed by the **Department of Science & Technology** for the attraction of talent to science. The objective of the scheme is to communicate to the youth of the country about the excitement of the creative pursuit of science, attract talent to the study of science at an early age. This will help **build the required critical human resource pool** for strengthening and expanding the Science & Technology system and R & D base. It believes in and relies on the efficacy of the existing educational structure for the identification of talent. The scheme covers students in the age group of 10-32 years and has three programs and five components. They are a) **Scheme for Early Attraction of Talents for Science** (SEATS), b) **Scholarship for Higher Education** (SHE) and c) **Assured Opportunity for Research Careers** (AORC).

38. **Nipah Virus**: is a **zoonotic virus**. The first outbreaks of the Nipah virus among humans was reported from **Malaysia (1998) and Singapore (1999)**. The animal host reservoir for this virus is known to be the **fruit bat, commonly known as flying fox**. Person-to-person transmission is not fully established yet. Fever, respiratory symptoms including cough, sore throat, aches, fatigue and encephalitis. The death rate for Nipah virus is 70%. There is **no vaccine against Nipah virus**. The only available treatment is supportive cough care.

39. **Agni -V**: is a nuclear-capable **InterContinental Ballistic Missile** (ICBM). The missile has been developed by the **Defence Research and Development Organization** (DRDO) and Bharat Dynamics Limited (BDL). It has a strike range of around 5,000 kms and can hit targets deep inside China, entire Asia and Europe and parts of Africa. The most striking feature of Agni-V is its MIRV (**Multiple Independently Targetable Reentry Vehicles**) technology. In this technique, multiple weapons can be installed instead of one in the warhead mounted on the missile. That is, a missile can hit multiple targets simultaneously. The missile is equipped with a ring laser gyroscope inertial navigation system (NavIC).

40. **Indian Sign Language dictionary**: The dictionary is launched by the **Indian Sign Language Research and Training centre** of DPwD (**Department of Empowerment of Persons with Disabilities**). It has 10,000 words in it. It was also accompanied by the launch of the **Talking Books** (audiobooks for the visually impaired).

41. **School Quality Assessment and Accreditation Framework (SQAAF) of CBSE**: SQAAF will help in **bridging the inequality** in education. It would also address the deficiency of the absence of a common scientific framework for various dimensions. These dimensions include curricula, pedagogy, assessment, inclusive practices and governance process.

42. **NISHTHA teachers' training programme for NIPUN Bharat**: It is aimed at training the teachers on new systems and techniques.

43. **Vidyanjali Portal**: This portal is used for facilitating education volunteers, donors and CSR (Corporate Social Responsibility) contributors for school development. It is the platform for the country to achieve 'Sabka Saath, Sabka Vikas, Sabka Vishwas' with 'Sabka Prayas'.

44. **N-DEAR (National digital architecture)**: It will act as a '**super connect between various academic activities,** in the same way as UPI interface revolutionized the banking sector. It will play a major role in **eradicating inequality** in education and its modernization
Along with these initiatives, PM also urged the private sector to come forward and contribute to increasing the quality of education in government schools.

45. **About PM SVANidhi Scheme:** PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) was launched by the **Ministry of Housing and Urban Affairs** in 2020 as a **Central Sector Scheme**. Its purpose is to facilitate affordable working capital loans of up to ₹10,000 with an interest subsidy @7% on regular repayment. The street vendors are not required to pay any collateral for the loan. **SIDBI** has been appointed as the implementation agency for scheme administration. The scheme targets to cover 50 lakh street vendors, who had been vending on or before March 24, 2020.

46. **'Main Bhi Digital 3.0' Campaign:** It is a special campaign for Digital Onboarding and Training of street vendors under the **PM SVANidhi** scheme. The campaign has been launched across 223 cities in the country.