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GENERAL STUDIES 1.

GEOGRAPHY

Deluge after deluge

Context:

- Kerala and Uttarakhand are reliving their flood nightmares of recent years.
- Over 80 people have lost their lives in these two States, with crops and property worth thousands of crores being destroyed.

Background

- In 2018, Kerala lost nearly 500 people to floods, while in Uttarakhand a greater number of pilgrims were washed away in the swirling waters of the Bhagirathi, Mandakini and Alaknanda in 2013.
- These might have been epochal disasters, but cloudbursts, flash floods and very heavy rain in September and October have become the norm.
- It coincides with the now-destructive retreating Southwest monsoon and cyclones originating in both the Bay of Bengal and Arabian Sea.

Impacts

- This is leading to crop losses as well.
- The 'unseasonal' rain could impact the output of tea, coffee, rubber, and cardamom in Kerala, besides West Bengal's premium rice variety, Gobindobhog.
- It is expected to have damaged soybean, onion, urad, moong and cotton crops in central India.
- Climate change is here; scientists attribute the extreme weather events to the warming of our oceans, the Arabian Sea in particular in recent times.
- Its economic effects cannot be wished away any more.

Concerns

- Steps to mitigate the impact of weather events are not on the radar of the political class.
- The effects of floods are rendered worse by illegal mining and construction on river beds and ecologically sensitive zones, as has been documented by a recent CAG report on such violations in Kerala.

- The report documents wholesale violations of Coastal Regulatory Zone rules by hotels, builders and other commercial entities.
- The Gadgil Committee report had earlier observed in 2011 that Kerala should not promote commercial activity in the ecologically sensitive zones earmarked by it.
- Kerala has rejected the Gadgil report, making common cause with neighbouring Karnataka.
- The two States are not willing to accept the watered-down proposals of the subsequent Kasturirangan panel report either.
- Not surprisingly, the hilly and touristy regions of Munnar, Wayanad and Kodagu are badly affected year after year.
- In Uttarakhand, the excessive construction of hydel and road projects has led to increased floods and landslides.

Way Forward

- As the CAG report makes obvious, powerful vested interests are allowed to violate laws and rules with impunity.
- A civil society response alone can exert pressure on the political class to change course.
- Climate change needs to be combated not just through a technology shift in transport and energy, but also by creating carbon sinks — green cover that will help contain episodes of freak weather as well as keep its destructive effects to the minimum.

Related facts

Flash Floods:

- These are sudden surges in water levels generally during or following an intense spell of rain.
- These are highly localised events of short duration with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.
- The flood situation worsens in the presence of choked drainage lines or encroachments obstructing the natural flow of water.

Causes:

- It may be caused by heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields.
- Flash Floods can also occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).
- In areas on or near volcanoes, flash floods have also occurred after eruptions, when glaciers have been melted by the intense heat.
- The intensity of the rainfall, the location and distribution of the rainfall, the land use and topography, vegetation types and growth/density, soil type, and soil water- content all determine just how quickly the Flash Flooding may occur, and influence where it may occur.

Mitigation:

- Instead of valleys, people should live in areas on slopes with firm ground for safety reasons.
- In areas where ground fissures have developed, appropriate steps should be taken to check the infiltration of rainwater and surface water.
- Banning "indiscriminate" and "unscientific" construction works.

The Hindu link:

<https://www.thehindubusinessline.com/opinion/editorial/terrifying-floods-have-become-commonplace-but-lessons-are-not-being-learnt/article37128950.ece>

Question: The high losses and damages due to floods show the poor adaptation and mitigation status of India and inadequacy in disaster management and preparedness. In light of this statement, analyse the need for an integrated flood management framework in India?

Is India ready for a world where electric vehicles will dominate transportation?

Context:

- Industrialisation has closely followed our ability to move quickly between vast distances. With the dependence of humanity on fossil fuels, a new international power order also emerged — countries that exported oil.
- The Organisation of Petroleum Exporting Countries (OPEC) comprises Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia, the United Arab Emirates and Venezuela.
- The dominant power or de facto leader of OPEC is Saudi Arabia, ruled by the House of Saud.
- In each of these countries, ruling oligarchies were enriched by the oil wealth that flowed in, while their people may not have quite benefitted.

Revolution of Electric vehicles

- To survive in the new world of EVs, grand old American car companies like General Motors and Ford are busy establishing factories that will make EV batteries.
- The largest suppliers of lithium-based EV batteries are reported to be the Chinese company — Contemporary Amperex Technology and the South Korean company LG.
- If this is so, then a new global order is emerging to replace OPEC.

What is an EV?

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- An EV operates on an electric motor instead of an internal combustion engine and has a battery instead of a fuel tank.
- In general, EVs have low running costs as they have fewer moving parts and are also environmentally friendly.
- In India, the fuel cost for an EV is approximately 80 paise per kilometre.
- Contrast this with the cost of petrol which is today Rs 107 per litre in Delhi, or Rs 7-8 per kilometre to operate a petrol-based vehicle.
- EVs are typically powered by lithium-based batteries.
- These batteries need to be charged usually every 200-250 kilometres or so for a car. So, you need a dense proliferation of charging points.

India and electric vehicles

- India has the dubious distinction of having nine of the 10 most polluted cities in the world. These nine cities, all in north India, include Greater Noida, Noida, Lucknow, and Delhi.
- While many factors contribute to the polluted air, skies and human lungs of northern India, vehicular pollution bears substantial responsibility.
- The EV market in India is projected to reach \$700 million in 2025, a dramatic jump from \$71 million in 2017 — a 10-fold increase in under a decade.

Government initiatives:

- In 2013, the Government of India formulated the National Electric Mobility Mission Plan that committed to ensuring that by 2030, at least 30 percent of vehicles on our streets would be electric. This deadline is unlikely to be met.
- The Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme in 2019, commits to providing incentives in terms of subsidies and supporting technology to encourage the manufacturing and purchase of electric vehicles.
- With a budget of around \$1.5 billion, FAME provides a mixture of road and registration tax subsidies for EV purchasers.
- Private initiatives: Companies like Amazon, Swiggy, Zomato and Ikea are deploying EVs for deliveries. Car manufacturers like Mahindra are partnering with consumers like Ola, while Tata Motors is partnering with Blu Smart Mobility in moves that will ensure more EV delivery and ride-hailing services.

Challenges:

- Lack of charging infrastructure in India: It takes up to 12 hours for a full charge of a vehicle at the owner's home using a private light-duty slow charger.
- To compound this technological problem of slow charging at home, there are only 427 charging stations around the country.
- This is woefully inadequate in a country as large and densely populated as ours.

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- One in which those who make and charge EVs will dominate the transportation world. India must plan for its place in this order — with better-charging infrastructure, battery-making factories and smart incentives for car companies and consumers to go electric. Most importantly, we must have an uninterrupted electricity supply. For, the next revolution in transportation is electric and it's already underway.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/electric-vehicles-india-benz-motors-7598047/>

Question- The electric vehicle revolution in transportation is here, but India is ill prepared for it. Comment.



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SOCIAL ISSUES

A reminder that India still trails in the hunger fight

Context:

- The recent Global Hunger Report (GHR) 2021 ranks India at 101 out of 116 countries, with the country falling in the category of having a 'serious' hunger situation.
- India is also among the 31 countries where hunger has been identified as serious.
- India ranked 94 among 107 countries in the Global Hunger Index (GHI) 2020, released last year.
- The ranks are not comparable across years because of various methodological issues and so it is wrong to say that India's standing has fallen from 94 (out of 107) in 2020.
- The Government of India refuted the GHI, claiming that it is 'devoid of ground reality' and based on 'unscientific' methodology.

Background:

Global Hunger Index (GHI)

- Annual Report: Jointly published by Concern Worldwide and Welthungerhilfe.
- Aim: To comprehensively measure and track hunger at the global, regional, and country levels.
- Calculation: It is calculated on the basis of four indicators
- Undernourishment (percentage of undernourished in the population (PoU))- it refers to the share of the population of a country that has an insufficient calorie intake. (weight of one-third each)
- Child wasting - it refers to the share of children under the age of five who have comparatively low weight for their height which reflects acute undernutrition. (one-sixth weightage)
- Child stunting - refers to the share of children under the age of five who have a low height for their age. This reflects chronic undernutrition among them. (weight of one-third each)
- Child mortality - it is the mortality rate of children in a country under the age of five. (one-sixth weightage)

Scoring methodology

- The global hunger index determines the score of a country based on the above 4 indicators 100 point scale where zero is the best possible score reflecting no hunger 100 is the worst situation.
- Every country's GHI score is classified by severity from low to extremely alarming.
- Each indicator is standardised based on thresholds set slightly above the highest country-level values.

Government's objection

- The Government's objection to the methodology is that the assessment is based on the results of a 'four question' opinion poll, which is not based on facts.
- But the report is based on the percentage of undernourished in the population -PoU data of the Food and Agriculture Organization of the United Nations (FAO).
- PoU is an estimate of the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels that are required to maintain a normal active and healthy life.
- PoU is estimated taking into account a number of factors such as food availability, food consumption patterns, income levels and distribution, population structure, etc.
- In the absence of food consumption data in most countries, this indicator is an estimate based on a modelling exercise using available data; therefore, there is some margin of error.
- Most of the criticism of the FAO's PoU data has been about how it underestimates hunger rather than over.
- Therefore, while there is scope for a valid discussion on the GHI methodology and its limitations, this objection by the Government is not warranted.

Concerns for India

- Slow rate of progress: India shows a worsening in PoU and childhood wasting in comparison with 2012. It is the PoU figure of 15.3% for 2018-20 that the Government is contesting.
- Comparable values of the index have been given in the report for four years, i.e., 2000, 2006, 2012 and 2021.
- While the GHI improved from 37.4 to 28.8 during 2006-12, the improvement is only from 28.8 to 27.5 between 2012-21.
- The partial results of the National Family Health Survey-5 (2019-20) also show that stunting and wasting indicators have stagnated or declined for most States for which data is available.
- The leaked report of the consumption expenditure survey (2017-18) also showed that rural consumption had fallen between 2012-18 and urban consumption showed a very slight increase.
- The Survey Collects information on the consumption spending patterns of households across the country, both urban and rural.
- It is conducted by the National Sample Survey Office - NSSO Ministry of Statistics and Programme Implementation.

COVID-19 impact

- It must also be remembered that all the data are for the period before the COVID-19 pandemic.
- The situation of food insecurity at the end of the year 2020 was concerning, and things are most likely to have become worse after the second wave.
- Many of these surveys find that over 60% of the respondents say that they are eating less than before the national lockdown in 2020.

- Services such as the Integrated Child Development Scheme (ICDS) and school mid-day meals continue to be disrupted in most areas, denying crores of children the one nutritious meal a day they earlier had access to.
- Cuts for schemes: The only substantial measure has been the provision of additional free food grains through the Public Distribution System (PDS).
- It leaves out about 40% of the population, many of whom are in need and includes only cereals.
- Inflation in other foods, especially edible oils, has also been very high affecting people's ability to afford healthy diets.
- On the one hand, while we need additional investments and greater priority for food, nutrition and social protection schemes, Budget 2021 saw cuts in real terms for schemes such as the ICDS and the mid-day meal.
- Integrated Child Development Services (ICDS) is an Indian government welfare programme that provides food, preschool education, and primary healthcare to children under 6 years of age and their mothers.
- The Midday meal scheme (under the Ministry of Education) is a centrally sponsored scheme which was launched in 1995.
- It is the world's largest school meal programme aimed to attain the goal of universalization of primary education.
- The national Mid-Day Meal Scheme in government and aided schools popularly will now be known as PM POSHAN Scheme and will also cover students of balvatikas or pre-primary classes
- The argument that the GHI is an indicator of undernutrition and not hunger, is only diverting attention away from more substantial issues. Of course, malnutrition is affected by a number of factors (such as health, sanitation, etc.) other than food consumption alone, but that in no way means those healthy diets are not central. There is no denying that diverse nutritious diets for all Indians still remain a distant dream.

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/a-reminder-that-india-still-trails-in-the-hunger-fight/article37168319.ece>

Question- Write a short note on impact of the pandemic on India's hunger scenario.

GENERAL STUDIES 2.

INTERNATIONAL RELATIONS

India's quest for a road to Central Asia

Context:

- In a speech at the Shanghai Cooperation Organization (SCO) meet on 17 September, Prime Minister Narendra Modi dwelt on how Central Asia had been a connectivity bridge between various regional markets at different points in history.
- In the 21st century, India was committed to increasing its connectivity with land-locked Central Asia.

More in News

- The land-locked Central Asian countries can benefit immensely by connecting with India's vast market. Unfortunately, many connectivity options are not open to them today due to the lack of mutual trust.
- India's investment in Iran's Chabahar port and efforts towards the International North-South (Transit) Corridor (INSTC) are driven by this reality.

India and Central Asian relations

- India's decades-old wish of New Delhi to connect with the resource and fuel-rich Central Asian nations.
- Since the emergence of the Central Asian Republics as independent countries in the early 1990s, New Delhi has been trying to establish contacts with those countries and boost trade opportunities.
- Analysts have repeatedly spoken about the potential to collaborate in a variety of areas—from construction, sericulture and pharmaceuticals to IT and tourism.
- India's trade with the five Central Asian Republics—Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan—was below \$ 2 billion in 2018.
- Much of this trade was routed through Iran, Russia or the United Arab Emirates (UAE).
- In contrast, China's trade with Central Asia was \$50 billion-\$60 billion in the same period.

Advantage to China

- The obvious advantage in China's favour is geographical proximity.

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- In India's case, tensions with Pakistan mean there is no viable land route towards Central Asia. And New Delhi's efforts to look for a circuitous route via Iran (and Afghanistan) have floundered due to US sanctions aimed at containing Tehran's suspected nuclear weapons programme.
- It is in the context of this potential Iran-Afghanistan bypass route that recent events acquire broader geopolitical relevance for India.

Concerns

- The takeover of Afghanistan by the Pakistan-backed Taliban on 15 August has severely set back India's plans in Central Asia—at least for now.
- The road ahead in the short term is difficult as India doesn't seem to have any real leverage to get the connectivity projects with Central Asia going. India has been negotiating with individual bilateral partners though," he said.

Central Asia's importance

- While Central Asia is seen as fuel-rich and, hence, important for an energy-starved India, critics argue that with the world switching to greener sources of fuel, the region's relevance would start diminishing in due course.
- But the Central Asian states are also mineral-rich, and Kazakhstan, for one, has been a source of uranium for India's nuclear power plants. A country like India which is seen as a major economy has to have a presence in these markets.
- Another reason is that India can forge a common position on terrorism and radicalization, which is a matter of concern to the region as much as it is to India.. In recent years, New Delhi has engaged with Central Asian Republics in the defence sphere through military exercises.
- Political and economic engagement would also be important, given the imperatives of working together at a body such as the United Nations (UN).
- There is huge scope for collaboration in areas like building (power) transmission lines and contract farming; our people have set up universities there—Sharda and Amity are examples.
- There is scope for collaboration in the dairy sector too. Our people have been setting up pharmaceutical units in Russia that can serve these countries as well.
- There is a cultural connection. (Bollywood stars like) Raj Kapoor and Mithun Chakraborty are famous in these countries.
- It is this that we need to develop into stronger bonds of trade and commercial bonds which will be possible once the INSTC (international transit corridor between India and Europe via Iran, Central Asia and Russia) fructifies.

Routes to Central Asia

- In the 1990s, just years after the 1991 Soviet breakup, India explored a route through Iran's Bandar Abbas port and Mashad—near the border with Turkmenistan—to Central Asia.
- This coincided with the first period of the Pakistan-backed Taliban in Afghanistan (between 1996 and 2001). But this project did not succeed.
- In 2000, India, Iran and Russia agreed on a new route for trade that later came to be known as INSTC.

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- It was aimed at cutting the costs and time in moving cargo between Russia and India. The pact was ratified in 2002 and the original multi-modal route linked Mumbai in India to Bandar Abbas and Bandar-e-Anzali in Iran, then across the Caspian Sea to Astrakhan, Moscow and St. Petersburg in Russia.
- Over the years, more countries joined the INSTC; the 7,200-kilometre multi-modal project with thousands of kilometres of all-weather highways now include Afghanistan, Azerbaijan, Central Asia, and Europe as offshoots of the original plan.
- In 2003, India and Iran announced the development of the Chabahar port in the Sistan-Balochistan province.
- The idea was to find a route bypassing Pakistan to Afghanistan.
- The original idea was that India would construct the road linking Zaranj, the capital of Afghanistan's Nimroz province and on the Afghan-Iran border, with Delaram, which was part of the road linking Herat in the west to Mazar-e-Sharif (close to the Afghan-Uzbek border in the north).
- Once Chabahar was complete, this would serve as an alternate route to Central Asia. That was New Delhi's calculation.
- While India completed the Afghan road project in 2008, Indian officials said delays on the Iranian side resulted in New Delhi taking up the development of Chabahar as well to ensure that the project was completed.
- But repeated US sanctions on Iran for its suspected nuclear programme meant that Indian firms were reluctant to participate in the projects, leading to cost and time overruns.
- Sanctions on Iran have played a major role in slowing down the INSTC.

The Pakistan-China factor

- Cut to 2021, with the Taliban in power in Kabul, India's "Connect to Central Asia" plans seem to have come undone again.
- With signs of friction within the Taliban and most of the commerce in the region being conducted by private traders, "there is room to watch the situation carefully."
- With aid cut off by global donors after the Taliban takeover, Afghanistan's revenues have plummeted, the revenues of the current government in Kabul totalled some \$2 billion—approximately \$1.5 billion from the opium trade and \$500 million from customs duties.
- If the TAPI (Turkmenistan-Afghanistan-Pakistan-India) gas pipeline materializes, any government in Kabul could get transit fees worth around \$400 million annually.
- That could be a good reason for them to agree to guarantee security for the pipeline to India.

Current Status of India

- For now, India is keeping out a Taliban-controlled Afghanistan from a quadrilateral grouping that has been proposed to discuss the use of Chabahar port.
- At this point, alternatives to Indian connectivity projects also seem to be taking shape.

- Pakistan, Uzbekistan, US and Afghanistan are expected to hold talks on a connectivity initiative announced in July 2021. Earlier this year, representatives of Uzbekistan, Afghanistan and Pakistan agreed to a road map for the Mazar-i-Sharif-Kabul-Peshawar railway project.
- “Pakistan’s obstructionist attitude has played a big role in keeping India out of Central Asia. There was a plan to bring electricity from Tajikistan to India via Afghanistan and Pakistan. But Pakistan played spoilsport.
- Given its close ties with China, Pakistan would likely push Afghanistan to join connectivity projects initiated by Beijing and not New Delhi, analysts said. According to Kondapalli, China has so far announced \$100 million for improving connectivity in Afghanistan. “It seems China is playing a waiting game,” he said. “In the past 20 years, Beijing has made considerable inroads into the region, boosting trade and co-opting Central Asian states into its Belt and Road Initiative,” Kondapalli said. “There are four energy pipelines from Central Asia to China, one implemented and three in the final stages,” he said.

