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GS 2 : Polity, Governance, International Relations

1. Patent to an Artificial Intelligence system

In news: In a world first, South Africa grants patent to an artificial intelligence system

What is Artificial Intelligence (AI)?

- It describes the **action of machines accomplishing tasks** that have **historically required human intelligence**.
- It includes technologies like machine learning, pattern recognition, big data, neural networks, self algorithms etc
- AI involves complex things such as feeding a particular data into the machine and making it react as per the different situations. It is basically about **creating self-learning patterns** where the machine can give answers to the never answered questions like a human would ever do.
- AI is **different from hardware driven robotic automation**. Instead of automating manual tasks, AI performs frequent high volume computerised tasks reliably.

Benefits and Potential of AI

- **Multi-sectoral applications:** Already, AI has helped increase crop yields, raised business productivity, improved access to credit and made cancer detection faster and more precise.
- **Boosts Economic Growth:** It could contribute more than \$15 trillion to the world economy by 2030, adding 14% to global GDP. Google has identified over 2,600 use cases of “AI for good” worldwide.
- **Enabler for SDGs:** A study published in Nature reviewing the impact of AI on the Sustainable Development Goals (SDGs) finds that AI may act as an enabler on 134 – or 79% – of all SDG targets.

What’s the issue with South Africa granting Patent?

- At first glance, a recently granted South African patent relating to a “food container based on fractal geometry” seems fairly mundane.
- The innovation in question involves interlocking food containers that are easy for robots to grasp and stack.

- On closer inspection, we notice that the **inventor is not a human being** – it is an artificial intelligence (AI) system called DABUS. The invention was entirely devised by the DABUS.
- The patent application listing DABUS as the inventor was filed in patent offices around the world, including the U.S., Europe, Australia, and South Africa. But only South Africa granted the patent (Australia followed suit a few days later after a court judgment gave the go-ahead).
 - The United States Patent and Trademark Office and the European Patent Office rejected these applications in the formal examination phase.

What is the DABUS?

- DABUS stands for “device for the autonomous bootstrapping of unified sentience”.
- It is an AI system created by Stephen Thaler, a pioneer in the field of AI and programming.
- The system simulates human brainstorming and creates new inventions.
- DABUS is a particular type of AI, often referred to as “creativity machines” because they are capable of independent and complex functioning.

What are the ‘Creativity machines’?

- Creativity machines can process and critically analyse data, learning from it. This process is known as machine learning.
- Once the machine learning phase has occurred, the machine is able to “autonomously” create without human intervention.
- Prior to DABUS, Thaler built another AI which created novel sheet music, and which he credited with inventing the cross-bristle toothbrush design.

Why are some experts opposing this move?

- First, their respective patent laws only provide for human inventors – not AI – as indicated by the use of pronouns such as “him” and “her” in their text.
- Second, ideas, for the purposes of patents, require the element of “mental conception” – something of which only a human mind is capable.
- Finally, inventorship comes with rights, which AI is not legally capable of possessing.
- The critics argued that it was the incorrect decision in law, as AI lacks the necessary legal standing to qualify as an inventor.
- Critics feel that if South Africa instead had a substantive search and examination system in place, the DABUS patent application would have been rejected.

Conclusion

Given the policy environment and the vast potential of AI, the granting of the patent makes sense. Perhaps this will turn out to be a strategic masterclass by the South African office which will lead to a much more innovative nation.

2. The importance of the booster dose to plan ahead

The article suggests that a booster dose of the COVID-19 vaccine will help get India out of COVID-19's stranglehold and deal with the pandemic.

Context:

- The current COVID-19 vaccination schedules are only priming doses.
- This is expected to wane, as experienced with all previous non-replicating vaccines.

What is a booster dose?

- A booster dose is an additional administration of a vaccine to make it fully effective or maintain the patient's immunity.
- Some vaccines need to be given in a series because a single shot is not sufficient.
- In the context of the COVID-19 vaccine, a booster shot would be taken a few months after the second jab as an added precaution.

The immune response:

- Vaccines can be classified as replicating live infectious vaccines, and, non-replicating non-infectious vaccines.
- At present 'live virus vaccines' administered by injection include measles, rubella, mumps and chickenpox vaccines.
 - The dose contains a few thousand live but attenuated viruses – they replicate in body tissues without producing overt disease.
 - To gain immunity there is a need for more than one shot.
 - The MMR (measles, mumps, and rubella) vaccine, for example, needs two doses.
 - The final effective dose that stimulates the immune system may be billions or trillions of viruses and the stimulus sustained for days to weeks as the injected viruses continue to multiply within the human body.
 - Therefore, immune responses to replicating live virus vaccines – both antibody and T-cell immunity – are robust and long-lasting.

- The non-replicating injected vaccines include nearly all others. Most common are diphtheria, pertussis (whooping cough), tetanus, hepatitis B, Haemophilus influenzae b, pneumococcal, human papilloma virus, inactivated poliovirus, inactivated hepatitis A vaccines.
 - For them, the dose confronted by the immune system is what is injected.
 - A tiny amount of antigen (micrograms) plus stabilisers, preservatives or adjuvants, chemicals and salts in minute quantities are administered.

What is the need for a booster dose?

- The initial expectation that the COVID-19 pandemic would be a short-lived one is proven wrong.
- The longer the virus is allowed to wreak havoc in India, the more people it will infect and the more likely it will evolve into new mutations.
- The most pressing issue right now is if these vaccinations will protect against the latest COVID-19 strains, or whether more booster shots will be needed.
- Another problem is that it is not known how long a COVID-19 vaccine can provide safety.
- Every non-replicating vaccine requires priming and boosting.
- Booster shots help the immune system remember how to recognize the pathogen that is causing the disease. It means that after a booster shot, the body is more likely to react quickly and effectively.
- To reach and maintain high and protective levels of antibody, there is a need for one or more injected “booster dose(s)”.
- There is further evidence that those who are elderly, men particularly, and those with organ transplants, cancer treatment or co-morbidity, have weaker primary antibody responses than their younger/normal counterparts.
- This implies that they may remain vulnerable to severe disease and death; they are in urgent need of booster dose to ensure and sustain protective immunity.

Way Forward:

- The science of immunology says that a booster dose delivered at an interval of at least four, preferably six to 12, months after the last priming dose, will stimulate the production of long-lived antibody-secreting cells, as well as ‘long lived memory cells’.
- However, experts say more research is needed to see if it can help combat infections more effectively.
- Decisions should be based on data on immunological memory. This means that after two doses, the status of antibody concentration must be checked

and after how long does it fall below a level where the third booster dose is needed.

- In India, there exists an ethical dilemma – as long as there is inadequate vaccine supply, everyone deserves priming doses before the highly vulnerable early vaccine recipients are offered booster doses.
 - India should accelerate vaccine procurement without counting the cost to avoid this.
- For India, a vaccination strategy of
 - First, completing two priming doses in all adults and children
 - Then a third dose to the special category
 - Later, one booster dose to everyone one year later might turn out to be a good strategy.
- Such a vaccination campaign needs meticulous planning and execution.

3. Indian Base in Mauritius' Agalega Islands

Why in News

Recently, Mauritius has denied a report that it has allowed **India to build a military base on the remote island of Agalega.**

- Earlier it was reported by a news broadcaster that an **airstrip and two jetties to house an Indian military base on Agalega island is under construction.**

Key Points

- **Background:**
 - In 2015, India signed an agreement with Mauritius for development of Agalega Islands.
 - It provided for **setting up and upgradation of infrastructure for improving sea and air connectivity enhancing capabilities of the Mauritian Defence Forces in safeguarding their interests in the Outer Island.**
 - However, since then, **there have been growing reports over the Indian naval and coastguard's interests in setting up transponder systems and surveillance infrastructure,** which has led to some local protests.
- **Agelega Project:**
 - Agelega project includes **the construction of a jetty, rebuilding, and extension of the runway, and building an airport terminal** on Agalega Island.
 - The USD 87 million projects are funded by India.
 - The project would add a new airport, port and logistics and communication facilities and potentially any other facilities related to the project.

- The Agelega island is located in the **southwestern Indian Ocean**, 1,122 km north of Mauritius.
 - It has a total land area of 27 square miles (70 square km).
- **Significance:**
 - **Strengthen India's Presence:**
 - It will strengthen India's presence in the south-west Indian Ocean and **facilitate its power launch aspirations in the region.**
 - India considers the new base **necessary to facilitate both air and surface maritime patrols** in the south-west Indian Ocean and as an intelligence post.
 - **Geo-Economic:**
 - As a “**central geographic point**” Mauritius holds importance for commerce and connectivity in the Indian Ocean.
 - As a member of the **African Union, Indian Ocean Rim Association** and the Indian Ocean Commission, Mauritius is a stepping stone to multiple geographies.
 - As a founding-member of the ‘**Small Island Developing States**’ (SIDS) it has been seen as a significant neighbour.
 - **Protect Foreign Trade:**
 - **95% of India’s trade by volume and 68% of trade by value comes via the Indian Ocean.**
 - **Nearly 80% of India’s crude oil requirement is imported by sea via the Indian Ocean.** So presence in the Indian Ocean is of significance for India.
 - **Countering China:**
 - To counter China’s ‘**String of Pearls**’ which can prove to be a threat to our strategic interests, it became extremely necessary for us to have a presence in the larger **Indian Ocean Region.**
 - **Security And Growth for All in Region:**
 - The project can be seen as a part of India’s efforts to contribute to its neighbor’s development stories under **SAGAR (Security And Growth for All in Region).**
 - The project can be seen as a way to increase cooperation between India and its neighbors.
 - **Enhancing Security infrastructure of Mauritius:**
 - The project will **enhance the capabilities of Mauritius security forces** through upgradation in its infrastructure.
- **Challenges:**
 - **Protests from Opposition:**
 - Mauritius opposition has been raising **concerns regarding transparency in the project.**
 - The Mauritian government has **exempted the project from any Environmental license process (EIA clearances).**

- **Protests from local People:**
 - In 1965, before Mauritian independence, the UK split the Chagos islands from Mauritius, forcibly relocating the inhabitants.. Many Agalégans fear they could suffer a similar fate.
 - All major military powers like **France, China, US, and the UK have naval bases in the Indian Ocean** this is leading to fears that their peaceful island region will also be militarised.
- **China Centric Policies:**
 - China's rapidly **growing presence in the northern part of the Indian Ocean** along with the deployment of Chinese submarines and ships in the region is a challenge for India.
- **Obsessive Security Policy:**
 - An obsessively security-driven policy of India towards its neighbours has not helped in the past.
 - Certain **common challenges** like **climate change**, sustainable development and the **blue economy** should be **reconsidered in India's approach to Mauritius**.
- **Other Recent Developments:**
 - In July 2021, Prime Ministers of India and Mauritius jointly **inaugurated a Supreme Court building** in Maritius.
 - In February 2021, the Union Cabinet approved signing of the **Comprehensive Economic Cooperation and Partnership Agreement (CECPA)** between India and Mauritius.
 - India and Mauritius signed a **USD 100 million Defence Line of Credit** agreement
 - Mauritius would get a Dornier aircraft and an **Advanced Light Helicopter Dhruv** on lease which would build its maritime security capabilities.
 - The two sides also discussed the **Chagos Archipelago** dispute, which was an issue of sovereignty and sustainable development before the **United Nations (UN)**.
 - In 2019, **India voted at the UN General Assembly in support of the Mauritian** position on the issue. India was one of the 116 countries that voted demanding that the UK end its "colonial administration" from the group of islands.
 - India **delivered 1,00,000 Covishield vaccines** to Mauritius.

Way Forward

- Unlike the military bases run by other countries, the **Indian bases are the soft base which means locals can move through any Indian-made project**. So the local governments get more control over their domain, without diluting their sovereignty.

- India needs to **project itself as a credible and long-term partner** in a more persuasive manner by allaying the fears of all parties affected.
- Companies registered in Mauritius are the largest source of **Foreign Direct Investment (FDI)** into India, making it **crucial for India to upgrade its bilateral tax treaty, adopting the latest international practices** that prevent multinational companies from artificially shifting profits to low tax countries.
- As India takes an integrated view of its security cooperation in the south western Indian Ocean, **Mauritius is the natural node for it**. Therefore, it is important to take course-corrections in India's **Neighbourhood First policy**.