Way Forward

- India will be seen as competition to China. Central Asian states may want India there as a counterweight to China, which could be advantageous to us.
- With the Joe Biden-led administration taking office in US, and Iran and the International Atomic Energy Agency (IAEA) beginning talks to salvage the nuclear deal, analysts said that the INSTC could be India’s best option.
- Earlier this month, the UN’s atomic watchdog reached an agreement with Iran to solve “the most urgent issue” between them—the overdue servicing of monitoring equipment to keep it running, raising hopes of fresh talks on a wider deal.

The Live Mint Link:

<https://www.livemint.com/>

Question: A number of outside powers have entrenched themselves in Central Asia, which is a zone of interest to India. Discuss the implications of this on India?

QUAD Summit

Context:

- Indian Prime Minister along with his counterparts from Australia and Japan attended the first in-person summit of Quad leaders hosted by the US President.
- The first in-person summit of the Quad powers — Australia, Japan, India and the United States — has clearly advanced the work begun by the virtual summit.
- It is necessary to critically analyse the summit’s outcome in order to appreciate the development and formalisation of a new grouping and its direction in the coming years.

Key takeaways of the summit

- Joint statement: The leaders' emphasized commitment to "a free and open Indo-Pacific, which is also inclusive and resilient". Promoting security and prosperity in this region is a goal to be achieved through practical cooperation among the four powers.
- Self-image of Quad: The US President portrayed the Quad as a group of democratic partners "who share a worldview and have a common vision for the future".
- The Indian Prime Minister was confident that the Quad would "play the role of a force for global good".
- The Australian Prime Minister stressed on the point that the grouping wanted the Indo-Pacific region to "be always free from coercion". It was an indirect criticism of China's policy.
- The Japanese Prime Minister projected the Quad as "an extremely significant initiative", designed to promote "a free and open international order based on the rule of law in the Indo-Pacific".
- New areas of collaboration: The Washington summit added new areas of collaboration: infrastructure; cybersecurity and space; education and people-to-people relations.
- Infrastructure: The plan is to promote "sustainable infrastructure", with a stress on aligning the Quad with the G7's Build Back Better World (B3W) Partnership, based on the G20's quality infrastructure investment principles.
- The Build Back Better World (B3W) initiative, will provide a transparent infrastructure partnership to help narrow the \$40 trillion.
- The G7 and its allies will use the B3W initiative to mobilise private-sector capital in areas such as climate, health and health security, digital technology, and gender equity and equality.
- The Quad can focus on four key B3W elements: digital connectivity, climate, health security and gender equality infrastructure.
- The formation of an infrastructure coordination group composed of senior officials was announced. It will map and coordinate infrastructure needs and catalyse private-sector investment.
- On cybersecurity, the Quad will cooperate on combating cyber threats and securing critical infrastructure.
- On the space front, the plan is to identify new collaboration opportunities, especially sharing of data to monitor climate change, disaster response and preparedness, and sustainable uses of ocean and marine resources.
- A senior cyber group and a new working group on space will be established.
- On education, the Quad fellowship programme will award 25 scholars from each Quad country — opportunities in leading STEM (Science, technology, engineering, and mathematics) programmes in the U.S.
- The three working groups on vaccines, climate and emerging technologies established last March, have reported progress.
- On vaccines, the Quad stands committed to donate over 1.2 billion doses globally, although only 79 million doses have been delivered so far.
- The production of vaccines in India — with the target of "at least 1 billion doses" of COVID-19 vaccines by the end of 2022 — is on track.

- Vaccines are for free distribution in the Indo-Pacific region. Sufficient funding has been assured by Japan and Australia.
- Further research and step-up preparedness to handle future pandemics.
- Climate change: The Quad working group on climate change has focused on three thematic areas: climate ambition, clean-energy innovation, and climate adaptation and resilience.
- The Quad leaders emphasised enhanced action for achieving global net-zero emissions preferably by 2050, with an important clause — “taking into account national circumstances” — added at India’s instance.
- A Quad shipping task force has now been launched to build a green-shipping network and green port infrastructure.
- Critical and emerging technologies: Developing 5G and beyond 5G networks; supply chains of critical minerals including semiconductors; and emerging advances in biotechnology.
- To be successful, building the supply chains will need expert resources and coordination from each country.
- A contact group on Advanced Communications and Artificial Intelligence will focus on standards-development and foundational research.
- Cooperation among the Quad members in the areas mentioned will help the grouping to address the economic and technological challenges posed by China.

Significance of Quad-ASEAN and Quad-EU relations:

- Regionally, the Quad sees the Association of Southeast Asian Nations (ASEAN) as “the heart of the Indo-Pacific region”.
- Together with the small island States in the South Pacific, ASEAN countries gain benefit from growing cooperation within the Quad.
- The European Union (EU) Strategy for Cooperation in the Indo-Pacific was welcomed by the Quad. The EU is also looking to launch the “Global Gateway” as a scheme to compete with China’s Belt and Road Initiative (BRI).
- The EU faces challenges like potential risks of emerging technologies, ensuring supply chain resilience, and countering disinformation in the Indo-Pacific region.

Challenges for Quad:

- Strategic, defence and maritime security: Those will stay outside the formal framework of the Quad for now.
- Maritime security will continue to be strengthened through
- Bilateral 2+2 Ministerial tracks;
- The four-powers Malabar Exercise; and
- Other bilateral or trilateral arrangements such as AUKUS (the new trilateral security pact between Australia, the United Kingdom and the U.S.).

- AUKUS is a trilateral security pact between Australia, the United Kingdom and the United States for the Indo-Pacific region. Under the pact, the US and the UK will help Australia to acquire nuclear-powered submarines.
- The Quad wants a positive orientation, rather than be seen as an 'Asian NATO'.
- On the Afghanistan issue, the decision to "closely coordinate" policies and next steps will be watched as the U.S. comes under strong pressure to show flexibility towards the interim Taliban government.
- The institutionalisation of the Quad has begun to gather speed. For India, this grouping is critical. It is the first major plurilateral organisation in years where India is an equal partner. It has much to contribute and leverage, beyond its market. This is an opportunity for India to work with the advanced economies to "build habits of cooperation", while confronting the 21st century challenges in its Indo-Pacific neighbourhood.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/at-the-quad-forming-habits-of-cooperation/article36765059.ece>

Question: A formal revival and re-invigoration of the Quad is called for to maintain peace and tranquillity and to ensure observance of the UN Law of the Seas. Examine

India and the geopolitics of the moon

Context:

- The US has invited India to join the Artemis accords. Separately, at the summit of the Quadrilateral Forum, QUAD leaders agreed to set up a new Quad working group on outer space.
- The growing commercialisation and militarisation of outer space have triggered the interest of the Quad leaders.

Significance of Moon exploration

- As technological capabilities grow, nations are looking beyond near-earth space (also called the "brown waters") to inter-planetary probes and deep space research.
- Nations are seeking routine access to the moon. Their attention has turned to the cis-lunar space, or the volume between the orbits around the earth and moon.

China's Lunar Missions

- Beijing's lunar mission, Chang'e, was unveiled in 2007. Since then, China has put two spacecraft in lunar orbit (Chang'e 1 and 2) and landed two rovers on the moon (Chang'e 3 and 4).
- Chang'e is the first to land on the far side of the moon that can't be seen from the earth.
- The Chang'e 5 brought lunar material back to the earth. The last time a mission returned with lunar rock was the Soviet Luna 24 in 1976.

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- The next moon missions — Chang'e 6,7, and 8 — could contribute to the construction of an International Lunar Research Station in the south pole of the moon.
- International Lunar Research Station: The ILRS will have a space station orbiting the Moon, a base on the surface that will have several intelligent robots performing a variety of jobs.
- To support the ILRS, Beijing aims to build a super-heavy rocket Long March CZ-9.
- It is expected to carry at least 50 tonnes to the moon. For a comparison, the payload of the Chandrayaan-2 launched by India's PSLV rocket in July 2019 was about four tonnes.

Russia's Moon explorations

- Russia, once a leading space actor, has now joined hands with China on the ILRS. Russia is reviving its Luna series of probes to the moon to complement the Chinese efforts.
- Luna 25, 26 and 27 will work in tandem with Chang'e 6,7 and 8 to undertake expansive reconnaissance and develop techniques for ultra-precise landings on the moon.
- Together, these missions will lay the basis for the second stage of ILRS — a joint construction of the lunar base — starting from 2026.
- Russia is also threatening to cut off space cooperation with the US. It is a cooperation that emerged during the Cold War and has expanded since then.
- The US reached the moon in the 1960s. It shut down the Apollo programme in the early 1970s.
- Geopolitics is driving Russia towards China. Space cooperation has become an extension of their strategic partnership against America.
- The broad advance of Beijing's space programme, across the civilian and military domains, and its deepening collaboration with Moscow has shaken America.

Artemis Accords

- The Trump administration announced plans to put astronauts back on the moon by 2024. The new project was named Artemis.
- Artemis Accords are an agreement to abide by a broad set of principles to guide the expanding human activity on the moon – ranging from mining resources to setting up lunar colonies.
- It involves the construction of a permanent space station orbiting the moon, called Lunar Gateway, and a surface presence at the south pole of the moon that is supposed to have ice and could sustain future human activity.
- The Artemis Accords will describe a shared vision for principles, grounded in the Outer Space Treaty of 1967, to create a safe and transparent environment which facilitates exploration, science, and commercial activities for all of humanity to enjoy.
- The eight signatories were from Australia, Canada, Italy, Japan, Luxembourg, United Arab Emirates, United Kingdom, and the United States. Since then, many others have joined — Brazil, South Korea, New Zealand, and Ukraine.
- The US is looking for partners for its Artemis programme.

Significance of Artemis Accords- Preserving the Outer Space Treaty(OST)

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- The OST says outer space, including the moon and other celestial bodies, “is not subject to “national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”.
- It declares that outer space shall be the “province of all mankind” and its use “be carried out for the benefit and in the interests of all countries”.
- One of the consequences of the growing lunar activity is the pressure on the current international space legal regime — the 1967 Outer Space Treaty.
- Earlier there were no capabilities on the earth to exploit outer space for commercial and military gain. That situation is changing, due to the advances in space technologies and the expansive investment of resources by major powers.
- The breakdown of the post-Cold War harmony among the major powers has added fuel to the fire on the moon and set the stage for a prolonged geopolitical contestation for the moon.
- The US is promoting the Artemis Accords to preserve the OST regime in relation to the moon and promote transparency, interoperability, emergency assistance, and peaceful international cooperation.

Way forward

- The Artemis Accords would help Delhi to initiate a comprehensive review of India’s interests on the moon and develop strategies to pursue them through a stronger national lunar mission and deeper partnerships with like-minded countries.
- Delhi must also legislate a strong regulatory framework to promote India’s space activity and protect its international interests.
- Involvement of private sector: It is the commercial sector that must set the pace for progress within India.
- As commercial and military activity in outer space grows, the 20th-century agreements like the Outer Space Treaty and Moon Agreement of 1979 need reinforcement and renewal.
- India should take a hard look at the emerging challenges to the current space order, review some of its past political assumptions about the nature of outer space and contribute to the development of new global norms that will strengthen the essence of the Outer Space Treaty.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/china-space-mission-moon-quad-meet-isro-india-7552149/>

Multilateral groupings- Significance and issues

Context:

- The current controversy over AUKUS — the trilateral security pact between Australia, the United Kingdom and the United States, has revealed the hazards of group diplomacy.
- Today, the world has a whole spectrum of groups — from the European Union at one end to the African Union at the other — with varying shades of cooperation.

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- Groups with acronyms such as North Atlantic Treaty Organization (NATO) and the Association of Southeast Asian Nations (ASEAN) and numerical groups from a notional G-2 to a real G-77 which has more than a 100 members, exist.

Relevance of multilateral groupings

- Many of the newly founded groupings do not have regional, ideological or thematic homogeneity to lend them a reason for forming a group. The time, the money and the energy spent on convening summits do not seem justified.
- Lack of agenda: Finding the agenda for these organisations and groups is another difficult exercise. E.g the growing agenda of the United Nations includes everything from peace on earth to celestial bodies and even UFOs.
- Undermining genuine organizations: BRICS undermined the relevance of another, less ambitious, group of India, Brazil and South Africa (IBSA), which had several common interests. As candidates for permanent membership of the Security Council, they had specific ideas on UN reform and on South-South cooperation.
- A Goldman Sachs economist found similarities among fast growing economies such as China, Russia, India and Brazil and recommended massive western investments in these countries.
- The countries concerned formed an intergovernmental group called BRIC and later BRICS, with South Africa added as a representative of the African continent.
- China quickly assumed the leadership of BRICS and tried to seek changes in the international economic system by establishing a bank, with the possibility of credit for its members.
- Lack of consensus on critical issues: The recent BRICS summit had Afghanistan on its agenda and the diverse group was able to reach a conclusion only with different conditions. Russia and China were more sympathetic to the Taliban than the others.
- At the Shanghai Cooperation Organisation (SCO) summit, delegations found some common elements of concern with dramatically different approaches.
- The SCO started off as a friendly group of China and some of the former Republics of the Soviet Union, but with the addition of India, Pakistan and Iran, it became a diverse group and it could not reach agreement.
- **The Quad and AUKUS**
- New Delhi's reluctance to directly engage China has driven the U.S. to new alliances such as a second Quad and then AUKUS.
- US, Afghanistan, Uzbekistan, Pak announce new Quad group for Afghan peace process
- The U.S. wants to fortify itself with allies against China.
- But the negative reaction of France to AUKUS has raised the issue of loyalty among allies.
- AUKUS is a new trilateral security partnership for the Indo-Pacific, between Australia, the UK and the US (AUKUS).
- The major highlight of this arrangement is the sharing of US nuclear submarine technology to Australia.

India's experiences with groupings

- Decreasing relevance of South Asian Association for Regional Cooperation (SAARC): India joined the Association with a number of conditionalities such as the exclusion of bilateral issues, decision-making by voting, and holding of meetings without all members being present.
- But despite the imperative for cooperation in vital fields, SAARC became an arena for India bashing, particularly by Pakistan.
- India boycotted the SAARC Summit that was proposed to be held in Pakistan.
- SAARC became a liability as it was clear that the region was not mature enough to have a regional instrumentality.
- Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), an international organisation of seven South Asian and Southeast Asian nations which are dependent on the Bay of Bengal: Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar and Thailand.
- The group remained dormant for many years till it was revived a few years ago as an alternative to SAARC.
- Though it has an ambitious agenda for sectoral cooperation, it has not gained much momentum.
- Indian Ocean Rim Association (IORA): The organisation was first established as the Indian Ocean Rim Initiative in Mauritius in March 1995 and formally launched on March 6-7 1997 (then known as the Indian Ocean Rim Association for Regional Cooperation). It also has not achieved much significance.
- On the other hand, India is not a member of the two active groups, Asia-Pacific Economic Cooperation (APEC) and Nuclear Suppliers Group (NSG). India has major stakes in them. We campaigned actively for membership of these two bodies, but gave up when we made no headway.
- India tried to acquire membership of Missile Technology Control Regime (MTCR), NSG, the Wassenaar Arrangement and the Australia Group. It got membership of MTCR, Wassenaar and the Australia Group. India missed NSG's membership due to opposition from China.
- The Nuclear Suppliers Group (NSG) is for the control of nuclear related technology.
- The Australia Group (AG) is for control of chemical and biological technology that could be weaponized.
- The Missile Technology Control Regime (MTCR) is for the control of rockets and other aerial vehicles capable of delivering weapons of mass destruction.
- The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies.
- The proliferation of alliances and groups will be a matter of close scrutiny by many countries in the light of the new trend initiated by the U.S. Collective bargaining is the strength of group diplomacy but it cannot be effective without commitment to a common cause. It stands to reason that India should also reconsider the plethora of groups we are in and rationalise them after a reality check.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/an-alphabet-soup-new-delhi-needs-to-sift-through/article36830610.ece>

A strategy for India in a world that is adrift

Context:

- The lack of a coherent international response to the COVID-19 pandemic is proof of an absence of international order and of the ineffectiveness of multilateral institutions.

Changing world order

- The following factors are changing the dynamics of global order:
- Stagnation in the global and Indian economies
- Retreat from globalisation
- The regionalisation of trade,
- A shifting balance of power,
- The rise of China and others, and
- Structural China-United States strategic rivalry
- Inequality between and within states has bred a narrow nationalism

After Effects of COVID-19 crisis:

Crumbling world order

- UN's insignificance: The United Nations Security Council took so long to meet (that too inconclusively) to discuss the pandemic is a ringing testimony to the UN's insignificance.
- Ineffective regional initiatives: For example Prime Minister's SAARC initiative, curiously resurrecting a practically dead institution, was short-lived.
- The EU was clueless when the virus spread like wildfire in Europe. Its member states turned inward for solutions: self-help, not regional coordination.
- Reason for failure of global governance: The global institutional framework is unrepresentative, a pawn in the hands of the great powers, cash-strapped, and its agenda is focused on high-table security issues.

More powerful China

- China appeared to use its manufacturing power to its geopolitical advantage. Beijing has offered medical aid and expertise to those in need;
- This will aid Beijing's claims to global leadership, push Huawei 5G trials as a side bargain, and showcase how the Belt and Road Initiative is the future of global connectivity.
- **Weakened economic globalisation:** Economists are warning of a global recession. The COVID-19 shock will further feed states' protectionist tendencies fueled by hypernationalism.
- We are entering a new polarised information age, and face ecological crises of climate change, an existential threat. The COVID-19 pandemic has accelerated some of these changes and transformed others.

Asia as the nucleus

- All the above factors have shifted the geopolitical and economic centres of gravity from the Atlantic to Asia.
- Asia is the center of geopolitical rivalries, and the U.S. remains the most formidable power, though its relative power is declining.
- China sees a window of opportunity but is acting in a hurry.
- China's crowded geography constrains her both on land and at sea but we can expect her profile and power to continue expanding, particularly in our neighbourhood.
- As neighbours and in the present situation, a mix of confrontation and cooperation is likely to continue to mark India's relations with China.
- There is very little possibility of conventional conflict between the great powers in Asia, though other forms and levels of violence and contention in the international system will rise, with Taiwan a special case.

Challenges and opportunities for India

- Increasing security congruence with the U.S. could enable growing cooperation in fields significant for India's transformation: energy, trade, investment, education and health.
- Other areas in which India and the U.S. could increase cooperation are: climate change and energy, on tech solutions for renewable energy, and on digital cooperation.
- Building broader coalitions in the developing world on issues of common interest. This is the time of transition when new global standards and norms are being developed, particularly in the digital space. India can and must be present at the creation.
- India should create a Maritime Commission, a Bay of Bengal Initiative with partner countries, and cooperate with South East Asia in maritime security, cybersecurity and counter-terrorism. We should aim for multipolarity in Asia.
- The core strategic principles in Non-Alignment 2.0 are still relevant: independent judgement, developing our capacities, and creating an equitable and enabling international order for India's transformation.
- Preserving India's strategic autonomy: One productive way to do so would be through issue-based coalitions including different actors, depending on who has an interest and capability.
- Revive SAARC: India could be the primary source of both prosperity and security in the neighbourhood — the subcontinent and the Indian Ocean Region. It can be done through SAARC.
- The over securitisation (militarization) of policy towards our neighbours has hurt trade, criminalised our borders, and enabled large-scale entry of Chinese goods destroying local industry in the northeast.
- While lessening dependence on China, and seeking external balancing, our primary effort has to concentrate on self-strengthening. If there is one country which in terms of its size, population, economic potential, scientific and technological capabilities can match or even surpass China, it is India.
- Economic policy must match political and strategic engagement: Globalisation has been central to India's growth.

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- A more active regional and international role for India is incompatible with a low Indian global trade.
- Self-reliance in today's world and technologies can only be realised as part of the global economy.
- National unity: We should affirm our own strength and historic national identity.
- In sum, India's self-strengthening is an absolutely essential precondition as also safeguarding the foundational sources of its international influence. We cannot separate our domestic trajectory from the external course we need to pursue to transform India into a strong, secure and prosperous country.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/a-strategy-for-india-in-a-world-that-is-adrift/article36867249.ece>

China-Taiwan conflict

Context:

- Recently, the U.S. Pacific Commander warned that China could invade Taiwan within the next six years as part of its strategy of displacing U.S. power in Asia.
- If the rising confrontation between the United States and China erupts into a clash of arms, the likely arena may well be the Taiwan Strait.

Historical background

- The Guomindang (KMT) forces under Chiang Kai-shek lost the 1945-49 civil war to the CCP forces under Mao Zedong.
- Chiang retreated to the island of Taiwan and set up a regime that claimed authority over the whole of China and pledged to recover the mainland eventually.
- The CCP in turn pledged to reclaim Taiwan and achieve the final reunification of China.
- Taiwan could not be occupied militarily by the newly established People's Republic of China (PRC) as it became a military ally of the United States during the Korean War of 1950-53.
- This phase came to an end with the
- U.S. recognising the PRC as the legitimate government of China in 1979,
- Ending its official relationship with Taiwan and
- Abrogating its mutual defence treaty with the island.

China-Taiwan relations

- Taiwan is the unfinished business of China's liberation under the Chinese Communist Party (CCP) in 1949.
- Taiwan (Republic of China) calls itself a democratic, self-ruled country, however, according to the "One China" policy, Beijing considers Taiwan a province of Mainland China.

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- One China Policy refers to the view that there is only one state called China despite the existence of two governments that claim to be China.
- As a policy it means that countries seeking diplomatic relations with China should sever the ties with the 'Republic of China' - Taiwan - and vice versa.
- China has promised a high degree of autonomy to the island under the “one country two systems” formula first applied to Hong Kong after its reversion to Chinese sovereignty in 1997.
- According to this formula, Hong Kong would retain its free market system and its political and judicial institutions and processes for a period of 50 years, thus enabling an extended and gradual transition.
- The same was promised to Taiwan, but with the added assurance that it could also retain its armed forces during the transition period.

Economic links between China and Taiwan:

- Between 1991 and 2020, the stock of Taiwanese capital invested in China reached U.S. \$188.5 billion and bilateral trade in 2019 was U.S. \$150 billion, about 15% of Taiwan’s GDP.
- By contrast the stock of Chinese capital invested in Taiwan is barely U.S. \$2.4 billion although investments through Hong Kong may be considerable.
- China hopes that the considerable economic benefits that Taiwan business and industry enjoy would weaken opposition to unification.
- China is capable of inflicting acute economic pain on Taiwan through coercive policies if the island demands independence.

Current tensions between Taiwan and China

- China, is committed to pursuing peaceful unification but retains the right to use force to achieve the objective.
- The PRC has pursued a typical carrot and stick policy to achieve the reunification of Taiwan with the mainland.
- The ruling Democratic Progressive Party (DPP) in Taiwan favours independence from China.
- Ever since the DPP under Tsai Ing-wen won the presidential elections in 2016, China has resorted to a series of hostile actions against the island, which include economic pressures and military threats.
- The prospects for peaceful unification have diminished.
- Sentiment in Taiwan in favour of independent status has increased.
- The escalating military threats against Taiwan, through daily violations of its air defence identification zone (ADIZ) and aggressive naval manoeuvres in the Taiwan Strait are aimed at stopping any move towards independence and its closer military relationship with the U.S.

US policy

- The U.S. has declared that it will “maintain the ability to come to Taiwan’s defence” while not committing itself to do so. This is the policy of “strategic ambiguity”.

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- While the U.S. does not support a declaration of independence by Taiwan, it has gradually reversed the policy of avoiding official-level engagements with the Taiwan government.
- In a new incident last week, a U.S. nuclear-powered submarine reportedly ran into an “unidentified object” while in the South China Sea.
- The U.S. abides by the “Taiwan agreement”, which means the U.S. would not overturn its one China policy.
- Impact of alliances
- The recent crystallisation of the Quad, of which India is a part, and the announcement of the Australia-U.K.-U.S. alliance, AUKUS, may act as a deterrent against Chinese moves on Taiwan.
- But they may equally propel China to advance the unification agenda before the balance changes against it in the Indo-Pacific.
- For these reasons, Taiwan is emerging as a potential trigger point for a clash of arms between the U.S. and China. In pursuing its Indo-Pacific strategy, India would do well to keep these possible scenarios in mind.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/a-taiwan-flashpoint-in-the-indo-pacific/article36933319.ece>

Question: Write a brief history of China-Taiwan conflict?

A shadow foreign policy for the first time

Context:

- For the first time, a document has emerged from the Centre for Policy Research (CPR) in the nature of an alternative to the present foreign and defence policies named ‘India’s Path to Power: Strategy in a world adrift’.
- It is authored by eight well-known strategists and thinkers.

Background

- India does not have a tradition of shadow cabinets lurking behind the government in power with ready alternative approaches to policy matters.
- The opposition challenges government policies, but provides no alternatives to be adopted in the event of a change in government.
- It is only at the time of elections that a manifesto is put forward, but that does not become the policy of the government automatically.

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- The opposition uses think tanks and NGOs to float ideas, which may become part of policy if they become publicly acceptable.
- Since there has been a consensus on foreign policy, a shadow foreign policy was out of the question.
- In 2012, many of the same authors had produced another document, 'Non-alignment 2.0', in the light of the global changes at that time, as a contribution to policy making, without criticising the policies of the government.
- But the new government in 2014 had its own ideas and not much attention was given to the study.

More in News

- The present document, is in the nature of an alternative to the foreign and defence policies of the Modi government, as some of its tenets are not considered conducive to finding a path to power for India in the post-pandemic world.
- The eight conclusions are quite logical and reasonable, but the tenor and tone of the paper is one of criticism and need for course correction.

Change in foreign policy

- The first term of the Modi government was remarkable for its innovative, bold and assertive foreign policy, which received general approbation.
- He laid out his priorities and pursued them with vigour.
- After his unconventional peace initiatives with Pakistan failed, he took a firm stand and gained popularity at home.
- His wish to have close relations with the other neighbours did not materialise, but his helpful attitude to them even in difficult situations averted any crisis.
- He brought a new symphony into India-U.S. relations and engaged China continuously to find a new equation with it.
- India's relations with Israel and the Arab countries became productive.
- It was when the second Modi government dealt with some of the unfinished sensitive matters, which were essentially of a domestic nature (Article 370, citizenship issues and farming regulations), that their external dimensions led to a challenge to its foreign policy.
- The opposition in India began to question the foreign policy postures of the government.
- The pandemic, the economic meltdown and China's incursion into Ladakh added to the woes of the government.
- The cumulative effect of these developments is reflected in the CPR report.
- The foundational source of India's influence in the world is the power of its example.
- This rests on four pillars, domestic economic growth, social inclusion, political democracy and a broadly liberal constitutional order. If these integral pillars remain strong, there is no stopping India.
- This assertion at the beginning of the report is the heart of the report and it is repeated in different forms.

Significance of the Report

- The finding is that domestic issues have impacted foreign policy and, therefore, India should set its house in order to stem the tide of international reaction.
- It is important that we acknowledge the perverse impact of domestic political and ideological factors that are driving our foreign policy.
- Once the basic premise is set aside, the report has many positive elements, which will help policymakers to rethink policy.
- For instance, the report rightly points out that “it would be incorrect and counterproductive for India to turn its back on globalisation”.
- It also suggests that SAARC should be revived and that India should rejoin the **Regional Comprehensive Economic Partnership** and continue its long-standing quest for membership in the Asia-Pacific Economic Cooperation.
- The report also stresses the importance of strategic autonomy in today’s world where change is the only certainty.
- As for the India-U.S.- China triangle, the report makes the unusual suggestion that India should have better relations individually with both the U.S. and China than they have with each other.
- The report contains detailed analyses on different regions and key countries, but the general thrust is that all is not well with Indian foreign policy and a fundamental change is necessary to meet the present situation.
- The report concludes that since China will influence India’s external environment politically, economically and infrastructurally, there is no feasible alternative to a combination of engagement and competition with China.
- A considerable part of the report is devoted to issues relating to defence, the nuclear doctrine, space, cyberspace and the ecological crisis.
- On the looming environmental disaster, the report states that since India is still at an early stage of its modern development trajectory, it is not yet locked into an energy-intensive pattern of growth. Much of its infrastructure remains to be built.

Conclusion

- The eminent stature of the authors and the CPR will certainly compel detailed studies of the report in the run-up to the next elections and beyond as the time frame suggested for change is the next decade.
- It reveals the end of the era of consensus foreign policy and presents a shadow foreign policy for the first time in India.
- It remains to be seen whether any of the opposition parties will adopt it and fight the next election on the platform provided by the report.

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/a-shadow-foreign-policy-for-the-first-time/article37061053.ece>

Question: 'There has been a shift in India's Tibet Policy.' Discuss the statement in the nature of an alternative to the present foreign and defence policies named 'India's Path to Power: Strategy in a world adrift'.

Squaring off again in the Himalayan heights

Context:

- The winter is setting in in the icy cold deserts of Ladakh and there is no respite for Indian and Chinese soldiers who will remain deployed against each other.
- Even if it is a period of calm at the tactical level, the rarefied atmosphere, low temperatures and high altitude take their toll on both men and materiel.
- In the last 10 months, the Chinese Western Theatre Command has seen four commanders, two of them- both 'rising stars' of the People's Liberation Army (PLA) — moved out for serious health issues.

More in News

- An aggressive focus on India: This ought to have raised wider concerns in the PLA about the health and well-being of its men in the theatre, leading to quick deinduction of its forces from eastern Ladakh.
- However, going by the obstinate Chinese stance in recent weeks, the PLA seems singularly uninterested in ending the prolonged deployment.
- The verbal attacks have been matched by massive infrastructure construction, induction of a large quantity of modern equipment, and a sharp increase in the number of military exercises directed towards India.
- These actions are not limited to Ladakh but have also been initiated in the middle and eastern sectors of the 3,488-kilometre long Line of Actual Control (LAC).

India's Status

- India has correspondingly readied contingency plans to deal with any security challenges in the region. Marginal increase in Chinese patrolling in eastern sector across LAC: Army Commander
- The PLA incursion into Barahoti in Uttarakhand in August was a significant pointer to the renewed Chinese aggression against India.
- Even though Barahoti is a disputed area between the two sides, it has been a demilitarised zone. No persons in uniform enter the area.
- This was violated when PLA soldiers came deep into Indian territory in uniform and damaged some infrastructure.
- The forays of Chinese patrols in Arunachal Pradesh have also increased in frequency and duration, denoting the PLA's intention to keep the Indian military under pressure.
- Such hostility carries the risk of triggering an unintended escalation, as was the case after 200 PLA soldiers were stopped by an Indian patrol in Arunachal Pradesh's Tawang earlier this month.

Concerns

- Western scholars with Chinese connections point to two major drivers for the PLA's aggressive approach against India.
- The first is its institutional interest as the 'army of the revolution' which is now losing its primacy to the PLA Air Force and PLA Navy when it comes to Taiwan or the South China Sea.
- With China having resolved its boundary disputes with most countries, the only major adversary available for the PLA to reassert its importance is India.
- Even under President Xi Jinping, the PLA remains a major actor in the Chinese political system and can promote actions that further its institutional interests.
- The second driver is the PLA's view that the Indian military has been registering a greater presence on "Chinese territory" in the border areas in the last 10-12 years.
- After the United Progressive Alliance government decided to build infrastructure and raise additional forces for the China border, a larger number of Indian patrols have been going more frequently into areas which they would rarely, if ever, visit.
- The Doklam stand-off of 2017, when Indian soldiers walked onto Bhutanese territory claimed by China, was a turning point in the PLA's appreciation of Indian designs, reinforcing its apprehensions about territorial losses.
- Western scholars say that there is a strong constituency in the PLA that wants to put India in its place, evoking an eerie parallel to the discourse in Mao's China after 1959.

New Delhi's response

- In response to the PLA's actions on the LAC, the Indian military has also inducted more modern military platforms and systems on the China border which has been backed by infrastructure construction.
- Despite these accretions, the quantitative and qualitative asymmetry with the Chinese has widened in the past 20 months.
- Senior Indian commanders hope that this gap can be offset to some extent by the vast operational experience of Indian troops in hostile climactic and terrain conditions but recognise the very formidable nature of Chinese challenge.
- The Indian military always maintained a defensive deterrence against the PLA which worked for nearly three decades before breaking down completely in 2020.
- The new troop deployments and equipment inductions, along with infrastructure creation — showcased extensively to the Indian media — are trying to reconstruct that deterrence.
- India's advantage in dissuading a major military conflict with China is that as a lesser power, it has to only deny an outright military victory to the PLA for the top Chinese leadership to lose face.
- Only time will tell whether this reconstructed deterrent will work for India but a lot will depend on factors that are beyond the remit of the Indian military.

Recent Developments

- The foremost Impact on modernisation is the sharp decline in the Indian economy after demonetisation, further battered by the Government's poor handling of the novel coronavirus pandemic.
- It means that New Delhi is unable to generate enough resources for military modernisation.
- It was calculated in 2016 that the Indian Air Force (IAF) would need about 60 fighter jet squadrons by 2020 for a serious two-front threat from China and Pakistan but is down to 30 and losing numbers sharply.
- The Indian Navy Chief's pleas for another aircraft carrier have been rebuffed for want of funds.
- The parliamentary standing committee on defence has repeatedly warned about the abnormally high share of vintage equipment in the Indian Army's profile.
- So rapidly is the technological asymmetry with the PLA increasing, that in a few years it is feared that India and China will be fighting two different generations of war.
- The second factor is the increasingly divisive majoritarian politics practised by the ruling party that has left India vulnerable.
- The ruling ideology has also held captive the country's foreign policy in the neighbourhood, adversely affecting Indian interests.
- The United Arab Emirates-brokered backchannel deal with Pakistan fell through apparently because of New Delhi's policies in Kashmir, reactivating the challenge of a two-front collusive military threat. The ceasefire on the Line of Control is barely holding up, with infiltration from the Pakistani side adding to the local Kashmiri youth willing to pick up the gun, opening another half-front for the military.
- The recent fracas with Bangladesh on the treatment of religious minorities or the ongoing turmoil over the influx of Myanmar refugees in Mizoram has left India, internally unbalanced, weaker in the region to deal with China.
- The third is the geopolitics arising out of the great power competition in the Indo-Pacific.
- Many strategic commentators in India had pinned their hopes on the external rebalancing via the Quad (India, the United States, Australia, Japan) but the grouping does not have a 'hard power' agenda yet.
- That role seems to have devolved upon the AUKUS (the trilateral security pact between Australia, the United Kingdom and the United States).
- Closer ties between Washington DC and New Delhi, short of an alliance, leave the questions of actual support during a Sino-India military crisis unanswered.
- Finally, the lack of institutional checks and balances on the political executive, which imposes an even bigger cost in decision-making on national security issues.
- In the Ladakh border crisis, the Government and its supporters were in denial about the Chinese ingress into Indian territory for months, including the Prime Minister's statement that no one had entered Indian territory.
- Use of euphemisms like 'friction points' for places of Chinese ingress or the removal of an official report about Chinese presence across the LAC from the Defence Ministry's website or non-acknowledgement of Indian soldiers in Chinese captivity after the Galwan clash have been done to evade political accountability.

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- Parliament has not been allowed to ask questions or seek clarifications; nor has the parliamentary standing committee deliberated upon the issue.
- Large sections of Indian media have been complicit in this cover up, keeping the public in the dark and blocking the feedback loop that keeps democratic governments honest and responsive.
- The costs and consequences of a government taking decisions after buying its own spin on national security issues will be inconceivable for India.

Way Forward

- The amplitude of New Delhi's stance on the Sino-India border crisis in the last 20 months has oscillated between denial and bluster.
- Dampening the oscillations, New Delhi's avowed aim is to restore the status quo on the LAC in Ladakh that existed before May 2020. That has not happened so far.
- In areas of disengagement, a new status quo has been created which curtails Indian patrolling rights while the PLA remains ensconced on Indian territory in Depsang, Hot Springs and Demchok.
- Having publicly rebuffed Prime Minister Narendra Modi's 2015 offer to delineate the LAC, Beijing seems to have taken his 2014 prescription of 'Inch towards miles' rather literally on the disputed border. India now has no choice but to be prepared for all eventualities on the Sino-India border.

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/squaring-off-again-in-the-himalayan-heights/article37116226.ece>

Question- India's border dispute with China needs a multifaceted approach for peaceful and balanced solution. Comment.

Contours of theatre command in the works

Context:

- India is in an advanced stage of drawing up the contours of the structure and processes of the "theatre command" to bring integration and coordination of all the three services.
- The timeline for operationalising this is yet to be made public.

Key Points

- Defence Minister recently cited on "Synergised Objectives", organised to mark 50 years of victory in the India-Pakistan War in 1971,
- He stated that the theatre integration would be ensured following the creation of Chief of Defence Staff and Department of Military Affairs in the Defence Ministry. Chief of the Defence Staff detailed the work done on theatrisation so far.