GS 3 : Economy, Science and Technology, Environment

4. General Insurance Business (Nationalisation) Amendment Bill, 2021

Why in News

Recently, the **General Insurance Business (Nationalisation) Amendment Bill, 2021**, was passed by **both the houses of the parliament**.

- It seeks to amend the **General Insurance Business (Nationalisation) Act, 1972**.

Key Points

- **Key Provisions of the Bill:**
 - **Government Shareholding Threshold:**
 - It seeks to remove the **mandatory requirement of the Central government holding not less than 51% of the equity capital** in a specified insurer.
 - **Defines General Insurance Business:**
 - It defines **general insurance business as fire, marine or miscellaneous insurance business**.
 - It excludes **capital redemption and annuity from certain businesses** from the definition.
 - **Capital redemption insurance involves** payment of a sum of money on a specific date by the insurer after the beneficiary pays premiums periodically.
 - **Under annuity certain insurance**, the insurer pays the beneficiary over a period of time.
 - **Transfer of Control from the Government:**

- It will not apply to the specified insurers from the date on which the **central government relinquishes control of the insurer**. Here control means:
 - Power to appoint a majority of directors of a specified insurer.
 - To have power over its management or policy decisions.
- **Empowers the Central Government:**
 - It empowers the **central government to notify the terms and conditions of service of employees** of the specified insurers.
 - It provides that **schemes formulated by the central government** in this regard will be deemed to have been adopted by the insurer.
 - The board of directors of the insurer may change these schemes or frame new policies.
 - Further, powers of the central government under such schemes will be transferred to the board of directors of the insurer.
- **Liabilities of Directors:**
 - It specifies that a **director of a specified insurer**, who is **not a whole-time director**, will be held **liable only for certain acts** which includes the acts which have been committed:
 - With his knowledge, attributable through board processes.
 - With his consent or connivance or where he had not acted diligently.
- **Significance:**
 - **Private Capital:**
 - It will **bring in more private capital in the general insurance business** and **improve its reach** to make more products available to customers.
 - **Improved Efficiency:**
 - The move is part of the **government's strategy to open up more sectors to private participation and improve efficiency**.
 - **Enhance Insurance Penetration:**
 - It will **enhance insurance penetration and social protection** to better secure the interests of policyholders and **contribute to faster growth of the economy**
- **Concerns:**
 - **Affect the Workers:**
 - It will affect **the insurance sector in the country** and the **workers engaged with the General Insurance Company**.
 - **Total Privatisation:**

- It may lead to **total privatisation of general insurance companies**. Privatising would lead to opening a Pandora's Box, throwing into insecurity 30 crore policyholders.
- **Governments Loss:**
 - The **government will also lose money** by way of dividend in the proportion of shares being offered.
- **Pensions Safety:**
 - The pensioners in the four public sector general insurance companies were worried about the **safety of their future pensions when the central government privatised one of them**.
 - The pension fund is **dependent on the contributions of the employees** so that Pension Trust can pay the pensioners.

General Insurance Business (Nationalisation) Act, 1972:

- The Act was enacted to **nationalise all private companies undertaking general insurance business in India**. It set up the **General Insurance Corporation of India (GIC)**.
 - GIC is an Indian **nationalised reinsurance company**.
- The businesses of the companies nationalised under the Act were **restructured in four subsidiary companies of GIC:**
 - National Insurance.
 - New India Assurance.
 - Oriental Insurance.
 - United India Insurance.
- The Act was subsequently **amended in 2002** to transfer the **control of these four subsidiary companies from GIC to the central government**, thereby making them **independent companies**.
- Since 2000, **GIC exclusively undertakes reinsurance business**.

5. An urban jobs safety net

The article says that there is a need to formulate a wage employment-based national urban livelihood scheme similar to Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme.

Issue:

- Pandemic has posed major challenges and one among them is the choice of saving lives versus protecting livelihoods.
- According to the World Economic Outlook report of April 2021 of the International Monetary Fund (IMF), almost all countries, except China, experienced an economic contraction in 2020.

- The global GDP shrunk by 3.3%. India's GDP plummeted by 8%. In contrast, China posted a growth of 2.3%.
- As per the report, 95 million people have fallen into the ranks of the extreme poor category.
- The unemployment rate is also on the rise across the globe.
- As per the Centre for Monitoring Indian Economy's estimates, the unemployment rate in India peaked at 23.5% in April 2020 before falling to 6.9% in February 2021.

Rural-urban livelihood divide:

- As the economy decelerates, the challenge is to minimise livelihood losses.
- Traditionally, governments have addressed this issue from a sectoral viewpoint.
- With contemporary realities, there is a need to approach this from a rural-urban perspective.
 - When there is an economic shock, it is essential to provide people with formal access to a livelihood safety net.
 - The livelihood safety net must have comprehensive coverage.
- Unfortunately, the livelihood safety net exists only in the rural areas through the MGNREGS.
- Urban India does not have such a livelihood program.
- Though the Indian government operates the National Urban Livelihoods Mission the scheme does not have guaranteed wage employment.
 - It is only focused on self-employment through skill up-gradation and credit linkages through banks.
- It was until recently considered that migration in India was essentially a rural to urban phenomenon. This pandemic has demolished that myth.
- Huge migration of labour during the first wave of the pandemic brings to light the rural-urban livelihood security divide.

Himachal Pradesh Case Study:

- A few States have experimented with a wage employment-based urban livelihood scheme.
- Himachal Pradesh (H.P.) launched the Mukhya Mantri Shahri Ajeevika Guarantee Yojana (MMSAGY) in 2020.
 - It provided 120 days of guaranteed wage employment to every household at minimum wages in FY 2020-21, in urban areas.
 - Any adult member of a household, less than 65 years of age, residing in the jurisdiction of the urban local body (ULB) and willing to engage in unskilled work at projects being executed or in sanitation services being provided by the municipality could register under the scheme.

- A job card was issued to the beneficiary within seven days of registration and employment is provided within a fortnight. Otherwise, the beneficiary is eligible to be compensated at a rate of ₹75 per day.
- The government funded the wage component from the grants already available to ULBs under the State and Central Finance Commissions.
- In a year of its operation, a quarter-million man-days, benefiting about 3% of the total urban households in H.P., were generated.
- If the scope of MMSAGY is broadened to include muster-roll based works, other municipal services, etc., it could enhance livelihood opportunities.

Way Forward:

- An urban livelihood scheme can be launched within the existing fiscal space in the Urban Local Bodies.
- Besides, the Union and States could provide resources for such a scheme collectively.
- Separate minimum wages for rural and urban areas are not a cause of migration to urban areas as the higher cost of living in urban areas has an offsetting effect.
- The focus must shift from asset creation to service delivery.
 - Restricting the scheme to asset creation or wage-material ratios may not prove to be effective in urban areas.
 - The focus should be on enhancing the quality of municipal services.

Conclusion:

- The migration tragedy and the economic slowdown have highlighted the need for a livelihood program with a guaranteed wage net in urban India.
- The rural-urban livelihood and security divide must be bridged to minimise the livelihood loss.
- A livelihood scheme is like an 'economic vaccine' and will protect people against unemployment. It should be administered at the national level rather than at the State level.

6. Kaziranga National Park: Assam

Why in News

Kaziranga has become **the first in the country to use satellite phones**, which are generally used by the law-enforcing agencies.

- The satellite phones **will give an edge to the forest personnel over the poachers and also during emergencies like floods.**

- The **public is barred from using satellite phones in India**. Satellite phones can connect from anywhere as they are directly connected to satellites around the world and do not depend on terrestrial mobile networks, as cellphones do.

Key Points

- **Location:**
 - It is **located in the State of Assam** and covers 42,996 Hectare (ha). It is the **single largest undisturbed and representative area in the Brahmaputra Valley floodplain**.
- **Legal Status:**
 - It was declared as a **National Park in 1974**.
 - It has been declared a **Tiger Reserve since 2007**. It has a total tiger reserve area of 1,030 sq km with a core area of 430 sq. km.
- **International Status:**
 - It was declared a **UNESCO World Heritage Site** in 1985.
 - It is recognized as **An Important Bird Area** by Bird Life International.
- **Biodiversity:**
 - It is the home of the world's most **one-horned rhinos**.
 - Pobitora Wildlife Sanctuary has the highest density of one-horned rhinos in the world and second highest number of Rhinos in Assam after Kaziranga National Park.
 - Much of the focus of conservation efforts in Kaziranga are focused on the **'big four' species – Rhino, Elephant, Royal Bengal Tiger and Asiatic water buffalo**.
 - The 2018 census had yielded 2,413 rhinos and approximately 1,100 elephants.
 - As per the figures of **tiger census** conducted in 2014, Kaziranga had an estimated 103 tigers, the third highest population in India after **Jim Corbett National Park** (215) in Uttarakhand and **Bandipur National Park** (120) in Karnataka.
 - Kaziranga is also **home to 9 of the 14 species of primates** found in the Indian subcontinent.
- **Rivers and Highways:**
 - **National Highway 37** passes through the park area.
 - The park also has more than **250 seasonal water bodies**, besides the **Diphlu River** running through it.
- **Other National Parks in Assam are:**
 - **Manas National Park,**
 - **Dibru-Saikhowa National Park,**
 - **Nameri National Park,**
 - **Rajiv Gandhi Orang National Park.**

- Dehing Patkai National Park.
- Raimona National Park.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Forum of the Election Management Bodies of South Asia (FEMBoSA)

The Election Commission of India has handed over the Chair of FEMBoSA to the Election Commission of Bhutan for 2021-22.

What is FEMBoSA?

- Forum of the Election Management Bodies of South Asia (FEMBoSA) was established at the 3rd Conference of Heads of Election Management Bodies (EMBs) of SAARC Countries in 2012.
- The forum aims to increase mutual cooperation in respect to the common interests of the SAARC's EMBs.
- The Forum has eight Member Election Management Bodies from Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
- The Election Commission of India was the latest Chair of the Forum (now Bhutan).

Its establishment

- The first meeting of the representatives of Election Management Bodies of Bangladesh, Bhutan, India, Maldives, Nepal and Pakistan held in Dhaka, Bangladesh in the year 2010.
- It was then decided at the conclusion that an organization representing those countries should be established.
- Consequently, annual meets were held in the member countries and the charter for the organization also was adopted with the aim of fulfilling the objectives of the organization.

- Since the creation of FEMBoSA, Annual Meetings were held in Pakistan (2011), in India (2012), in Bhutan (2013), in Nepal (2014), in Sri Lanka (2015), in Maldives (2016), in Afghanistan (2017) and in Bangladesh(2018).

Objectives of FEMBOSA

- Promote contact among the Election Management Bodies of SAARC countries
- Facilitate appropriate exchange of experience and expertise among members
- Share experiences with a view to learning from each other
- Foster efficiency and effectiveness in conducting free, fair, transparent and participative election

Significant activities under FEMBoSA

- Member organizations celebrate National Voter's Day in a calendar year in their respective countries
- Initiative of establishing South Asia Institute for Democracy and Electoral Studies (SAIDES) in Nepal
- In order to increase knowledge related to elections, take initiatives to include voter education in the school-level textbooks of their respective countries
- Implementation of recommendations of South Asian Disabilities Organizations for the inclusion of disabled people in the electoral system and the creation of suitable election environment

2. Quality of Life for Elderly Index

Quality of Life for Elderly Index was released by the Economic Advisory Council to the Prime Minister (EAC-PM).

Quality of Life for Elderly Index

The Index has been created by the Institute for Competitiveness at the request of EAC-PM and it sheds light on an issue often not mentioned- problems faced by the elderly.

- The report identifies the regional patterns of ageing across the Indian States and assesses the overall ageing situation in India.
- The report presents a deeper insight into how well India is doing to support the well-being of its ageing population.
- The Index framework includes four pillars:
 1. Financial Well-being
 2. Social Well-being

3. Health System and
4. Income Security

- It has eight sub-pillars: Economic Empowerment, Educational Attainment & Employment, Social Status, Physical Security, Basic Health, Psychological Wellbeing, Social Security and Enabling Environment.