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- Recalling the integrated efforts of the three services in bringing victory in the India-Pakistan War in 1971 and leading to the biggest surrender of troops after the Second World War, they emphasised the need for integration in the changing situation.
- In the coming days as a forward process, theatre integration will be ensured.
- Integration will be in procurement, indigenisation and prioritising capability development.”
- Borrowing from the best
- India had extensively studied the theatre command models of the U.S., the U.K., Russia and China to adopt some of the best practices.
- We will adopt a tailor-made model to meet our national security.
- We are moving forward with maritime theatre command, joint air defence structure and land-centric theatre command.
- The concept of theatrisation is being progressed on a consensus-based approach at various levels.
- To bring about greater synergy and bring down redundancy, the service chiefs are likely to retain operational control.
- Identification of theatre command, would be based on the tasks, threats, opportunities and assets.
- After the proposal was examined and finalised by the chiefs of staff committee, it would be operationalised by the Government.
- There are no differences in the creation of theatre commands. We will take all services on board and then create a theatre command that will suit our requirement.
- Creating an organisation and putting a structure in place will take a long time.

The current structure of defence forces:

- There are 17 commands, divided among the three services.
- The Army and the Air Force have seven commands each, while the Navy has three commands.
- The commands under the Army are Northern, Southern, Eastern, Western, Central, Southwestern and the Army Training Command.
- The Air Force has Eastern, Western, Southern, Southwestern, Central, Maintenance and Training commands, and the Navy is divided into Western, Eastern and Southern commands.
- These commands report to their respective services, and are headed by three-star officers.
- Though these commands are in the same regions, but they are not located together.
- Tri-services commands:
- There are two tri-services commands at the moment.
- The joint command- the Andaman and Nicobar Command (ANC), is a theatre command, which is headed by the chiefs of the three services in rotation.

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- It was created in 2001 after a Group of Ministers had given a report on national security following the Kargil War.
- The Strategic Forces Command was established in 2006 and is a functional tri-services command.

What are theater commands?

- It is a unified command in which the resources of all the services are unified under a single commander looking at a geographical theatre.
- Such commands are to be led by an officer from any of the three services, depending on the roles assigned to them.
- The three services will retain their independent identities as well.
- Several major militaries like China's People's Liberation Army have five theatre commands.

Advantages:

- Integration and jointness of the three forces: For instance, the head of one of the proposed commands, Air Defence Command, will have under him naval and Army resources, too, which can be used as per the threat perception.
- Avoiding duplication of resources: The resources available under each service will be available to other services too strengthening cohesion in the defence establishment.

Challenges

- The CDS is dual-hatted:
- Often, the Chief of Defence Staff will have to wear two hats simultaneously as part of the Defence Planning Committee headed by the NSA and Defence Acquisition Committee headed by the defence minister.
- It will have to consider contentious issues initially at the inter-service level as PC-COSC, and thereafter as CDS at the departmental level.
- Resistive nature of militaries for transformation: While the army and the navy are in favour of theatre commands, the air force has issues over the division of its air assets, the nomenclature of commands, the leadership of theatre commands and dilution of powers of chiefs.
- Pruning the manpower in the Indian Army: As it is a manpower-intensive fighting force, pruning the number of personnel in the Army will remain perhaps the most vexing challenge for possibly the entirety of Gen. Rawat's tenure.
- The armed forces' slow modernisation, mainly due to the financial crunch, is dangerous for the country's national security. With a poor tooth-to-tail ratio, the army is not fully geared to effect swift high-voltage strikes.

Way forward:

- Consensus making: Experts highlighted the need for all stakeholders to cooperate to take the theaterisation forward.

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- Restructuring DoMA: The CDS will have operational control over all the integrated commands when they are fully functional - this will be in his role as the CDS, and not as permanent chairman, COSC. This will require some restructuring in the DMA.
- The restructuring could involve the chief of integrated defence staff to COSC, or CISC, being appointed as the secretary of DMA in due course to allow the CDS to focus on the theatre commands, senior officials earlier said.

The Hindu Link:

<https://www.thehindu.com/todays-paper/tp-national/contours-of-theatre-command-in-the-works/article37134013.ece>

Question- What do you mean by Integrated Theatre Command? Describe its advantages in view of modern challenges.

U.S. sabotaging CPEC with India's support

Context:

- The chief of the China-Pakistan Economic Corridor (CPEC) Authority has accused the U.S. of sabotaging the multi-billion dollar project, the economic lifeline of Pakistan.

Background

- The ambitious CPEC was launched in 2015 when Chinese President Xi Jinping visited Pakistan.
- It aims to connect western China with the Gwadar port in southwestern Pakistan through a network of roads, railways and other projects of infrastructure and development.

Key Points

- From the Pakistan point of view of the emerging geo-strategic situation, one thing is clear: the United States supported by India is inimical to CPEC.
- Islamabad is the seventh largest recipient of Chinese overseas development financing with 71 projects worth \$27.3 billion under way as part of the CPEC.
- The U.S. and India continue to "make attempts to manoeuvre Pakistan out of" China's Belt and Road Initiative (BRI) under which the Chinese government has been investing heavily in about 70 countries.

Significance of Belt and Road Initiative

- In the wake of the global slowdown, BRI offers a new model of development to China to maintain its economic growth. OBOR envisions building networks of roadways, railways, maritime ports, power grids, oil and gas pipelines, associated infrastructure projects which helps the Chinese economy.
- BRI has a domestic and international dimension: as it visualises a shift from developed markets in the west to developing economies in Asia, Africa And a shift in China's development strategy concentrating on provinces in central and western China instead of the developed east coast region.
- Strategically important as China utilizes its economic clout to build its soft power.

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Criticism and Issues with Belt and Road Initiative

- Debt-trap diplomacy of China where BRI projects are pushing recipient countries into indebtedness and do not transfer skills or technology. For instance, Hambantota port, where Sri Lanka was forced to lease the port to China for 99 years. Also, there has been rethinking of projects in Malaysia, Maldives, Ethiopia and even in Pakistan.
- BRI represents the political and economic ambitions of China, making countries like the US, Japan, Germany, Russia, and Australia unhappy about the impact of Beijing's moves on their own economic and political interests.
- China-Pakistan Economic Corridor (CPEC), an important component of BRI, passes through Pakistan-Occupied Kashmir, is the main reason for India signaling its displeasure over BRI and not participating in both the BRFs.

India boycotting Belt and Road Initiative (BRI) Project

- CPEC violates India's sovereignty as it passes through the part of the Pakistan-occupied Kashmir that belongs to India and no country can accept a project that ignores its core concerns on sovereignty and territorial integrity.
- India also raised concerns regarding unsustainable debt trap, environmental concerns, and transparency in assessment of project costs, and skill and technology transfer to help long term running and maintenance of the assets created by local communities.
- India is too big to be isolated and India's continued objection will make China consider its core concerns.

The Hindu Link:

<https://www.thehindu.com/todays-paper/tp-international/us-sabotaging-cpec-with-indias-support/article37156051.ece>

Question- Write a short note on implications of China-Pakistan Economic Corridor on India.

India-China-Tibet issue

Context:

- India's boundary dispute with China is intrinsically linked to Tibet. New Delhi's recognition of Chinese sovereignty over Tibet was contingent upon China's acceptance of Tibetan autonomy.
- The Dalai Lama gave up the quest for independence in exchange for genuine autonomy. Beijing has squashed autonomy and not kept its side of the bargain with Tibet and India.
- Beijing has squashed autonomy and not kept its side of the bargain with Tibet and India.
- In 1965, Prime Minister LalBahadurShastri had informed the Tibet Government in Exile (TGE) that he would recognise it, but he died prematurely.

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- But the original sin was committed by India's failure to prevent the annexation of Tibet, India's vital area.

Background:

- Following a brief military conflict between China and Tibet at the start of the 20th century, Tibet declared itself as an independent nation in 1912.
- It functioned as an autonomous region until 1950.
- In 1949, the Communists under Mao Zedong's leadership gained power and in 1950 seized control of Tibet.
- In 1951, the Dalai Lama's representatives signed a seventeen-point agreement that granted China sovereignty over Tibet for the first time.
- The Chinese claim that this document is proof of Chinese sovereignty over Tibet while Tibet says that it was coerced into signing this document.
- When China invaded Tibet on October 7, 1950, to incorporate Tibet into the just proclaimed People's Republic of China, it presented India with an acute dilemma – what should newly independent India do?
- The 17-point agreement signed between Tibet and China on May 23, 1951, ended any hopes of genuine autonomy for Tibet.
- Further, the signing of the 1954 India-China agreement symbolised the complete formalisation of all developments since the invasion of Tibet by China and the total elimination of Indian political influence in Tibet.
- For the first time ever, India, in a formal document, recognised Tibet as an integral part of China.

Chinese strategy

- Negotiations between India and China on relations between India and Tibet opened in Beijing on December 31, 1953.
- China had suggested in September 1951 that India's position in Tibet should be regularised and the 'boundary with Tibet stabilised'.
- China wanted to redefine the boundary with India.
- India was clearly inviting trouble when it was decided that the border issue would not figure in the negotiations on Tibet.
- Responding positively to the Chinese move for an agreement on Tibet was seen essentially as a means of reducing Chinese pressure on the border, and as 'helping' the Tibetans within a larger policy framework of coaxing the Chinese out of their isolation.
- The Indian government had made it clear in Parliament that not only the direct frontier with Tibet, but also the frontiers of Nepal, Bhutan and Sikkim, should remain unchanged.

India's stand on the issue

- Tibet had become more a 'psychological' buffer from a political one during British rule — psychological because Nehru was convinced that any military attack on India from Tibet was not feasible.

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- For him, the status of Tibet and Tibetan autonomy, as also Indian interests in Tibet inherited from the British were issues for discussion with China.
- The problem lay in the fact that, except for Sikkim, the border had not been demarcated — jointly with China — on the ground; the boundary in the western and middle sectors had not been defined in detail by treaty.
- The McMahon Line was shown only on a map that the Chinese government had initialled in 1914 but not subsequently accepted.
- Wrong advice: K.M. Panikkar, the then Indian Ambassador to China, advised that the issue would pose no difficulty.
- He suggested that the political office in Lhasa should be regularised by its transformation into an Indian Consulate-General.
- Other posts and institutions like the telegraph lines set up in the British era, the military escort at Yadong in the Chumbi Valley, 'were to be abolished quietly in time'.
- It was an obsession with the big picture of two big Asian nations forging deeper understanding and cooperation. It was a strategic miscalculation which would have serious consequences.
- It was assumed by India that there was no territorial dispute between India and China.
- While negotiations for an agreement between India and China on Tibet were necessary, they should have also included a border settlement. There should have been a quid pro quo for India's recognition of Chinese sovereignty over Tibet.
- Now, India should inform China that in the light of the recent events on the border, especially in East Ladakh, and New Delhi's rethink of its Tibet policy, fresh facts had emerged. Sovereignty claim over Tibet had been fudged, as Tibet was taken by force and, therefore, sovereignty was inherited. Illegal occupation of Tibet through invasion, misrepresentation of facts and altering the historical narrative did not provide legitimacy. This first step in reopening the Tibet issue will attract stiff Chinese reaction. But, India has to internationalise the issue of Tibetan freedom in concert with other democracies. The US Congress and the EU Parliament are believed to have recognised Tibet as an occupied country.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/the-perils-of-an-unresolved-boundary/article37168241.ece>

Question- Unresolved issues about Tibet autonomy give rise to Indo-China border dispute. Comment.

China's new land border law & Indian concerns

Context:

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- Recently, the Standing Committee of the National People's Congress, China's ceremonial but top legislative body, passed a new land law for the "protection and exploitation of the country's land border areas" which will come into effect from 1st January 2022.

Two perspective of the law

- The law is not meant specifically for the border with India; however, the 3,488-km boundary remains disputed, and some experts feel it could create further hurdles in the resolution of the 17-month-long military standoff.
- Others think the law is just words — what has vexed ties is not domestic Chinese legislation, but their actions on the ground.

The Chinese law

- It states that the sovereignty and territorial integrity of China are sacred and inviolable, and asks the state to take measures to safeguard territorial integrity and land boundaries and guard against and combat any act that undermines (these).
- **The state can take measures to:**
 - Strengthen border defence,
 - Support economic and social development and Opening-up in border areas,
 - Improve public services and infrastructure in such areas,
 - Encouraging and supporting people's life and work there, and
 - Promoting coordination between border defence.
- In effect, this suggests a push to settle civilians in the border areas. However, the law also asks the state to follow the principles of equality, mutual trust, and friendly consultation, and handle land border related-affairs with neighbouring countries through negotiations to properly resolve disputes and longstanding border issues.

China's land borders

- China shares its 22,457-km land boundary with 14 countries including India, the third longest after the borders with Mongolia and Russia.
- **India- China Border**
 - India shares a 3488 kilometer long boundary with China. however it is unfortunate that the entire boundary is disputed.
 - The line which delineates the boundary between the two countries is popularly known as the McMahon Line, after its author Sir Henry McMohan.
- In 1913, the British India government had called the trip a tight conference, where the boundary between India and Tibet was formalized after a discussion between the Indians and Tibetans.
- A convention was adopted, which resulted in the delimitation of the Indo Tibetan boundary.
- This boundary is not accepted by China which terms it as illegal.

- In 1957, China occupied Aksai Chin and built a road through it.
- This move by China was followed by intermittent clashes along the border that finally resulted in the border war of 1962.
- After this war, the boundary known as the Line of actual Control (LAC) came into existence. It is a military held line.
- Unlike the Indian border, however, China's borders with these two countries are not disputed. The only other country with which China has disputed land borders is Bhutan (477 km).

A signal to India

- The announcement of a law that makes China's borders "sacred and inviolable" at a time of prolonged ongoing discussions to resolve the standoff in eastern Ladakh signals that Beijing is likely to dig in its heels at the current positions.
- Experts cited that the new law gives the responsibility of the border clearly to the PLA — "as opposed to us", with a lack of clarity on who among the Ministries of Home and Defence is responsible for border management.
- There is a clear distinction, clear approach that PLA will do border management.
- With this new law, the PLA pulling back from any other area (in Ladakh) is now near to impossible.
- The PLA is now bound to protect the integrity, sovereignty of the border.
- Overall, it will make negotiations a little more difficult, a pullout from balance areas less likely.
- Some experts feel it is not what the law says, but what China does on the ground that matters.
- Every country is in the business of protecting its territorial integrity, that's the job of any government. The big question is what is your territory, and there we don't agree with each other.
- The law has no implications for the question of settling the border dispute, which the two countries have been negotiating for several decades now, except to say that the central government of China is responsible for it, and that is true even without the law.
- It is only a whole amount of language, words, verbiage, whatever you want to call it.
- The "real issue", is "what they are doing with their military, what they have done since May 2020, the way India has reacted. That is what impacts the ground situation.
- According to experts, by their actions in eastern Ladakh last year, "the Chinese are clearly indicating that they are tired of trying to resolve the boundary or the LAC through negotiations; they're indicating they'll do it through use of force.

Model border villages

- China has been building "well-off" border defence villages across the LAC in all sectors.
- President Xi Jinping visited a village in Tibet near the border with Arunachal Pradesh in July this year.
- China is trying to change the facts on the ground not only through military but also civilian presence, which means India is going to see a resettlement of Chinese civilian population closer to the LAC.

The Indian Express Link:

<https://indianexpress.com/article/explained/chinas-new-land-border-law-indian-concerns-7592418/>

Question- China's new border laws will further complicate border issues with India.
Comment.

India-Russia energy cooperation

Context:

- Recently, at the 6th Eastern Economic Forum (EEF) in Russia's Vladivostok, the Indian Prime Minister said that India-Russia energy partnership can help bring stability to the global energy market.
- Indian and Russian Energy Ministers announced that the countries' companies have been pushing for greater cooperation in the oil and gas sector beyond the U.S.\$32 billion already invested in joint projects.
- India's Minister for Petroleum and Natural Gas referred to Russia as the largest investor in India's energy sector.

Significance of India-Russia energy cooperation

- **Act Far East Policy:** Earlier, the Prime Minister of India has also launched India's 'Act Far East' policy, aiming to tap resources potential in the region and find opportunities for employment and development in the region.
- India and Russia, also agreed for a sea link between Vladivostok, the capital of Russian Far East and Chennai. It will help in tying up with the Indo-Pacific concept and opens up possibilities for India to connect with northern Europe using an Arctic Route.
- **Renewable, nuclear energy:** In efforts to transition to green energy, India has recently achieved a significant milestone of completing the countrywide installation of 100 gigawatts of total installed renewable energy capacity, excluding large hydro.
- It now aims to hit 175 GW of renewable energy targets by December 2022. If achieved, that would be close to half of India's current total installed power capacity.
- However, unknowns of climate change and threats of a new pandemic suggest that the country should accelerate its energy transition.
- Russia, one of the key global players across the energy market, could emerge as an indispensable partner for such a transition.

- Russian companies have been involved in the construction of six nuclear reactors in the Kudankulam nuclear power project at Tamil Nadu.
- Furthermore, India and Russia can secure the potential of designing a nuclear reactor specifically for developing countries, which is a promising area of cooperation.
- India's nuclear power generation capacity of 6,780 MW may increase to 22,480 MW by 2031, contributing to the country's efforts to turn to green energy.
- One of the examples of cooperation between the two countries in energy transformation is the joint venture between India's Reliance Industries Ltd. and Russia's Sibur, the country's largest petrochemicals producer.
- Overcoming supply chain risk: The technology transfer is bringing to India unique technology, which is not commercially available in the market and the most advanced in terms of an ecological footprint.
- The project will tremendously support the growth of India's auto industry by securing uninterrupted critical raw material supply.
- This is of particular importance in the current pandemic, multiplying the risks of global supply chains disturbance.
- The project is a clear manifestation of the "Make in India" and "AtmaNirbhar Bharat" initiatives, representing a practical example of technology transfer from Russia to India.
- Boost to refinery sector: India is one of the fastest-growing markets for butyl rubber and halogenated butyl rubber due to its rapidly expanding car manufacturing industry pushing for electric vehicles.
- Further to this, India is emerging as a critical refining hub in Asia to boost its petrochemical capacity.
- Over the past years, India's refineries have been expanding towards petrochemicals to capture additional value. It was noted by the International Energy Agency in the India Energy Outlook 2021 report.
- However, the current bilateral exchange rate needs to accelerate for India to grasp its potential from energy transformation. Despite significant progress, coal remains India's most important source of electricity production, and it does not spell good news for the environment. To meet its growing energy demand and succeed in green transformation, India needs approximately U.S.\$500 billion of investments in wind and solar infrastructure, grid expansion, and storage to reach the 450 GW capacity target by 2030. Therefore, more efforts are needed to expand cooperation with such partners as Russia.

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/energy-cooperation-as-the-backbone-of-india-russia-ties/article37200740.ece>

Question- India-Russia ties are necessary for India's energy security. Elucidate.