Features of the index

- This index broadens the way we understand the needs and opportunities of the elderly population in India.
- It goes far beyond the adequacy of pensions and other forms of income support, which, though critical, often narrows policy thinking and debate about the needs of this age group.
- The index highlights that the best way to improve the lives of the current and future generations of older people is by investing in health, education and employment for young people today.

Why need such an index?

- India is often portrayed as a young society, with a consequent demographic dividend.
- But, as with every country that goes through a fast process of demographic transition, India also has greying cum aging problem.
- Without a proper diagnostic tool to understand the implications of its ageing population, planning for the elderly can become a challenge for policymakers.

Key Highlights from the Report:

- The Health System pillar observes the highest national average, 66.97 at an all-India level, followed by 62.34 in Social Well-being.
- Financial Well-being observes a score of 44.7, which is lowered by the low performance of 21 States across the Education Attainment & Employment pillar, which showcases scope for improvement
- States have performed particularly worse in the Income Security pillar because over half of the States have a score below the national average, i.e., 33.03 in Income Security, which is the lowest across all pillars.

Performance of the states

- Among all the states, Rajasthan and Himachal Pradesh are top-scoring regions in the aged states and relatively aged states categories.
- Rajasthan has a score of 54.61 in the aged states category while Himachal Pradesh has a score of 61.04 in relatively aged states.

- Mizoram has a score of 59.79 among northeastern states while Chandigarh scored 63.78 among the Union Territories.
- Jammu and Kashmir scored the lowest 46.16 among Union Territories.
- Arunachal Pradesh, among the northeastern states, scored the lowest score with 46.16.
- In the aged states and relatively aged states categories, Telangana and Gujarat scored the lowest with 38.19 and 49.00, respectively.

3. Bringing Minority Schools under RTE

The National Commission for Protection of Child Rights (NCPCR) has recommended that Minority Schools be brought under Right to Education and Sarva Shiksha Abhiyan.

What is the report?

- The report is titled “Impact of Exemption under Article 15 (5) with regards to Article 21A of the Constitution of India on Education of Children in Minority Communities”.
- It has assessed minority schools (schools run by minority organizations) in the country.

Key recommendations of the report

- Minority schools are exempt from implementing The Right to Education policy and do not fall under the government’s Sarva Shiksha Abhiyan.
- Through this report, the NCPCR has recommended that these schools be brought under both RTE and SA, amongst a host of other recommendations.

Developments in RTE

(1) 86th Constitutional Amendment (2002):

- In 2002, the 86th Amendment to the Constitution provided the Right to Education as a fundamental right.
- The same amendment inserted Article 21A, which made the RTE a fundamental right for children aged between six and 14 years.
- The passage of the amendment was followed by the launch of the Sarva Shiksha Abhiyan (SSA) that aimed to provide “useful and relevant, elementary education” to all children between six and 14 years.

(2) 93rd Constitutional Amendment (2006):

- In 2006, the 93rd CAA inserted Clause (5) in Article 15.

- This enabled the State to create special provisions, such as reservations for the advancement of any backward classes of citizens like SCs and STs, in all aided or unaided educational institutes, except minority educational institutes.

(3) RTE Act (2009):

- The government subsequently brought the Right to Education (RTE) Act, 2009, which centers around inclusive education for all, making it mandatory to include underprivileged children in schools.
- Specifically, Section 12(1)(c) of the Act provided for 25 percent reservation of seats in unaided schools for admission of children from economically weaker sections and disadvantaged groups.

How are minority schools exempt from RTE and SSA?

- Article 30 of the Constitution states the right of minorities to establish and administer educational institutions.
- This article aims to provide opportunities to children from different religious and linguistic minority communities to have and conserve a distinct culture, script and language.
- Subsequently, in 2012, through an amendment, the institutions imparting religious education were exempted from following the RTE Act.
- Later on, in 2014 (Pravasi judgement), while discussing the validity of exemption under Article 15 (5), the Supreme Court declared the RTE Act inapplicable to schools with minority status.
- This was in the view that the Act should not interfere with the right of minorities to establish and administer institutions of their choice.

Why has the NCPCR carried out the study?

- The Commission's objective was to assess the impact of this exemption of minority educational institutions from various guidelines that are mandatory for non-minority institutions.
- It opined that the different sets of rules under Article 21A, Article 30 and Article 15 (5) act as creating a conflicting picture between fundamental right of children and right of minority communities.

What are the findings of the report?

The Commission has observed in the report that many children who are enrolled in these institutions or schools were not able to enjoy the entitlements that other children are enjoying.

(1) Missionaries school are elite cocoons

- It has said there have been certain detrimental effects of the exemption – on the one hand there are schools, mostly Christian Missionary schools.
- Such schools are admitting only a certain class of students and leaving underprivileged children out of the system, thus becoming what the Commission has called “cocoons populated by elites”.

(2) Minorities schools become overcrowded without facilities

- As opposed to this, other types of minority schools, in particular madarasas, have become “ghettos of underprivileged students languishing in backwardness” says the Commission.
- The Commission has said that students in madarasas which do not offer a secular course along with religious studies – such as the sciences – have fallen behind and feel a sense of alienation and “inferiority” when they leave school.

What are the findings with regards to madarasas?

There are four kinds of madarasas in India:

1. Madarasas recognised by the government, which usually impart both religious as well as secular Courses, including the sciences has four per cent Mulsim students (15.3 lakh) said the Sachar Committee report.
2. There are 10,064 such madarasas in India and the Commission points out that these were the ones taken into consideration by the Sachar Committee when it said four percent Mulsim students (15.3 lakh) studied in madarasas.
3. There are unrecognized madarasas, which the government hasn't recognised because they do not impart secular education or lack in physical infrastructure, including the number and quality of teachers.
4. Then, there are unmapped madarasas that have never applied for recognition and function in a more informal setup – there is no data on how many such madarasas exist and how many students study there.

Why bring them under RTE?

- The Commission believes this took place as schools wanted to operate outside the legal mandate to reserve seats for backward classes.
- RTE provides for norms pertaining to basic minimum infrastructure, number of teachers, books, uniform, Mid-day Meal etc, benefits that students in minority schools have not been receiving.

4. Income Limit of OBCs and Creamy Layer

A proposal for revision of the income criteria for determining the Creamy Layer amongst the OBCs is under consideration of the Government.

What is the Creamy Layer?

- Creamy Layer is a concept that sets a threshold within which OBC reservation benefits are applicable.
- While there is a 27% quota for OBCs in government jobs and higher educational institutions, those falling within the “creamy layer” cannot get the benefits of this quota.

Basis of Creamy Layer

- It is based on the recommendation of the Second Backward Classes Commission (Mandal Commission).
- The government in 1990 had notified 27% reservation for Socially and Educationally Backward Classes (SEBCs) in vacancies in civil posts and services that are to be filled on direct recruitment.
- After this was challenged, the Supreme Court in the Indira Sawhney case (1992) upheld 27% reservation for OBCs, subject to exclusion of the creamy layer.

How is it determined?

- Following the order in Indra Sawhney, an expert committee headed by Justice (retired) R N Prasad was constituted for fixing the criteria for determining the creamy layer.
 - In 1993, the Department of Personnel and Training (DoPT) listed out various categories of people of certain rank/status/income whose children cannot avail the benefit of OBC reservation.
1. For those not in government, the current threshold is an income of Rs 8 lakh per year.
 2. For children of government employees, the threshold is based on their parents' rank and not income.
 3. For instance, an individual is considered to fall within the creamy layer if either of his or her parents is in a constitutional post; if either parent has been directly recruited in Group-A; or if both parents are in Group-B services.
 4. If the parents enter Group-A through promotion before the age of 40, their children will be in the creamy layer.

5. Children of a Colonel or higher-ranked officer in the Army, and children of officers of similar ranks in the Navy and Air Force, too, come under the creamy layer.
6. **Income from salaries or agricultural land is not clubbed while determining the creamy layer (2004).**

What is happening now?

- MPs have raised questions about the pending proposal for revising the criteria.
- They have asked whether the provision of a creamy layer for government services only for OBC candidates is rational and justified.

Has it ever been revised?

- Other than the income limit, the current definition of the creamy layer remains the same as the DoPT had spelled out in 1993 and 2004.
- The income limit has been revised over the years.
- No other orders for the definition of the creamy layer have been issued.
- While the DoPT had stipulated that it would be revised every three years, the first revision since 1993 (Rs 1 lakh per year) happened only in 2004 (Rs 2.50 lakh), 2008 (Rs 4.50 lakh), 2013 (Rs 6 lakh), and 2017 (Rs 8 lakh).
- It is now more than three years since the last revision.

What does the government propose to do about the revision?

- A draft Cabinet note has stated that the creamy layer will be determined on all income, including salary calculated for income tax, but not agriculture income.
- The government is considering a consensus on Rs 12 lakh but salary and agriculture income are also being added to the gross annual income.

5. Understanding the anxieties behind Chinese aggression towards India

Context

Chinese President Xi Jinping made a surprise visit to Tibet on July 21, signalling the seriousness with which China continues to take its Himalayan border dispute with India.

Understanding China's strategic challenges and intensions

- **Demonstration of political confidence through aggression:** More than a year after the clash at Galwan Valley, efforts to resolve the border crisis continue to move slowly.
- The Chinese side has previously failed to complete troop withdrawals and revert to the status quo that the Indian side believed China agreed to.
- China's behaviour has been calculated to demonstrate political confidence.
- **Worsening strategic environment for China:** Seen from Beijing, the strategic environment for China is beginning to worsen in South and Central Asia.
- As the US withdraws and the Taliban advances in Afghanistan, China fears the prospect of instability and an emerging haven for terrorism directed against its policies in Xinjiang.
- Even as China seeks to scale back the debt-laden BRI, such instability may also result in Beijing increasing its already overstretched external commitments – particularly in the security domain.
- **Re-emergence of Quad:** China is deeply worried by the re-emergence and strengthening of multilateral opposition to China, and the Quadrilateral Security Dialogue (or "Quad") between the US, Japan, Australia and India.
- For China, this represents a persistent threat not only economically and in foreign policy, but also militarily along its maritime periphery in the South and East China Seas, as well as the Taiwan Strait.
- As US multilateral cooperation with its partners has increased, Beijing has come to increasingly see itself as beset by threats on all sides.

China's 2 possible responses to strategic challenges and its implications for India

- **1) Wolf warrior diplomacy:** So far, the response from China's new class of "wolf warrior" diplomats to this emerging strategic challenge has been to only grow more assertive in rhetoric and behaviour.
- **China's domestic politics:** Response of wolf warrior diplomats may seem perplexing, given that it has served only to alienate other countries and isolate China further.
- China's domestic politics in the lead up to the 20th Congress will mean that its leaders, diplomats and generals will be displaying maximum nationalistic fervour.
- **Implications for India:** This may well mean China taking political and policy decisions, which in a normal season they would not because doing so could compromise Beijing's longstanding diplomatic and strategic goals, **including in dealings with India.**
- **2) Moderate approach to improve strategic position:** But if instead of aggressive posture, China decided that it was better domestic politics to improve **China's strategic position in Asia amid its competition with**

Washington, Beijing's diplomats may yet adopt a **more moderate approach, including with India.**

- **Implications for India:** If stability can be restored to the **China-India strategic relationship**, this could provide a window for Asia's two mega-economies to reopen their markets to each other.

Conclusion

Indeed, the choice China makes between these two alternatives will have implications for India and the rest of the world in their dealing with China.

GS 3 : Economy, Science and Technology, Environment

6. World Biofuel Day

Why in News

World Biofuel Day is observed on 10th August every year.

Key Points

- **About:**
 - It is observed to **raise awareness of the importance of non-fossil fuels as a substitute** for conventional fossil fuels.
 - **Ministry of New and Renewable Energy** in association with **UNIDO (United Nations Development Industrial Organisation)** and **GEF (Global Environment Facility - a financial mechanism)** launched **two schemes** on this occasion which are:
 - Interest Subvention Scheme.
 - GIS based inventory tool of organic waste streams.
 - Biofuels programme is also in synergy with Government of India's initiative of **Atmanirbhar Bharat**.
- **History:**
 - This day is observed **in honour of Sir Rudolf Diesel**. He was the inventor of the diesel engine and was the first to predict the possibility of vegetable oil replacing fossil fuels.
- **Theme for 2021:**
 - It is based on the promotion of biofuels for a better environment.
- **Celebrated by:**
 - Ministry of Petroleum and Natural Gas since 2015.