POLITY AND GOVERNANCE

Urbanisation Policy in India

Context:

- A policy is needed to guide the planning and management of cities towards enabling India's growth

Background:

- As India urbanises, it must ensure that its cities offer a decent quality of life and facilitate job creation.
- These imperatives are fundamental to India's ambitions of becoming a five trillion-dollar economy by 2025 and a 10 trillion-dollar economy by 2030.
- From a population of 377 million in 2011, Indian cities are projected to house 870 million people by 2050, according to the UN's projections — by far the highest among all nations.
- Delhi is likely to become the world's most populous urban agglomeration by 2030, surpassing Tokyo. Clearly, a major demographic transformation is taking place.

Urbanisation

- In general usage, urbanization refers to the relative concentration of a territory's population in towns and cities (i.e. relative urban growth). It may also refer to the process of being urban.
- As a demographic process, which is the commonest use of the term, urbanization involves towns and cities growing in relative size within a space economy through, first, an increasing proportion of the population living in an urban place and, second, their concentration in the target urban settlement. The end of the sequence is an almost completely urbanized society, with the great majority of the population living in just a few larger places.
- Linked to these demographic processes (with migration the main contributor to urban growth) are the structural changes in the society consequent upon the development of capitalism (i.e. structural urbanization). Cities are the foci of production, distribution, and exchange process, because of the economies of scale and scope from agglomeration. Urbanization is the necessary component of industrialization and development (though seen over urbanization)
- Finally, there is behavioural urbanization. Urban areas especially the larger ones are centres of social change. Values, attitudes, and behaviour patterns are modified in the urban milieu (known as urbanism) and new forms (which may be reflected in townscape as with architectural styles) then spread through the urban system through diffusion processes.

Major causes of urbanization

- Industrial revolution: Industrial employment catches the attention of people from rural to urban areas. In the urban areas, people work in modern sector in the occupations that assist national economic development. This represents that the old agricultural economics is changing to a new non-agricultural economy. This is the trend, which will build a new modern society (Gugler 1997).
- Emergence of large manufacturing centres.

- **Job opportunities:** There are ample job opportunities in mega cities therefore village people or individuals from town frequently migrate to these areas.
- **Availability of transportation:** Due to easy transport, people prefer to stay in big cities.
- **Migration:** Migration is main cause for rapid growth of mega-cities. Migration has been going on over centuries and it is normal phenomenon. When considering urbanization rural-urban and urban-rural and rural-rural migrations are very important. Urban-urban migration means that people move from one city to another. People may move to the city because they are forced by poverty from rural community or they may be pulled by the magnetism of city lives. Combination of these push and pull factors can force people to migrate to cities (Gugler 1997).
- **Infrastructure facilities in the urban areas:** Infrastructure has vital role in the process of urbanization in the development of countries. As agriculture becomes more fruitful, cities grow by absorbing workforce from rural areas. Industry and services increase and generate higher value-added jobs, and this led to economic growth. The geographic concentration of productive activities in cities creates agglomeration economies, which further raises productivity and growth. The augments income and demand for agricultural products in cities.

Problems faced by Urban Governance

Planning

- Planning is mainly centralized and till now the state planning boards and commissions have not come out with any specific planning strategies and depend on Planning commission for it. This is expected to change in present government, as planning commission has been abolished and now focus is on empowering the states and strengthening the federal structure.
- In fact for big cities the plans have become out-dated and do not reflect the concern of urban local dwellers, these needs to be take care by Metropolitan planning committee as per provisions of 74th amendment act. Now the planning needs to be decentralized and participatory to accommodate the needs of the urban dwellers.
- Also there is lack of human resource for undertaking planning on full scale. State planning departments and national planning institutions lack qualified planning professional. Need is to expand the scope of planners from physical to integrated planning- Land use, infrastructure, environmental sustainability, social inclusion, risk reduction, economic productivity and financial diversity.

Finances

- Major challenge is of revenue generation with the ULBs. This problem can be analyzed form two perspectives. First, the states have not given enough autonomy to ULBs to generate revenues and Second in some case the ULBs have failed to utilize even those tax and fee powers that they have been vested with.
- There are two sources of municipal revenue i.e. municipal own revenue and assigned revenue. Municipal own revenue are generated by municipal own revenue through taxes and fee levied by them. Assigned revenues are those which are assigned to local governments by higher tier of government.
- There is growing trend of declining ratio of own revenue. There is poor collection property taxes. Use of geographical information system to map all the properties in a city can have a huge impact on the assessment rate of properties that are not in tax net.

Regulator

- There is exponential increase in the real estate, encroaching the agricultural lands. Also the rates are very high, which are not affordable and other irregularities are also in practice. For this, we need regulator, which can make level playing field and will be instrumental for affordable housing and checking corrupt practices in Real estate sector.

Steps Taken by Government to improve urban Development

- The Constitution (74th Amendment) Act came into effect in 1993, emphasizes to strengthen urban planning, regulation of land use, roads and bridges and providing urban amenities.
- National Urban Transport Policy, 2006: Its main purpose is to provide affordable, comfortable, safe and rapid, reliable and sustainable urban transport system, for the growing number of city resident to jobs, education and recreation and such other needs with in our cities.
- Encouraging integrated land use and transport planning in all cities so that travel distances are minimized and access to livelihoods, education, and other social needs, especially for the marginal segments of the urban population is improved
- National Urban Renewal Mission (NURM), 2005: The primary objective of the JnNURM is to create economically productive, efficient, equitable and responsive cities. The JnNURM consists of two sub-missions Urban Infrastructure and Governance (UIG) and Basic Services for Urban Poor (BSUP).
- The Mission focuses on: Integrated development of infrastructure services; securing linkages between asset creation and maintenance for long run project sustainability; accelerating the flow of investment into urban infrastructure services; planned development of cities including the peri-urban areas, out growths, and urban corridors; renewal and re-development of inner city areas; Universalization of urban services so as to ensure their availability to the urban poor.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/india-urbanisation-policy-quality-life-indian-economy-7556604/>

Reflections on the 'quasi-federal' democracy

Context:

- Events coinciding with the jubilee of India's Independence draw attention to the federal structure of India's Constitution, which is a democratic imperative of multicultural India, where the constituent units of the sovereign states are based on language, against competing identities such as caste, tribe or religion.
- This built-in structural potential for conflict within and among the units, and that between them and the sovereign state, need imaginative federal craftsmanship and sensitive political management.
- With universal adult suffrage and free institutions of justice and governance, it is nearly impossible to polarise its wide-ranging diversity within any single divisive identity, despite its operational flaws, the democratic structure and national integrity are dialectically interlinked.

- But its operational fault lines are increasingly denting liberal institutions, undermining the federal democratic structure as recent events have underscored.

Some fault lines happened in recent times:

- First, the tempestuous Parliament session, where the RajyaSabha Chairperson broke down (in August 2021), unable to conduct proceedings despite the use of marshals; yet, the House passed a record number of Bills amidst a record number of adjournments.
- Second, cross-border police firing by one constituent State against another, inflicting fatalities, which also resulted in retaliatory action in the form of an embargo on goods trade and travel links with its land-locked neighbour.
- The Union Law Minister (while in Opposition) said that Legislative disruptions are 'legitimate democratic right, and duty', justifying the current debate and discussion.
- Indian federalism needs institutional amendment to be democratically federal:
- But India's federal structure is constitutionally hamstrung by deficits on all these counts, and operationally impaired by the institutional dents in the overall democratic process.
- Structural conflicts– All India Services, including the State cadres. The role of Governors: appointed by the Centre, a political patronage.
- Thus, most of India's federal conflicts are structural, reinforced by operational abuses.
- Yet, there is no federal chamber to politically resolve such conflicts.
- The RajyaSabha indirectly represents the States whose legislators elect it; this House is a major source of political and financial patronage for all political parties, at the cost of the people of the State they "represent".
- The RajyaSabha is not empowered to neutralise the demographic weight of the populous States with larger representation in the popular chamber; it cannot veto its legislations, unlike the U.S. Senate. It can only delay, which explains the disruptions.
- Joint sessions of LokSabha and RajyaSabha do not appear as successful as expected.

Many deficits that hampering Federalism:

- Democratic federalism presupposes institutions to ensure equality between and among the units and the Centre so that they coordinate with each other, and are subordinate to the sovereign constitution and their disputes adjudicated by an independent judiciary with impeccable professional and moral credibility.
- The Indian Constitution itself has been amended 105 times in 70 years compared with 27 times in over 250 years in the United States.
- With 'nation-building' as priority, the constitutional division of power and resources remains heavily skewed in favour of the Centre;
- Along with "Residual", "Concurrent" and "Implied" powers, it compromises on the elementary federal principle of equality among them, operationally reinforced by extra-constitutional accretion.

- While the judiciary is empowered to adjudicate on their conflicts, with higher judicial appointments (41% lying vacant), promotion and transfers becoming a central prerogative, their operations are becoming increasingly controversial.
- India's bicameral legislature, without ensuring a Federal Chamber, lives up to the usual criticism: "when the second chamber agrees with the first, it is superfluous, when it disagrees, it is pernicious".
- The critical instruments of national governance have been either assigned or appropriated by the Centre, with the States left with politically controversial subjects such as law and order and land reforms.
- The Rajya Sabha indirectly represents the States whose legislators elect it, but continue even after the electors are outvoted or dismissed;
- With no residential qualification, Rajya Sabha House is a major source of political and financial patronage for all political parties, at the cost of the people of the State they "represent".
- Thus, most of India's federal conflicts are structural, reinforced by operational abuses.

Federalism: A Universal View:

- Prior to scrutinizing the nature of the Indian constitution, it is exceedingly essential to appreciate the meaning and quintessence of Federalism.
- Federalism is one of the most significant factors of modern constitutionalism.
- It is established all over the world perhaps, as the only form of political organization suited to communities with diversified pattern of objectives, interests and traditions, who seek to join together in the pursuit of common objectives and interests and the cultivation of common tradition.
- The basic objective of federalism is unity in diversity, devolution in authority and decentralization in administration.
- The basic condition of federalism is plurality; its fundamental tendency is harmonization and its regulative principle is solidarity.
- According to Daniel J. Elazara, – Federal system provides a so as to allow each to maintain its fundamental political integrity.
- Federalism or Federal Structure is a complex governmental mechanism of a country which seeks to establish a balance between the forces working in favour of concentration of power in the centre and those urging a disposal of it in a number of units.
- A federation is a political contrivance to reconcile national unity with state rights. Its originality lies in the fact that power at once is, concentrated as well as divided.

Way Forward: Key changes needed:

- Federal theorist K.C. Wheare analyses India's "centralized state with some federal features" as "quasi-federal".
- He underscores the structural fault lines of Indian federalism not simply as operational.

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- So, while many democratic distortions are amenable to mitigation by institutional professionalism, Indian federalism, to be democratically federal, needs institutional amendment despite being a “basic structure”.
- There is no reason to believe that empowering our States would cause national disintegration.
- Therefore, the powers of States vis-à-vis the Centre contained in the Lists has to be increased.
- The role and composition of the RajyaSabha, must be expanded. This would allow smaller States a kind of brake over national majoritarian politics that adversely impact them.
- Serious thought must be given to breaking up the biggest States into smaller units that will not by themselves dominate the national conversation.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/reflections-on-the-quasi-federal-democracy/article36905863.ece>

Question- The federal character of the Indian political setup is slowly losing its sheen. Comment.

Alarming hunger or statistical artefact?

Context:

- Recently, Global Hunger Index (GHI) Jointly published by Concern Worldwide and Welthungerhilfe
- India has slipped to 101st position in the GHI 2021 of 116 countries, from its 2020 position of 94th.

More in News

- The GHI puts India far below some of its neighbouring countries.
- Barring last year's rank of 94 out of 107 countries, India's rank has been between 100 and 103 since 2017.
- This year's slide in the rank assumes significance especially in the context of COVID-19.

About the Global Hunger Index:

- It is an annual Report Jointly published by Concern Worldwide and Welthungerhilfe.
- It was first produced in 2006. It is published every October. The 2021 edition marks the 16th edition of the GHI.
- Aim: To comprehensively measure and track hunger at the global, regional, and country levels.
- It is calculated on the basis of four indicators:
- Undernourishment: Share of the population with insufficient caloric intake- is applicable for all age groups.

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- Child Wasting: Share of children under age five who have low weight for their height, reflecting acute undernutrition.
- Child Stunting: Share of children under age five who have low height for their age, reflecting chronic undernutrition.
- Child Mortality: The mortality rate of children under the age of five.
- Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst.
- Each country's GHI score is classified by severity, from low to extremely alarming.
- Undernourishment data are provided by the Food and Agriculture Organisation and child mortality data are sourced from the UN Inter-agency Group for Child Mortality Estimation (UN IGME).
- Child wasting and stunting data are drawn from the joint database of UNICEF, the World Health Organization (WHO) and the World Bank, among others.

Global Scenario:

- The fight against hunger is dangerously off track. Based on current GHI projections, the world as a whole - and 47 countries in particular - will fail to achieve a low level of hunger by 2030.
- Food security is under assault on multiple fronts. Worsening conflict, weather extremes associated with global climate change, and the economic and health challenges associated with the Covid-19 pandemic are all driving hunger.
- After decades of decline, the global prevalence of undernourishment - a component of the Global Hunger Index - is increasing. This shift may be a leading indicator of reversals in other measures of hunger.
- Inequality - between regions, countries, districts, and communities - is pervasive and, left unchecked, will keep the world from achieving the Sustainable Development Goal (SDG) mandate to "leave no one behind".
- Africa, South of the Sahara and South Asia are the world regions where hunger levels are highest. Hunger in both regions is considered serious.

Indian Scenario

- Since 2000, India has made substantial progress, but there are still areas of concern, particularly regarding child nutrition.
- India's GHI score has decreased from a 2000 GHI score of 38.8 points - considered alarming - to a 2021 GHI score of 27.5 - considered serious.
- The proportion of undernourished in the population and the under-five child mortality rate are now at relatively low levels.
- While child stunting has seen a significant decrease - from 54.2% in 1998-1999 to 34.7% in 2016-2018 - it is still considered very high.
- At 17.3%, India has the highest child wasting rate of all countries covered in the GHI. This rate is slightly higher than it was in 1998-1999, when it was 17.1%.

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- According to the Index, only 15 countries fare worse than India.
- India was also behind most of the neighbouring countries. Pakistan was placed at 92, Nepal and Bangladesh at 76 and Sri Lanka at 65.

Government of India's View:

- The Ministry of Women and Child Development has criticised the report claiming that the methodology used by FAO is unscientific.
- According to the Government, the Global Hunger Index Report 2021 and FAO report on 'The State of Food Security and Nutrition in the World 2021' have completely ignored the following facts:
- They have based their assessment on the results of a 'four question' opinion poll, which was conducted telephonically by Gallup.
- The scientific measurement of undernourishment would require measurement of weight and Height, whereas the methodology involved here is based on a Gallup poll, based on a pure telephonic estimate of the population.
- The report completely disregards Government's massive effort to ensure food security of the entire population during the Covid period such as PradhanMantriGaribKalyan Anna Yojna (PMGKAY) and Atmanirbhar Bharat Scheme (ANBS).

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/alarming-hunger-or-statistical-artefact/article37045072.ece>

Question- Despite various initiatives of the government, hunger crisis hasn't been controlled in the nation. Comment.

Extending BSF's powers won't resolve policing problems, security threats

Context:

- The Union Ministry of Home Affairs decided to extend the Border Security Force (BSF's) jurisdiction from 15 km to 50 km inside the international border along Punjab, West Bengal and Assam.

Rationale behind the move

- The Ministry stated that it was amending an earlier notification of 2014 on jurisdiction of the BSF to exercise its powers in states where it guards the international border.
- The Taliban's takeover in Afghanistan has revived serious threats of cross-border infiltration from Pakistan, while China has been increasingly aggressive over the past year.
- The BSF's powers have not altered, only its jurisdiction has changed from 15 to 50 kilometres and that is for the purposes of uniformity.

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- It outlined the new jurisdiction as the whole of the area comprising the States of Manipur, Mizoram, Tripura, Nagaland and Meghalaya and Union Territories of Jammu and Kashmir and Ladakh.
- Incidentally, the BSF's jurisdiction in the international border along Gujarat has been reduced from 80 km to 50 km.
- A Union Home Ministry stated that the changes were made under the Border Security Force Act of 1968, following suggestions from the BSF.

Kind of powers BSF can exercise in this jurisdiction

- Border Security Force Act of 1968 provides for the constitution and regulation of an Armed Force of the Union for ensuring the security of the borders of India and for matters connected therewith.
- BSF's jurisdiction has been extended only in respect of the powers it enjoys under Criminal Procedure Code (CrPC), Passport (Entry into India) Act, 1920 and the Passport Act, 1967.
- BSF currently has powers to arrest and search under these laws.
- It also has powers to arrest, search and seize under the Narcotic Drugs and Psychotropic Substances Act, Arms Act, Customs Act and certain other laws.

Concerns

- The move triggered furious reactions from Opposition-ruled Punjab and West Bengal, which described it as an "irrational decision", a "direct attack on federalism" and an attempt to "interfere through Central agencies".
- Punjab also pointed out that under the BSF Act, "Section 139 (ii) gives sweeping powers of arrest to BSF.
- It has powers of preventive arrest under Section 139 (1) & post offence arrest under 139 (ii).
- No mention of consultation with local police. Scheme of Act & its implementation regime needs to be studied.
- It raises the risk of civilian resentment, even clashes, given that the BSF is not trained to operate in residential and/or market areas.
- It will also undermine the state police forces' morale even further.
- Varied threats: What is unclear is how the BSF's extended jurisdiction helps counter these threats. What uniformity is there between coastal smuggling in Gujarat, cross-border infiltration in Jammu and Kashmir, smuggling and drone drops in Punjab, or illegal migration to Assam? Each one requires different capabilities.
- BSF's shortcomings: The recent drug seizures in Gujarat's Adani port were successfully conducted by the customs department and the Directorate of Revenue Intelligence — not by the BSF.
- The BSF has been unable to tackle cross-border smuggling in Assam within 15 kilometres.
- Similarly, the BSF has had only limited success in downing drones when sighted, in both Jammu and Punjab.
- Every one of India's central and state security forces, including the BSF, has had intelligence successes and failures.

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- The BSF is likely to be overstretched by its new tasks. Once again, that could weaken rather than strengthen the BSF's security capabilities.
- Co-operation issues: The BSF has had a relatively good record of local police cooperation thus far; the home ministry's recent decision runs the risk of putting the two against each other. Inevitably, this will create more security gaps.
- The Central government's migration policies — the Citizenship Amendment Act, deporting Myanmar refugees, cancelling Afghan visas — have impacted our relations with neighbours, making cooperation more difficult and impacting negatively on border security.