- **Significance:**
 - Any hydrocarbon fuel that is **produced from an organic matter** (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel.
 - Examples of Biofuel include **ethanol, biodiesel, green diesel and biogas**.
 - Biofuels help in reducing the dependence on crude oil and fostering a cleaner environment.
 - It also generates additional income and employment for rural areas.
 - This will not only help meet India's rural energy needs but also fulfill the rising demands for transportation.
 - The use of carbon fuels will reduce carbon emissions and meet the energy requirements of the 21st century.
- **Interest Subvention Scheme:**
 - It provides **financial assistance to innovative waste to energy biomethanation projects** and business models.
 - The industrial organic waste-to-energy bio-methanation projects are **generally capital intensive and financially sensitive to both operating costs, including waste availability, and revenue**, particularly biogas yield and its utilization scenario.
 - Innovations in such projects **seek to improve overall energy output thereby minimizing the cost of energy generation** but may lead to increase in the initial project cost at the establishment stage yet increase revenue and reduce operating costs over project's lifetime.
 - The loan scheme provides financial assistance to beneficiaries to reduce the financial burden on account of interest on the loan component faced by such demonstration projects.
- **Inventory Tool Of Organic Waste Streams:**
 - The tool provides district level estimates of available urban and industrial organic wastes and their energy generation potential across India.
 - The **GIS (Geographic information system)** tool will enable **SMEs (Small and Medium Enterprises)** and project developers to set up new waste to energy projects and may facilitate the rapid growth of biomethanation in the waste-to-energy sector in the country.

Biomethanation

- Biomethanation is a process by which organic material is microbiologically converted under anaerobic conditions to biogas.

- Three main physiological groups of microorganisms are involved: fermenting bacteria, organic acid oxidizing bacteria, and methanogenic archaea.
- Microorganisms degrade organic matter via cascades of biochemical conversions to methane and carbon dioxide.

Govt Initiatives to Promote Biofuels

- **Blending of biofuels: Ethanol Blended Petrol (EBP) programme,** Administrative price mechanism for ethanol, Simplifying the procurement procedures by Oil Marketing Companies (OMCs), amending the provisions of Industries (Development & Regulation) Act, 1951 etc are some of the initiatives taken to promote blending of biofuels.
- Researchers at the International Centre for Genetic Engineering and Biotechnology (ICGEB) are developing a method to use **cyanobacterium for biofuel production.**
- Recently, the Central government has also allowed the **conversion of surplus rice to ethanol.**
- **Pradhan Mantri JI-VAN Yojana, 2019:** To create an ecosystem for setting up commercial projects and to boost Research and Development in 2G Ethanol sector
- **GOBAR (Galvanizing Organic Bio-Agro Resources) DHAN scheme:** It focuses on managing and converting cattle dung and solid waste in farms to useful compost, biogas and bio-CNG, thus keeping villages clean and increasing the income of rural households.
- **Repurpose Used Cooking Oil (RUCO):** It was launched by **Food Safety and Standards Authority of India (FSSAI)** and aims for an ecosystem that will enable the collection and conversion of used cooking oil to biodiesel.
- **National Policy on Biofuels, 2018:** It expands the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production.

Way Forward

- Promotion of the use of biofuels in transportation in countries like India will help in reducing the crude import bill.
- India being a large agricultural economy, there is a large amount of agricultural residues available, therefore the scope of producing Biofuels is immense in the country. Biofuels can help in rural and agricultural development in the form of new cash crops.

- Efforts for producing sustainable biofuels should be made by ensuring use of wastelands and municipal wastes that get generated in cities. A properly designed and implemented biofuel solution can provide both food and energy.
- A community-based biodiesel distribution programme that benefits local economies, from the farmers growing the feedstock to local businesses producing and distributing the fuel to the end consumer, will be a welcome step.

7. Why central government schemes for discoms have not worked

Context

A recent report of Niti Aayog has assessed the losses of discoms to be about Rs 90,000 crore in 2020-21.

Central government schemes for discoms

- In 2001, the **Accelerated Power Development Scheme** was initiated.
- This was followed by various other schemes with some differences between them.
- The government had launched the **UDAY scheme in 2015**.
- **UDAY did not involve any monetary assistance** to the states, but only promised to help the states in reducing the cost of power through coal linkage rationalisation, etc.
- Recently, the government launched a new scheme with the total outlay of around Rs 3.03 lakh crore.
- It seeks to improve the distribution infrastructure of the distribution companies (discoms) with the primary intention of improving their financial health.
- The objective of the scheme is to bring down commercial losses in the range of 12-15 per cent and also reduce the difference between the **average cost of supply (ACS) and average revenue realised (ARR) to zero by 2024-25**.
- The problem with all these schemes (including UDAY) is that they have not delivered and the financial position of the discoms has only worsened.

Why did schemes fail to improve the financial health of discoms?

- **Reduction of loss is a managerial issue:** Reduction of commercial losses is not really about improving infrastructure, it is **more of a managerial issue**.
- The average losses (inclusive of technical and commercial) is about 22 per cent today.

- But several discoms have losses in excess of 40 per cent.
- It is possible to bring down losses from 40 per cent to about 15 per cent without any significant investments in infrastructure.
- Investments, however, would be required to bring down losses further to a single-digit level.
- **Governance issues of scheme:** The governance of these reform-linked schemes is a complex issue.
- The two most popular parameters which are monitored are the loss levels and the difference between **the ACS and ARR**.
- There are inherent problems with these parameters since they **keep fluctuating** and it is very difficult to fathom their trend on a quarter-wise basis, **rendering the release of funds to be tricky and cumbersome**.
- In the scheme now announced by the government, **about 26 parameters** will be taken into consideration and assigned a score.
- For some of the parameters, it may be difficult to assign a score across discoms which may lead to some amount of subjectivity.

Way forward: Alternate approach

- **Provide transitional financial support:** An alternate approach that could be considered by the Centre (in lieu of such assistance schemes) is providing only **transitional financial support** to all discoms, which are **privatised under the private-public partnership mode**.
- A transitional support of Rs 3,450 crore spread over five years proved to be exceedingly beneficial in case of discoms in Delhi.
- **Promote privatisation:** Since in an earlier policy statement the government had mentioned that **privatisation of discoms is to be promoted**, it would make sense to consider this transitional support as a catalyst.

Conclusion

Adopting this approach will ensure that the central government moves away from the micro-management of discoms, which inevitably happens if the release of funds is linked to reform-linked parameters on a quarter-wise basis.

Prelims Practice Questions

1. “Momentum for Change: Climate Neutral Now” is an initiative launched by:

- a. The Intergovernmental Panel on climate change
- b. The UNEP Secretariat
- c. The UNFCCC Secretariat
- d. The World Meteorological Organization

Answer: c

Explanation:

- The UNFCCC Secretariat launched its Climate Neutral Now initiative in 2015. The following year, the secretariat launched a new pillar under its Momentum for Change initiative focused on Climate Neutral Now, as part of larger efforts to showcase successful climate action around the world.

2. Which of these mountain passes is/are located in Ladakh?

1. Zoji La
2. Nathu La
3. Bomdi La
4. Muling La

Option:

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

Answer: c

Explanation:

- Nathu La: Sikkim
- Bomdi La: Arunachal Pradesh
- Muling La: Uttarakhand

3. Consider the following statements:

1. Palm oil is currently the most consumed edible oil in India and in the world.
2. India's palm oil exports comprise more than 50% of its total vegetable oil exports.

Which of the statements given above is/are correct?

- A 1 only
- B 2 only
- C Both 1 and 2
- D Neither 1 nor 2

Answer : A

Explanation

- **Palm oil is currently the world's most consumed vegetable oil.**
 - It is used extensively in the production of detergents, plastics, cosmetics, and biofuels.
- **Top consumers of the commodity are India, China, and the European Union (EU). Hence, statement 1 is correct.**
 - India is the largest consumer of vegetable oil in the world. Of this, **palm oil imports are almost 55%** of its total vegetable oil imports. **Hence, statement 2 is not correct.**
- India produces less than half of the roughly 2.4 crore tonnes of edible oil that it consumes annually.
 - It imports the rest, buying palm oil from Indonesia and Malaysia, soyoil from Brazil and Argentina, and sunflower oil, mainly from Russia and Ukraine.
 - In India, 94.1% of its palm oil is used in food products, especially for cooking purposes. This makes palm oil extremely critical to India's edible oils economy.

4. With reference to the Asiatic lion, consider the following statements:

1. It is a critically endangered species under the IUCN Red list.
2. Gir forests in Gujarat is its only natural habitat.
3. Project Lion was launched in 2020 for the conservation of the Asiatic Lion.

Which of the above statements is/are correct?

- A 1 only
- B 2 only
- C 2 and 3 only

D 1, 2 and 3 only

Answer : C

Explanation

- India is the only home to the **majestic Asiatic Lion**, which **inhabits the protected territory of Sasan-Gir National Park (Gujarat)**. Hence, **statement 2 is correct**.
- **Protection Status:**
 - **IUCN Red List: Endangered.**
 - CITES: Appendix I for populations of India, all other populations are included in Appendix II.
 - Wildlife (Protection) Act 1972: Schedule I
 - **Hence, statement 1 is not correct.**
- The **Project Lion** was launched **in 2020** by the Union Ministry of Environment, Forests and Climate Change (MoEFCC) **for the conservation of the Asiatic Lion**.
 - It focuses on the last remaining wild population in Gujarat's Asiatic Lion Landscape (ALL).
 - It was launched on the lines of Project Tiger and Project Elephant.
 - **Hence, statement 3 is correct.**

5. With reference to Ujjwala 2.0 scheme, consider the following statements:

1. It aims to provide a deposit-free LPG connection and first refill to BPL households.
2. It is implemented by the Ministry of Rural development.

Which of the above statements is/are correct?

A 1 only

B 2 only

C Both 1 and 2

D Neither 1 and 2

Answer : A

Explanation

- Under **Ujjwala 1.0**, the target was to provide LPG connections to 50 million women from below poverty line (BPL) households, by March 2020. Under **Ujjwala 2.0**, **an additional 10 million LPG connections** will be provided to the beneficiaries.

- Along with a deposit-free LPG connection, Ujjwala 2.0 will provide the first refill and a hotplate free of cost to the beneficiaries. Hence, statement 1 is correct.
- The Ministry of Petroleum and Natural Gas (MoPNG) is the nodal agency to implement the Ujjwala scheme. Hence, statement 2 is not correct.

6. Consider the following statements with respect to Mission Innovation (MI)

1. It is a global initiative of 24 countries and UNDP for catalysing energy trade.
2. It aims to demonstrate clean energy affordable, attractive and accessible for all.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Mission Innovation (MI)

- Mission Innovation (MI) is a global initiative of 22 countries and the European Commission (on behalf of the European Union).
- It was launched during 21st Conference of the Parties (COP 21) UNFCCC in November 2015.
- It catalyses a decade of action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible for all.
- India is a member of this mission.
- Department of Biotechnology is the nodal agency for coordinating national efforts in clean energy R&D under the mission.

Mains Practice Questions

1Q. 'Informal workers in rural and urban areas have been hit the most due to the pandemic.' In the light of the statement discuss the need for a comprehensive plan for the welfare of the informal sector workers. (250 words)

Approach

- Introduce by explaining the given statement how informal workers in rural and urban areas have been hit the most due to the pandemic.
- Discuss the need for a comprehensive plan for the welfare of the informal sector workers.
- Suggest some measures which can be taken in this regard.
- Conclude suitably.

2Q. Make in India, which was envisaged to boost manufacturing in India, has failed to meet its objective. Critically examine. (150 words)

Approach

- Briefly mention the aims and objectives of 'Make in India' campaign.
- Give a comparative analysis of its objectives and respective outcomes achieved.
- Mention the issues faced by Indian manufacturing sector.
- Conclude by mentioning a few steps taken by government and suggestions to improve the situation.