Way forward:

- Strengthening Police: State police forces have increasingly become arms of ruling politicians instead of upholders of constitutional law. But the answer is to insulate them from political misuse while holding them accountable for rule of law lapses.
- Cooperation: Moreover, to strengthen police capabilities it is vital that other security forces cooperate with local police forces, not bypass them.
- Technology: Rather than extend territorial jurisdiction, the government should explore technologies that might improve the BSF's intercept and destroy capabilities. When it comes to cross-border infiltration, intelligence is the key.
- Curbing illegal migration requires coordinated action between India and its neighbours, first at the political and then at the security level.
- The underlying issue when it comes to tackling both smuggling and infiltration threats is coordination between our security agencies. The solution lies in putting police reforms on an emergency footing, not in extending the BSF's jurisdiction.

The Indian Express link-

<https://indianexpress.com/article/opinion/columns/extending-bsfs-powers-wont-resolve-policing-problems-security-threats-7582358/>

Question - To what extent can increasing BSF's jurisdiction help in controlling cross border crimes? Justify.

Draft National Water Policy, 2020

Context:

- In November 2019, the Ministry of Jal Shakti had set up a committee to draft the new National Water Policy (NWP).
- The earlier NWPs of 1987, 2002 and 2012 were drafted entirely within the government system.
- This was the first time that the government asked a committee of independent experts to draft the policy.

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- The committee is chaired by Mihir Shah (former Planning Commission member and a water expert) and comprises 10 principal members.

Salient features of Draft National Water Policy (2020)

- The policy recognises limits to endlessly increasing water supply and proposes a shift towards demand management.
- Irrigation consumes 80-90 per cent of India's water, most of which is used by rice, wheat and sugarcane.
- Without a radical change in this pattern of water demand, the basic water needs of millions of people cannot be met.
- Thus, crop diversification is the single most important step in resolving India's water crisis.
- The policy suggests diversifying public procurement operations to include nutri-cereals, pulses and oilseeds.
- This would incentivise farmers to diversify their cropping patterns, resulting in huge savings of water.
- The largest outlets for these procured crops are the Integrated Child Development Services, the mid-day meal scheme and the public distribution system.
- Creating this link would also help address the crisis of malnutrition and diabetes, given the superior nutritional profile of these crops.
- Reduce-Recycle-Reuse has been proposed as the basic mantra of integrated urban water supply and wastewater management.
- Treatment of sewage and eco-restoration of urban river stretches, as far as possible through decentralised wastewater management.
- All non-potable use, such as flushing, fire protection, vehicle washing must mandatorily shift to treated wastewater.
- Within supply-side options, the NWP points to trillions of litres stored in big dams, which are still not reaching farmers. It explains how irrigated area could be greatly expanded at very low cost by deploying pressurised closed conveyance pipelines, combined with Supervisory Control and Data Acquisition (SCADA) systems and pressurised micro-irrigation.
- The NWP places major emphasis on supply of water through "nature-based solutions" such as the rejuvenation of catchment areas, to be incentivised through compensation for ecosystem services.
- Specially curated "blue-green infrastructure" such as rain gardens and bio-swales, restored rivers with wet meadows, wetlands constructed for bioremediation, urban parks, permeable pavements, green roofs etc are proposed for urban areas.
- Blue infrastructure refers to water elements, like rivers, canals, ponds, wetlands, floodplains, water treatment facilities, etc. Green infrastructure refers to trees, lawns, hedgerows, parks, fields, forests, etc.
- Bioswales are channels designed to concentrate and convey stormwater runoff while removing debris and pollution.

- The NWP gives the highest priority to sustainable and equitable management of groundwater. Participatory groundwater management is the key.
- Information on aquifer boundaries, water storage capacities and flows provided in a user-friendly manner to stakeholders, designated as custodians of their aquifers, would enable them to develop protocols for effective management of groundwater.
- Water policy has seen rivers primarily as a resource to serve economic purposes.
- This overwhelmingly instrumentalist view of rivers has led to their terrible degradation.
- While acknowledging their economic role, the NWP accords river protection and revitalisation prior and primary importance.
- Steps to restore river flows include: Re-vegetation of catchments, regulation of groundwater extraction, river-bed pumping and mining of sand and boulders.
- The NWP outlines a process to draft a Rights of Rivers Act, including their right to flow, to meander and to meet the sea.
- The new NWP considers water quality as the most serious un-addressed issue in India today.
- It proposes that every water ministry, at the Centre and states, include a water quality department.
- The policy advocates adoption of state-of-the-art, low-cost, low-energy, eco-sensitive technologies for sewage treatment.
- Widespread use of reverse osmosis has led to huge water wastage and adverse impact on water quality.
- The policy wants RO units to be discouraged if the total dissolved solids count in water is less than 500mg/L.
- It suggests a task force on emerging water contaminants to better understand and tackle the threats they are likely to pose.
- The policy makes radical suggestions for reforming governance of water, which suffers from three kinds of “hydro-schizophrenia”:
 - Between irrigation and drinking water,
 - Surface and groundwater,
 - As also water and wastewater.
- Government departments, working in silos, have generally dealt with just one side of these binaries.
- Water is a state subject, which adds another layer of complexity in its management.
- central and state programs on water continue to be structured to fit existing administrative boundaries (state, district, block, gram panchayat) with little consideration to resource, basin and watershed boundaries.
- Rivers are drying up because of over-extraction of groundwater, which reduces the base-flows needed for rivers to have water after the monsoon.

- Dealing with drinking water and irrigation in silos has meant that aquifers providing assured sources of drinking water dry up because the same aquifers are used for irrigation, which consumes much more water.
- And when water and wastewater are separated in planning, the result is a fall in water quality.
- The NWP also suggests the creation of a unified multi-disciplinary, multi-stakeholder National Water Commission (NWC), which would become an exemplar for states to follow.
- Government water departments include professionals predominantly from civil engineering, hydrology and hydrogeology.
- India needs experts in water management, social mobilisation, agronomy, soil science, hydrometeorology, public health, river ecology and ecological economics.
- Since systems such as water are greater than the sum of their constituent parts, solving water problems requires understanding whole systems, deploying multi-disciplinary teams and a trans-disciplinary approach.
- Since wisdom on water is not the exclusive preserve of any one section of society, governments should build enduring partnerships with primary stakeholders of water, who must become an integral part of the NWC and its counterparts in the states. The indigenous knowledge of our people, with a long history of water management, is an invaluable intellectual resource that must be fully leveraged.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/what-indias-new-water-policy-seeks-to-deliver-7595819/>

Question- List out the features of draft **National Water Policy, 2020.**

GENERAL STUDIES 3.

ECONOMICS

Food System in India

Context:

- The first and historic United Nations Food Systems Summit (UNFSS) 2021 was held in September this year.

Background:

- It concluded after an intense 'bottom-up' process conceived in 2019 by UN Secretary-General António Guterres to find solutions and 'catalyse momentum' to transform the way the world produces, consumes, and thinks about food and help address rising hunger.
- There is a need to achieve the United Nations-mandated Sustainable Development Goals (SDG) by 2030 and address climate change in view of food production, leaders and subject matter experts stressed at the United Nations Food System Summit September 23, 2021.
- This transformation can stem from an understanding that we must urgently move from incremental and siloed action towards a systems approach. The food system will not prosper until all sectors concerned work together, they said.
- According to Food and Agriculture Organisation (FAO), food systems encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products.
- Food systems comprise all food products that originate from crop and livestock production, forestry, fisheries and aquaculture, as well as the broader economic, societal and natural environments in which these diverse production systems are embedded.
- The world is looking forward to a simpler and more inclusive food system. The novel coronavirus disease (COVID-19) pandemic has already given the world a 'One-Health' vision, and the world is optimistic of a food system that recognises the associated concerns of non-judicious use of chemicals as well as unregulated animal intensification.

Public Distribution System in India

- The Public Distribution System (PDS) which evolved as a system of management for food and distribution of food grains was relaunched as Targeted Public Distribution System (TPDS) in June 1997. This programme is controlled by the Ministry of Consumer Affairs, Government of India. TPDS emphasizes on the implementation and identification of the poor for proper arrangement and delivery of food grains. Therefore, the Targeted Public Distribution System (TPDS) under the Government of India plays the same role as the PDS but adds a special focus on the people below the poverty line.

Procurement of foodgrains:

- The center is responsible for procuring the food grains from farmers at a Minimum Support Price (MSP).
- The MSP is the price at which the FCI purchases the crop directly from farmers; generally, the MSP is higher than the market price.
- This is intended to provide price support to farmers and incentivize the production.
- Who sets MSP: Commission for Agricultural Costs and Prices (CACP).
- Procurement: Two types of procurement, Centralised Procurement, and decentralized procurement.
- Centralized procurement is carried out by the FCI(Food corporation of India) where FCI buys crops directly from farmers.
- Decentralized procurement is a central scheme under which 10 states/Union Territories procure food grains for the central pool at MSP on behalf of FCI.
- Why decentralized procurement? The purpose is to encourage local procurement of food grains and minimize expenditure incurred when transporting grains from surplus to deficit states over long distances.

Storage of food grains

- According to the storage guidelines of the FCI, food grains are normally stored in covered godowns and silos. In case if FCI has insufficient storage space, it hires space from various agencies such as the central and state warehousing corporations (CWC, SWC), state government agencies and private parties.

ISSUES WITH STORAGE:

- Inadequate storage capacity with FCI.
- Food grains rotting or damaging on the CAP or Cover & Plinth storage.

Allocation of Food grains

- The central government allocates food grains from the central pool to the state governments at uniform Central Issue Price (CIP) for the distribution through PDS.
- Identification of poor people- The onus is on the state Government to identify the eligible households in each state. Apart from that allocation of food grains within State, issue of Ration Cards and supervision of the functioning of Fair Price Shops (FPSs) etc. rest with the State Governments.
- Allocation for BPL and AAY(Antyodaya Anna Yojana –poorest among the BPL families) families is done on the basis of the number of identified households.

Reforms in PDS

- Adhaar Linked and digitized ration cards: This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.
- Computerized Fair Price Shops: FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.

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- **DBT:** Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of food grains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs.30,000 crore every year.
- **Use of GPS technology:** Use of Global Positioning System (GPS) technology to track the movement of trucks carrying foodgrains from state depots to FPS which can help to prevent diversion.
- **SMS-based monitoring:** Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities
- **Use of web-based citizens portal:** Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/reimagining-food-systems-with-lessons-from-india/article36813294.ece>

Question: What are the reformative steps taken by the government to make food grain distribution system more effective?

India's farmer population

Context:

- The National Statistical Office's Situation Assessment of Agricultural Households (SAAH) report for 2018-19 pegs the country's "agricultural households" at 93.09 million.

Background:

The objectives of the survey are:

- Ownership and operational holdings of rural households
- Ownership of livestock
- Income, productive assets and indebtedness of agricultural households
- Farming practices of agricultural households
- Awareness and access to various technological developments in the field of agriculture
- Receipts and expenditure of the agricultural households' farm and non-farm businesses and receipts from all other economic activities pursued by the members of the agricultural households.

Indices of SAAH report

- **Household type** – Rural India has an estimated 90.2 million agricultural households— about 57.8% of the total estimated rural households in the country. An agricultural household was defined in the

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survey as a household receiving value of produce of more than Rs.3,000 from agriculture with at least one member self-employed in farming. What does this mean ? Around 58% of rural households are involved in agricultural activities. 40% make a living out of non-farming economic activities. Under the Census, any area not urban is deemed to be rural. What does this indicate? Farm sector's share to GDP might keep falling even though rural area will have less of agriculture.

- **Marginal Landholding**– The percentage of landless households in rural India declined. Marginal landholdings rose. This is likely because of MGNREGS which probably dissuaded farming households from selling their land. This highlights the importance of MGNREGS.
- For marginal land owning families wage and salary employment was their principal source of income and not agriculture. Income from rearing livestock also is a significant component of total income.
- **Income** – Average monthly income per agricultural households around Rs. 6500. Farmers are earning less than even the person employed in the lowest rung of organized sector.
- **Debt Level** – Debt levels are very high. Nearly 52% of agricultural households in India are indebted , with levels of debt as high as 90% in AP.
- **Access to Loans and Insurance** – There is high dependence on non- institutional channels for credit. Loans are sourced from informal sources or moneylenders. The penetration of institutional sources like banks and cooperatives is rather low – only about 15%. Marginal landholdings households face maximum problem to access credit. Farm households are oblivious of crop insurance schemes that can help them hedge their production and income risks.
- **Information about Government's operations** – Households are poorly informed of government procurement operations & MSP . Sale of crops is maximum to private procurement agencies. Farmers are unacquainted with new technologies . They do not receive adequate guidance from state run research institutes, Krishi Vigyan Kendras and agricultural universities. There is considerable dependence on other progressive farmers, radio, private commercial agents.

Objectives of PM-KISAN scheme

- Pradhan Mantri Kisan Samman Nidhi Yojana is implemented as a central sector scheme by the Government of India. This scheme was introduced to augment the source of income of many small and marginal farmers. The main objectives of the PM-KISAN scheme are mentioned below:
- To provide income support to all eligible land-holding farmers and their families.
- PM-KISAN scheme also aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income.
- The scheme is expected to increase the coverage of PM-KISAN to around 14.5 crore beneficiaries. It aims to cover around 2 crores more farmers with an estimated expenditure of Rs. 87,217.50 crores that will be funded by the Central Government.

Advantages of PM-KISAN Scheme

- The direct transfer of funds is one of the biggest advantages of this scheme. On December 25, 2020, in the presence of PM Narendra Modi, Rs.18,000 crores were directly transferred to the bank accounts of 9 crore farmers

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- All the records related to farmers is registered officially on a digital platform which has made the registration and fund transfer easy. The digitalised records have brought about a new start to this welfare scheme
- This scheme eases liquidity constraints of farmers
- PM-KISAN yojana is a big step towards the Government's initiatives of modernisation of agriculture
- There is no discrimination in choosing the PM-KISAN beneficiaries

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/revealing-indias-actual-farmer-population-7550159/>

Issues with Ease of Doing Business

Context:

- The Ease of Doing Business Index (EoDB) has been abolished as the flagship product created by the World Bank came under attack on grounds that its data was modified.

Background:

- Recently World Bank informed it had paused the next Doing Business report and initiated a series of reviews and audits of the report and its methodology.
- World Bank also informed that it will be working on a new approach to assessing the business and investment climate.
- Ease of Doing Business Rankings was paused as World Bank found data irregularities on Doing Business 2018 and 2020 which were reported internally in June 2020.
- Ethical Issues: Distortion of data in the internal reports raised ethical matters, including the conduct of former Board officials as well as current and/or former Bank staff, leading to this decision of World Bank.

Ease of Doing Business Rankings: Key Points

- Background: The Ease of Doing Business Report was introduced by the World Bank in 2003.
- Objective: to provide an assessment of objective measures of business regulations and their enforcement across 190 economies.
- Parameters used for Ranking: Ease of Doing Business Report used the following ten parameters-
- Starting a Business,
- Dealing with Construction permits,
- Electricity availability,
- Property registration,

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- Credit availability,
- Protecting minority Investors,
- Paying Taxes,
- Trading across borders,
- Contracts enforcement, and
- Resolving Insolvency.

Significance of Ease of Doing Business Report:

- Informs the actions of policymakers,
- Helps countries make better-informed decisions, and
- Allows stakeholders to measure economic and social improvements more accurately
- Acts as a valuable tool for the private sector, civil society, academia, journalists, and others, broadening understanding of global issues.

Ease of Doing Business Rankings: India's Performance

- India showed the most notable improvement in 2017, 2018, and 2019 Ease of Doing Business Ranking.
- India's 2017 Ranking- 100th Rank
- India's 2018 Ranking- Placed at 77th Position
- India's 2019 Ranking (most recent)- Secured 63rd Ranking
- India's ranking in the Ease of Doing Business Report basically depended on the performance of only two cities- Delhi and Mumbai.
- Weightage of Mumbai- 47%
- Weightage of Delhi- 53%

Benefits of Ease of Doing Business Rank

- The rank a country secures under EoDBR by the World Bank brings a lot of benefits along. These benefits are given in the points below:
- The image of the country in the global market improves. GoI has implemented as many as 37 reforms in the reference period and wants to evaluate the effectiveness of these reforms
- The government is taking steps to liberalize the business and these reforms are working
- It changes the image of the country in the eyes of the global market into a favourable country to conduct business in
- The rankings are expected to act as a guide to investors to take/make decisions. Hence better the ranking in the report more the favourability.

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- The performance of GoI in terms of implementation of GST and will provide an answer with the question of how business-friendly this reform is (GST was not considered for last year's ranking and this year's ranking too could not fully account for GST as the deadline for tax-related reforms was 31st December and it had been just six months into the implementation of GST)
- The growth in industries has been averaging around 7% in the 90s and increased to 7.4% in the last decade. At the end of it the manufacturing, export sectors came under pressure because of the global financial crisis. The government through better regulatory environment aims to attract domestic and foreign investments into the manufacturing sector

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/ease-of-doing-business-index-world-bank-7552199/>

Question: Discuss various efforts made by India and various states to improve ease of doing business in India. What else needs to be done?

RBI microfinance proposals those are anti-poor

Context:

- In June 2021, the Reserve Bank of India (RBI) published a "Consultative Document on Regulation of Microfinance".
- While the declared objective of this review is to promote the financial inclusion of the poor and competition among lenders, the likely impact of the recommendations is unfavourable to the poor.
- Microfinance means providing small loans (microcredit) to very poor families to help them engage in productive activities or nurture their tiny businesses.

Key recommendations of the RBI document

- The current ceiling on rate of interest charged by non-banking finance company-microfinance institutions (NBFC-MFIs) or regulated private microfinance companies needs to be removed, as it is biased against one lender (NBFC-MFIs) among the many (commercial banks, small finance banks, and NBFCs).
- It proposes that the rate of interest be determined by the governing board of each agency, and assumes that "competitive forces" will bring down interest rates.
- The RBI did not mention any initiative to expand low-cost credit through public sector commercial banks to the rural poor, the bulk of whom are rural women (as most loans are given to members of women's groups).
- It also proposes to de-regulate the rate of interest charged by private microfinance agencies.

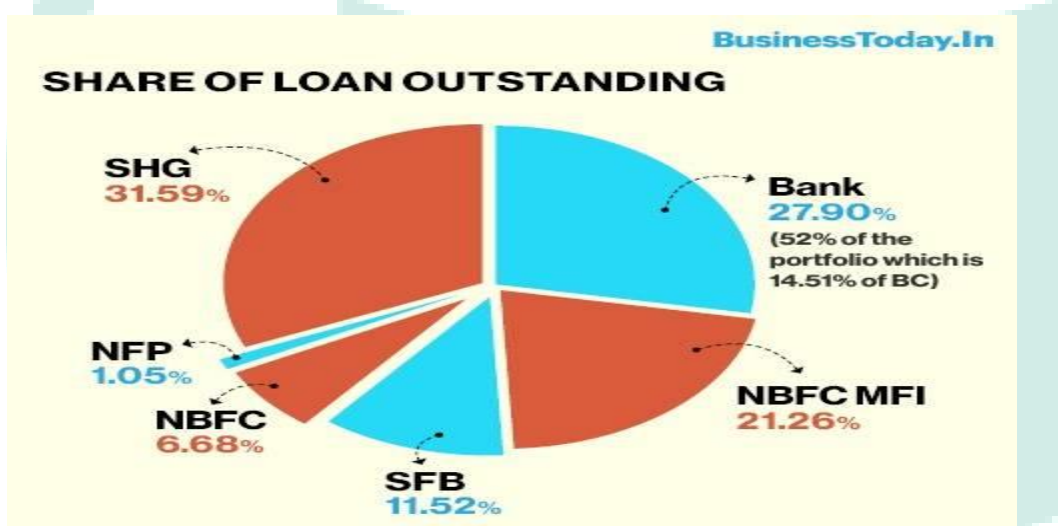
- According to current guidelines, the 'maximum rate of interest rate charged by an NBFC-MFI shall be the lower of the following:
- The cost of funds plus a margin of 10% for larger mfis (a loan portfolio of over ₹100 crore) and 12% for others; or
- The average base rate of the five largest commercial banks multiplied by 2.75'.
- In June 2021, the average base rate announced by the RBI was 7.98%. The "official" rate of interest on microfinance was between 22% and 26% — roughly three times the base rate.

Concerns

- Microfinance is becoming increasingly important in the loan portfolio of poorer rural households.
- A study of two villages from southern Tamil Nadu found that a little more than half of the total borrowing by households resident in these two villages was of unsecured or collateral-free loans from private financial agencies (SFBs, NBFCs, NBFC-MFIs and some private banks).
- Unsecured microfinance loans from private financial agencies were of disproportionate significance to the poorest households — to poor peasants and wage workers, to persons from the Scheduled Castes and Most Backward Classes.
- These microfinance loans were rarely for productive activity and almost never for any group-based enterprise, but mainly for house improvement and meeting basic consumption needs.
- High interest rates: Poor borrowers took microfinance loans, at reported rates of interest of 22% to 26% a year, to meet day-to-day expenses and costs of house repair.
- Whereas crop loans from Primary Agricultural Credit Societies (PACS) in Tamil Nadu had a nil or zero interest charge if repaid in eight months.
- Kisan credit card loans from banks were charged 4% per annum (9% with an interest subvention of 5%) if paid in 12 months (or a penalty rate of 11%).
- Other types of loans from scheduled commercial banks carried an interest rate of 9%-12% a year.
- The actual cost of microfinance loans is even higher: This is because every month the principal amount is reduced but the interest charge is the same.
- An "official" flat rate of interest used to calculate equal monthly instalments actually implies a rising effective rate of interest over time.
- A processing fee of 1% is added and the insurance premium is deducted from the principal. As the principal is insured in case of death or default of the borrower or spouse. A high interest rate is in response to a high risk of default.
- The borrowers do not understand the charges.
- Contrary to the RBI guideline of "no recovery at the borrower's residence", collection was at the doorstep. Note that a shift to digital transactions refers only to the sanction of a loan, as repayment is entirely in cash.
- If the borrower is unable to pay the instalment, other members of the self-help group have to contribute, with the group leader taking responsibility.

Microfinance in India

- Microfinance, also called microcredit, is a type of banking service provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services.
- In India, all loans that are below Rs.1 lakh can be considered as microloans.
- There are different types of financial services providers for poor people- non-government organizations (NGOs); cooperatives etc.
- Non-Banking Finance Company (NBFC)-MFIs in India are regulated by The Non-Banking Financial Company -Micro Finance Institutions (Reserve Bank) Directions, 2011.
- Priority Sector Lending
- All scheduled commercial banks and foreign banks (with a sizable presence in India) are mandated to set aside 40% of their Adjusted Net Bank Credit (ANDC) for lending to these sectors.
- Regional rural banks, co-operative banks and small finance banks have to allocate 75% of ANDC to PSL.
- Lending by small finance banks (SFBs) to NBFC-MFIs has been recently included in priority sector advances.

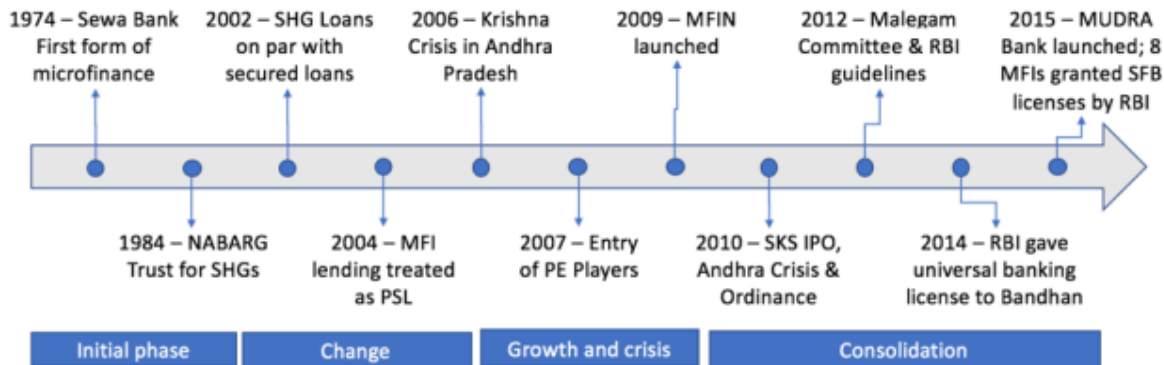


Changing microfinance scenario in India

- Microfinance lending has been in place since the 1990s, but today the privately-owned for-profit financial agencies are “regulated entities” by the RBI.
- In the 1990s, microcredit was given by scheduled commercial banks either directly or via non-governmental organisations to women’s self-help groups, but given the lack of regulation and scope for high returns, several for-profit financial agencies such as NBFCs and MFIs emerged.
- By the mid-2000s, there were widespread accounts of the malpractices of MFIs (such as SKS and Bandhan), and a crisis in some States such as Andhra Pradesh, arising out of a rapid and unregulated expansion of private for-profit micro-lending.
- The microfinance crisis of Andhra Pradesh led the RBI to review the matter, and based on the recommendations of the Malegam Committee, a new regulatory framework for NBFC-MFIs was introduced in 2011.

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- The definition of microfinance itself is proposed to mean collateral-free loans to households with annual household incomes of up to ₹1,25,000 and ₹2,00,000 for rural and urban areas respectively.



- Later, the RBI permitted a new type of private lender, SFBs, with the objective of taking banking activities to the “unserved and underserved” sections of the population.
- Today 31% of microfinance is provided by NBFC-MFIs, and another 19% by SFBs and 9% by NBFCs.
- These private financial institutions have grown exponentially over the last few years, garnering high profits, and at this pace, the current share of public sector banks in microfinance (the SHG-bank linked microcredit), of 41%, is likely to fall sharply.
- The proposals in the RBI’s consultative document will lead to a further privatisation of rural credit, reducing the share of direct and cheap credit from banks and leaving poor borrowers at the mercy of private financial agencies. To meet the credit needs of poorer households, we need a policy reversal: strengthening of public sector commercial banks and firm regulation of private entities.

The Hindu Link:

<https://www.thehindu.com/opinion/lead/rbi-microfinance-proposals-that-are-anti-poor/article36848338.ece>

Data revolution in Indian agriculture

Context:

- Recently two significant documents relating to the Indian agriculture sector were released.
- The first is a consultation paper on the India Digital Ecosystem of Agriculture (IDEA) from the Ministry of Agriculture and Farmers’ Welfare (MoA&FW) and the second on Indian Agriculture: Ripe for Disruption from a private organisation, Bain and Company.

Salient features of papers:

- IDEA paper: It talks about a digital revolution in the agriculture sector and predicts a revolutionary investment growth in agri-logistics, offtake, and agri-input delivery by 2025.
- Every segment of present-day life including agriculture is data-hungry.
- The MoA&FW report describes creating data to fuel the growth.

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- The farmer and the improvement of farmers' livelihood is proposed to happen through tight integration of agri-tech innovation and the agriculture industry ecosystem to farming and food systems.
- The IDEA principles explicitly talk about openness of data, which means open to businesses and farmers, indicating the kind of integration it aims at.
- Value-added innovative services by agri-tech industries and start-ups are an integral part of the IDEA architecture.
- The Bain report is a data-based prediction on agri-business scenarios, anchored to the agricultural set-up at present and predicting its future trajectories in another 20 years.
- It includes targeting the production of alternative proteins, and food cell-based food/ingredients and initiating ocean farming, etc.
- The report has a 'today forward– future back approach' and predicts a drastic investment opportunity development by 2025.
- The agriculture sector (currently worth \$370 billion), is estimated to receive an additional \$35 billion investment.
- The two enabling conditions for such investment opportunities are the changes in the regulatory framework, especially recent changes in the Farm Acts and digital disruption.
- There are benefits from huge investments into the agri-ecosystem which include doubling farmers' income
- The report has convincingly demonstrated the business opportunity available in supply chains between farm to Agricultural Produce Market Committee (APMC) mandi and mandi to the customer, which can be realised with the support of digital disruption and the latest agriculture reforms.



Govt. initiatives for digitisation of agriculture

AgriStack

- AgriStack will create "a unified platform for farmers to provide them end to end services across the agriculture food value chain," amid a broader push to digitise data in India, from land titles to medical records.
- Tech firm Microsoft will run a pilot for the agriculture ministry's AgriStack in 100 villages in six Indian states.

Objectives: It aims to "develop

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- Farmer interface for smart and well-organised agriculture" aimed at improving efficiency and reducing waste.
- Each farmer will have a unique digital identification that contains personal details, information about the land they farm, as well as production and financial details.
- Each ID will be linked to the individual's digital national ID Aadhaar.
- Linking market places: It aims to integrate all digital marketplaces for agriculture commodities and inputs, thereby providing single log in access to farmers to these marketplaces and access to financial assistance.
- Database creation from particularly three schemes: PM-KISAN (Pradhan Mantri Kisan Samman Nidhi), Soil Health Card and PM Fasal Bima Yojna (crop insurance scheme).
- The data from these three schemes will be compiled and compared with land records data.
- If there is a mismatch, it will be shared with the local authorities for validation and field survey.
- The field data received from local authorities will be updated with the compiled data to create "clean, unique, standardised, verified data for AgriStack".

Challenges for digitisation of agriculture

- The IT industry has opposition to it mainly due to the ethics of creating a Unique Farmer ID based on one's Aadhaar number and also the potential for data misuse.
- Environmental concerns: It needs more or less focusing on widespread food production in controlled environments. The emission, energy, and other resource footprints and sustainability issues around these techniques must be carefully studied to confirm the projected trajectory.
- The reports heavily rely on digital disruption to improve farmers' livelihoods, without discussing how much farmers will be prepared to benefit from these newly emerging business environments.
- Digital literacy: The fact is that a majority of small and marginal farmers are not technology-savvy. That most of them are under-educated for capacity building is ignored amidst these ambitious developments.
- Farmers' protests: Politically, these two reports ignore the protest of farmers against the reforms without considering it as a barrier or risk factor resulting in a repealing of these new farm laws.
- Exclusion of women and agricultural labourers:: By making land records the basis for the farmers' database called Agristach, the Union government will exclude women (if the land is in the name of the male head of the household).
- It will so exclude agricultural labourers, sharecroppers, tenant farmers, those associated in allied activities such as fishing, beekeeping, poultry, animal husbandry, pastoralism, sericulture, vermiculture and agro-forestry from accessing these services on the digital platform because they may not own agricultural land.
- India has more farm labourers in 52 per cent of its districts.
- Poor quality of land records: The quality of land records declined in 14 states. While state governments have initiated digital exercises of their own, they focus on digitising records on paper without updating them.

- Linking land records with services access is problematic. New methods such as the Swamitva scheme have come up, but they are not effective on ground.

WHAT IS THE AGRISTACK?



The Report of the Committee on Doubling Farmer's Income, NITI Aayog's Discussion Paper on National Strategy for Artificial Intelligence, and the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 all mention the use of electronic database for farmers meant to collect data about agriculture and use this to provide services to farmers.

1 WHAT DETAILS DOES IT COLLECT?

The data to be collected by the AgriStack includes: personal details, profile of the land held, production details, and financial details.



2 WHAT ARE THE PROPOSED BENEFITS?

- Improved access to formal credit
- Better quality of input
- Smooth mechanism for marketing and price discovery



3 POTENTIAL ISSUES

- Lack of consultations with farmer organisations
- Algorithm based decision making will impact farmers' rights without transparency or accountability.
- Incentives to harvest and process farm data for financial gain rather than benefit of farmers



4 HOW WILL THE LOSS OF PRIVACY IMPACT FARMERS?

- Financial lending models relying on technology towards farmers may offer usurious rates for those in dire need.
- There exist risks of exclusion which has been well documented by studies on Aadhaar linked welfare delivery systems
- Algorithm based decision making may further reduce the agency of farmers



5 RECOMMENDATIONS

- Understanding issues emerging from the leadership of farmer groups to include farmers in the decision making process
- Necessity of long term study and advocacy to engage farmers effectively
- Study the impact of a data protection law to ensure digital security and privacy



Way forward:

- Capacity building of the farmer: There need to be immense efforts to improve the capacities of the farmers in India – at least until the educated young farmers replace the existing under-educated small and medium farmers.
- Leveraging Farmers Producer Organisations: This capacity building can be done through a mixed approach – preferably building the capacities of individual farmers or coping with the new situation by establishing support systems, through FPOs and other farmers associations where technical support is available for farmers.
- While agreeing on the fact that a data revolution is inevitable in the agriculture sector, given its socio-political complexities, we cannot just count on technology fixes and agri-business investments for improving farmers' livelihoods. It would need a separate programme across the country with considerable investment. There is no denial that there is potential in data and technology in empowering farmers but only when the flow of information is balanced.

Monetary Normalisation

Context:

- The Monetary Policy Committee of the Reserve Bank of India maintained the status quo in the policy rates as also in the policy stance in its fourth bi-monthly meeting this fiscal.

Key points

- There was agreement on the part of all members to hold the repo and reverse repo rates unchanged at 4 per cent and 3.35 per cent.

- Repo rate is the rate at which the Central Bank grants loans to commercial banks against government securities. Reverse repo rate is the interest offered by RBI to banks that deposit funds with them.
- The purpose of keeping an asymmetric gap between the reverse repo rate and repo rate is to make it relatively unattractive for banks to passively deposit funds with the RBI and instead, to use these funds for lending to productive sectors of the economy.
- There were expectations that the RBI would go for the normalisation of the extra-loose monetary and liquidity policies being pursued since the onset of the pandemic in March last year.
- Monetary policy normalisation means monetary tightening.
- Normalisation means the removal of excess liquidity that was injected by the RBI with a view to supporting 'a speedy and durable economic recovery'.

Concerns with excess liquidity in the market:

- The surplus liquidity in the banking system witnessed a three-fold increase from a daily average of ₹3 lakh crore in March 2020 to ₹9 lakh crore in September 2021 and further to ₹9.5 lakh crore in the first few days of October.
- As per the estimation made by the RBI in this regard, the extra liquidity amounts to more than ₹13.0 lakh crore — about 25 per cent of the country's GDP.
- Higher inflation: The risk of delaying normalisation for too long would be the prospects of higher inflation. A view was expressed by a member of the MPC that monetary accommodation appears to be stimulating asset price inflation to a greater extent than it is mitigating the distress in the economy.

RBI's dilemma

- One, at this stage of the Covid-19 pandemic, whether continuation of extra-loose monetary and liquidity policies would result in more macroeconomic benefits than costs.
- Two, given the fact that the actual CPI inflation at above 5 per cent has been consistently exceeding the 4 per cent target, will the MPC not be diluting its mandate by prioritising growth over inflation?
- The country's GDP is still below the pre-pandemic level and, hence, there is significant slack in resource utilisation in the economy which needs to be reduced expeditiously to spur growth.
- Ample liquidity infusion and significant interventions in the forex and G-Sec markets are necessary to ensure not only their orderly functioning but also to guide price discovery in them.
- The dominant view appears to interpret the MPC's (4 +/-2) per cent inflation targeting framework to mean that in the current exceptional and pandemic-ravaged time, the effective target should be 6 per cent and not 4 per cent.
- There seems to be a lack of clarity on the precise meaning and implications of the +/-2 per cent band around 4 per cent.

Way forward:

- First, RBI should stop the G-Sec Acquisition Programme (G-SAP) for the present. G-SAP is basically an unconditional and structured Open Market Operation (OMO), of a much larger scale and size. It infuses heavy liquidity in the market.

- Open Market Operations (OMOs) are market operations conducted by RBI by way of sale/purchase of government securities to/from the market with an objective to adjust the rupee liquidity conditions in the market on a durable basis.
- The RBI may consider complementing the 14-day variable rate reverse repo (VRRR) auctions, which is currently its main instrument for liquidity absorption with 28-day VRRR auctions in a calibrated fashion.
- In order to absorb additional liquidity in the system, the RBI conducted a Variable Rate Reverse Repo (VRRR) program due to the higher yield prospects as compared to the fixed-rate overnight reverse repo.
- Phased removal of excess liquidity would lead to money market rates rising above the reverse repo rate of 3.35 per cent which would eventually allow the RBI to narrow the gap between repo and reverse repo rates from the present high of 65 basis points.
- This gap, which was 25 basis points in the pre-pandemic era, was expanded in phases, beginning with the policy announcement on March 27, 2020.
- The liquidity conditions emanating from the exceptional measures instituted during the crisis would need to evolve in sync with the macroeconomic developments to preserve financial stability. This process has to be gradual, calibrated and non-disruptive while remaining supportive of the economic recovery.

The Hindu Link:

<https://www.thehindubusinessline.com/opinion/a-journey-towards-monetary-normalisation/article36901320.ece>

India needs a carbon policy for agriculture

Context:

- The UK is set to host the 26th UN Climate Change Conference of the Parties (CoP26) in Glasgow from October 31 to November 12 with a view to accelerate action towards the Paris Agreement's goals.
- India said that the focus should be on climate finance and transfer of green technologies at low cost.
- But the fact that 22 of the 30 most polluted cities in the world are in India is a major cause of concern. Delhi is the world's most polluted capital as per the World Air Quality Report, 2020.

Concerns for India

- According to the Global Carbon Atlas, India ranks third in total greenhouse gas emissions by emitting annually around 2.6 billion tonnes (Bt) CO₂eq, preceded by China (10 Bt CO₂eq) and the United States (5.4 Bt CO₂eq), and followed by Russia (1.7Bt) and Japan (1.2 Bt).
- Per capita emissions: Of these top five absolute emitters, the US has the highest per capita emissions (15.24 tonnes), followed by Russia (11.12 tonnes).
- India's per capita emissions is just 1.8 tonnes, significantly lower than the world average of 4.4 tonnes per capita.

- Emissions per unit of GDP: China ranks first with 0.486 kg per 2017 PPP \$ of GDP, which is very close to Russia at 0.411 kg per 2017 PPP \$ of GDP.
- India is slightly above the world average of 0.26 (kg per 2017 PPP \$ of GDP) at 0.27 kg, while the USA is at 0.25, and Japan at 0.21.
- India ranked seventh on the list of countries most affected due to extreme weather events, incurring losses of \$69 billion (in PPP) in 2019 (Germanwatch, 2021).
- In our Nationally Determined Contributions (NDCs) submitted in 2016, India committed to “reduce emission intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level.”
- Sector-wise global emissions show that electricity and heat production and agriculture, forestry and other land use make up 50 per cent of the emissions.
- Sector wise emissions in India: The largest chunk (44 per cent) belongs to the energy sector, followed by the manufacturing and construction sector (18 per cent), and agriculture, forestry and land use sectors (14 per cent), with the remaining being shared by the transport, industrial processes and waste sectors.
- The share of agriculture in total emissions has gradually declined from 28 per cent in 1994 to 14 per cent in 2016.
- However, in absolute terms, emissions from agriculture have increased to about 650 Mt CO₂ in 2018, which is similar to China’s emissions from agriculture.
- Agricultural emissions in India are primarily from the livestock sector (54.6 per cent) in the form of methane emissions due to enteric fermentation and the use of nitrogenous fertilisers in agricultural soils (19 per cent) which emit nitrous oxides;
- Rice cultivation (17.5 per cent) in anaerobic conditions accounts for a major portion of agricultural emissions followed by livestock management (6.9 per cent) and burning of crop residues (2.1 per cent).
- The winter months in Delhi become a challenge as stubble burning in adjoining states and low wind speeds take the AQI beyond 300 on average, while the safe limit is below 50.
- Agricultural soils are the largest single source of nitrous oxide (N₂O) emissions in the national inventory.
- Almost 70 per cent of the granular fertilisers that are thrown over plants are polluting the environment and leaching into the groundwater, while polluting the same.

Way forward

- A carbon policy for agriculture must aim not only to reduce its emissions but also reward farmers through carbon credits which should be globally tradable.
- Develop global carbon markets: India needs to clearly spell out in its policy how it would adjust carbon credits when it sells to polluting industries abroad so that emission reductions are not double counted in India and the country buying carbon credits.
- India needs better feeding practices for livestock with smaller numbers of cattle by raising their productivity. It has the world’s largest livestock population (537 million),

- Switching areas from rice to maize or other less water-guzzling crops. Devise a system for rewarding farmers for this switch by making corn more profitable than paddy, it can be a win-win situation.
- Direct seeded rice and alternative wet and dry practices can reduce the carbon footprint in rice fields.
- Opening up corn for ethanol can help not only reduce our huge dependence on crude oil imports but also reduce the carbon footprint.
- An alternative for better and efficient fertiliser use would be to promote fertigation and subsidise soluble fertilisers.
- Fertigation is a method of fertilizer application in which fertilizer is incorporated within the irrigation water by the drip system. In this system fertilizer solution is distributed evenly in irrigation. The availability of nutrients is very high therefore the efficiency is more.
- The government should incentivise and give subsidies on drips for fertigation, switching away from rice to corn or less water-intensive crops, and promoting soluble fertilisers at the same rate of subsidy as granular urea.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/india-needs-a-carbon-policy-for-agriculture-climate-change-7564364/>

Question: There is urgent need to address the rising carbon emissions from agriculture sector in India. Elucidate.

Reforms Based and Results Linked Scheme: DISCOMs

Context:

- State-owned distribution utilities (discoms) continue to be in fragile financial health. In its budget 2021-22, the Union government had announced the launch of a “reforms-based and results-linked” scheme for the distribution sector with the objective of improving the financial health and operational efficiency of discoms.
- The meaning of DISCOM is “Distribution Company (In India)”.
- These companies are not generating electricity themselves, rather purchasing it from someone else and just supplying it to the final consumers.

Challenges for discoms

- Their precarious financial position is due to the high level of aggregate technical and commercial (AT&C) losses, the levy of inadequate tariffs when compared to the cost of power supply, and insufficient subsidy support from state governments.
- Their overall debt burden, despite the implementation of the UDAY scheme, is estimated to increase to around Rs 6 lakh crore in the ongoing financial year.

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- Their annual cash losses are estimated to be about Rs 45,000-50,000 crore (excluding UDAY grants and regulatory income).
- The highly subsidised nature of power tariffs towards agriculture and certain sections of residential consumers: The overall subsidy dependence is likely to be roughly Rs 1.30 lakh crore this year at the all-India level.

The AT&C (aggregate transmission and distribution losses): It is a technical term that stands for the gap between the cost of the electricity that a discom gets from the generating company, the bills that it raises and the final realisation from the collection process from end-consumers such as you and me.

Govt. initiative: “Reforms-based and results-linked” scheme

- Objectives: Under the scheme, AT&C losses are aimed to be brought down to 12-15 per cent by 2025-26, from 21-22 percent currently.
- Operational efficiencies of discoms are to be improved through smart metering and upgradation of the distribution infrastructure, including the segregation of agriculture feeders and strengthening the system.
- Components: The scheme has two parts: Part A pertains to the upgradation of the distribution infrastructure and metering related works, while Part B is for training and capacity building, besides other enabling and support activities.
- Upon fulfilment of the pre-qualifying criteria and achievement of the basic minimum benchmarks, evaluated on the basis of proposed action plans by the discoms, they will be given financial assistance.
- Features: Discoms and their state governments will have to sign a tripartite agreement with the central government in order to avail benefits under the scheme.
- The action plan to be submitted by the discoms will be divided into two parts.
- The first part will contain an analysis of the reasons/root cause for losses, the steps proposed for reducing losses, the gap between costs and revenues, and the time required for implementing the changes.
- The second part of the action plan will comprise listing out the work plan for loss reduction and further strengthening of the distribution systems.
- An inter-ministerial monitoring committee will finalise the “Results Evaluation Framework” based on the agreed-upon action plan, incorporating the result parameters.
- For this, the base year has been set at 2019-20.
- The path to be taken by the parameters that are to be monitored — AT&C losses, the ACS-ARR (average cost and revenue) gap, infrastructure upgradation, consumer service, hours of supply, and corporate governance —
- It will be set up for the five-year period ending in 2025-26.
- Only those discoms that meet all the pre-qualifying criteria will be eligible for the release of funds.

Benefits

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- The state/discom will be able to access funds for addressing infrastructure constraints in the distribution system. Priority will be given to work necessary for AT&C loss reduction.
- The use of solar power projects to supply electricity to farmers through the agriculture feeder route is likely to result in savings.
- This is because of a combination of high tariff competitiveness offered by solar power, lower technical losses due to proximity to load centres, and the ability to meet demand during the day when sunlight is available.

Concerns with the scheme

- A loss-making discom will not be eligible unless it draws up plans to reduce its losses, approved by the state government and filed with the central government.
- A continuing area of concern affecting discom finances is the significant delay in the process of tariff determination in many states.
- As of now, only 19 out of 28 states have issued tariff orders for 2021-22, indicating sluggish progress.
- There is upward pressure on the cost of power supply for distribution utilities, due to the dominant share (around 70 per cent) of coal in the fuel mix for energy generation, the strengthening of imported coal prices and the possibility of domestic coal price revisions by Coal India.
- As a consequence, a cost-reflective tariff determination process, coupled with the timely pass-through of power purchase costs, remains critical for the utilities. In addition, the delicensing initiative proposed by the central government can effect significant changes in the distribution segment, facilitating competition and placing emphasis on the quality and reliability of power supply and consumer services. However, strong political will and support from state governments are needed to ensure movement on all these issues.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/nursing-the-ailing-power-discoms-back-to-health-7568792/>

Question- Highlighting the issues faced by discoms, describe how the 'Reforms-based and results-linked' scheme can help to tide over these issues?

Animal Husbandry

Context:

- The global animal feed market is undergoing marked changes that are likely to accelerate this decade. The pattern of global consumption is evolving towards a higher share of animal products in diets. So, higher quantities of crops will be used as feed in the animal husbandry sector.

India's animal husbandry sector

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- Animal husbandry is the management and care of farm animals by humans for profit, in which genetic qualities and behavior, considered to be advantageous to humans, are further developed.
- Livestock plays an important role in the Indian economy.
- A large number of farmers are depends on Animal Husbandry for their livelihood.
- It supports the livelihood of almost 55% of the rural population.
- As per the Economic Survey-2021, the contribution of Livestock in total agriculture and allied sector Gross Value Added (at Constant Prices) has increased from 24.32% (2014-15) to 28.63% (2018-19).
- In addition to supplying milk, meat, eggs, wool and hides, animals, mainly bullocks, are the major source of power for both farmers and dryers.
- India is the highest livestock owner of the world. According to Livestock Census 2020, total milch cattle population was up by 10.5 per cent to 74.6 million in 2019.
- India is the world's largest producer of milk and third largest in egg production.
- The annual average growth rate of animal husbandry, diary and fisheries in five years till 2020 was 8.6 per cent.

Trends in livestock sector

- Maize (corn) and protein meal (oilseed extractions) will remain the most important feed commodities and will constitute 60 per cent of total feed use by 2030, according to OECD-FAO.
- Feed demand for maize is set to grow by 1.4 per cent per annum, slightly faster than projected 1.2 per cent growth for protein meals.
- Importantly, worldwide meat consumption is shifting towards poultry, primarily reflecting lower poultry prices in low-income developing countries where demand is price elastic. It means, as incomes recover, demand will recover too.
- By 2030, poultry meat will represent 41 per cent of all protein from meat sources as consumers are attracted to lower price, product consistency and higher protein/lower fat content.
- Projections show that by 2022-23, milk production will expand to 235 million tonnes (from 198 mt in 2019-20) and egg production to 136 billion (from 114 billion in 2019-20).
- So, strong growth in dairy production combined with feed intensification will result in a 2.4 per cent feed demand growth next 10 years.
- At the same time, protein meal demand is set to rise by 3 per cent per annum next 10 years as India moves towards compound feed-based livestock production.

Challenges:

- Disease outbreaks, sanitary restrictions and trade policies will affect the evolution and dynamics of the world meat market.
- For the animal feed manufacturers, there are challenges in sourcing raw material for feed including land constraint, water shortage, climate change, low crop yields, lack of tech infusion and policy constraint.

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- Uncertainty of raw material/feed availability, feed price volatility, demand fluctuation, policy environment and gradual inroads made by plant protein are some of the issues the industry will have to tackle.
- Feed price volatility often hurts the profits of manufacturers.
- While pervasive protein deficiency in India is sure to boost protein consumption as incomes rise, perhaps the biggest challenge to animal protein will come from the emerging plant protein segment.
- Plant protein is simply a meaningful food source of protein which is from plants. This group can include pulses, tofu, soya, tempeh, seitan, nuts, seeds, certain grains and even peas.
- Pulses are a large group of plants, which include chickpeas, lentils, beans (such as black, kidney and adzuki beans) and split peas.
- The growing vegan trend has led to an upsurge in manufacturer presence in the sector.

Way forward:

- Poultry sector can respond more quickly to market signals due to shorter production cycle as compared with ruminants.
- Poultry is amenable to faster improvement in genetics, animal health and feeding practices. As poultry expands, greenhouse gas emissions will slow.
- The industry must examine and evolve a sustainable animal feed market. But such a market will have to be part of 'Sustainable Animal Agriculture Ecosystem'.
- The industry has inherited a legacy ecosystem that does not recognise sustainability and needs to evolve to face looming changes.
- For the purpose, review of technologies, services, standards and regulations is necessary.
- Contract farming: For assured availability and access to raw material, contract farming is the way forward.
- Establishing backward linkages especially with FPOs (Farmer Producer Organizations) will provide price stability and assured access with scale economies.
- Hedging in commodity exchanges through the derivatives route is a time-tested method of price risk management. Delivery based Forward contracts can be explored.
- The industry must recognise that animal protein — whether milk, meat, poultry or eggs — is far more expensive than vegetable protein. So, the big question is whether animal protein can compete with plant protein cost-to-cost, especially in a price-sensitive country such as ours.
- Long term vision and research: Finally, the animal agriculture-based industry should be clear about where it wants to be in the next 10 years.
- Research is therefore a priority to study the market and come up with demand projections, strategy to ensure higher yields per milch animal, ways to promote animal health and nutrition, estimation of the number of layers and broilers needed, feed demand, as well as vaccine requirement.
- Upgrading skills to keep up with global trends, setting up of adequate processing capacity and investment deserve special attention as the industry has potential to attract foreign direct investment.

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The Hindu Link-

<https://www.thehindubusinessline.com/opinion/columns/g-chandrashekhhar/animal-husbandry-needs-greater-attention/article36969789.ece>

Question- Animal Husbandry can provide impetus to doubling farmer's income. In this context give the opportunities and challenges related with respect to animal husbandry.

Coal India, the fall guy for power crisis

Context:

- The post-Covid economic recovery has led to a major increase in the demand for power, both in India and globally.

Background

- In India, coal-based power plants have witnessed rapid depletion of coal stocks from a comfortable 28 days at the end of March to a precarious level of four days by the end of September.
- The country is struggling to understand how the crisis is likely to pan out in the near future.
- Coal India Ltd (CIL) has been unfairly attacked, even as it gears up to play a crucial role in fighting the power crisis.

Reasons for the crisis

- Structural: A government-appointed committee in the early 1990s concluded that CIL "cannot be expected to meet the demand of the power sector, in case the pace of capacity addition accelerates."
- This led to an amendment in the Coal Mines Nationalisation Act (CMNA) in 1993 that enabled the government to take away 200 coal blocks of 28 billion tons from CIL and allocate them to end-users for the captive mining of coal.
- These end-users, mostly in the private sector, failed to produce any significant quantity of coal to meet the rapidly rising power capacity between 2007 and 2016.
- The cancellation of 214 blocks by the Supreme Court added to the problem.
- Commensurate with the captive mines allocated to the end-user industries, the coal production today should have been at least 500 million tonnes per annum (mtpa). In reality, this has never exceeded 60 mtpa.
- CIL, with denuded reserves, is called to meet the rising gap in coal supplies. These structural factors fuelled not just over-expectations from CIL, they also kept the company in a constant state of stress.

- On the operational side, power plants are required by the Central Electricity Authority (CEA) to maintain a minimum stock of 15 to 30 days of normative coal consumption, depending upon the distance of the plant from the source of coal.
- The compliance with this directive by power plants has been severely lacking. This enhances the vulnerability of power plants, particularly those at longer distances, to supply constraints on account of the coal producer or transporter.
- The persistent non-payment of coal sale dues by power plants to coal companies has created a serious strain on their working capital position.
- Some companies were forced to borrow from banks to meet the operational expenses, including disbursement of salaries.
- According to reports, Rs 18,000 crore is currently due to coal producers.

Impacts of shortage of coal

- The persistent shortage of coal production by the privatised and captive mines forced India to import around 200 million tonnes (mt) of coal.
- Of this, more than 40 percent goes to meet the demands of power plants.
- A spurt in imported coal prices, mainly due to a major increase in coal imports by China, acted as a brake on imports of coal.
- This escalated the demand for domestic coal.
- Simultaneously, from recent months, the demand for thermal power witnessed a sudden rise after stagnating for over three years.
- The spurt in demand for coal is being linked to the post-Covid economic recovery.
- In the short run, the coal production by CIL has faced severe headwinds in the first quarter due to the second wave of the pandemic.
- Thousands of workers and officers were infected and hospitalised and more than 250 CIL employees lost their lives.
- The extended monsoon severely affected open-cast mining. These added to supply disruptions and aggravated the crisis.
- Despite so many constraining factors, it is to the credit of CIL that it has achieved a growth of 14 million tonnes (mt) or 5.8 per cent in coal production during the first half of 2021-22.
- Yet, the offtake was higher than the preceding year by 52 mt or 20.6 per cent. This was possible by drawing down on the opening inventory of coal from 100 mt to 42 mt during April to September.

Conclusion

- Besides meeting the growing coal demand of power plants, CIL has been able to significantly replace the import of highly expensive thermal coal.
- Even after bearing the highest tax and transport cost globally, the landed cost of CIL coal continues to be much cheaper than imported coal at almost all destinations.

- The resultant benefits are savings of foreign exchange, and generation of power at affordable tariffs.
- The coal price charged by CIL, expressed in energy units, is at a deep discount of 60-70 percent of imported coal.
- In brief, CIL has been unfairly blamed for the coal crisis.
- It has played a stellar role, standing like a solid rock between light and darkness.
- It is striving to build comfortable stocks at the power plants, not in default of payment.
- The company has ramped up coal production despite the 1990s policy that took away coal blocks of 28 billion tonnes of reserves. It is time that the country recognises the critical role of CIL. It needs bouquets rather than brickbats.

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/coal-india-the-fall-guy-for-power-crisis-7576985/>

Question- Giving out the reasons for current shortage in coal supply, give remedial measures needed to ensure a consistent and dependable supply chain.

Powering the energy sector

Context:

- In an energy-dependent country like India, the availability of energy supplies at affordable rates is pivotal for fulfilling developmental priorities.

Background

- The energy sector is beset with problems.
- The distribution sector has for long been the bane of the power sector, consistently making huge losses owing to problems such as expensive long-term power purchase agreements, poor infrastructure, inefficient operations, and leakages and weaknesses in State-level tariff policies.
- Most discoms are deep into the red as high aggregate technical and commercial (AT&C) losses are chipping into their revenues.

More in News

- Against this backdrop, the Electricity (Amendment) Bill of 2020 is a game-changing reform.
- The wide-ranging provisions of the Bill will set the process of de-licensing power distribution after the monopoly of the state is dismantled.

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- This will provide the consumers with an option of choosing the service provider, switch their power supplier and enable the entry of private companies in distribution, thereby resulting in increased competition.
- In fact, privatisation of discoms in Delhi has reduced AT&C losses significantly from 55% in 2002 to 9% in 2020.

Rationale behind Amendment:

- To address critical issues weakening the commercial and investment activities in the electricity sector.
- The current challenges plaguing the Indian power sector is derived from negligence in addressing the structural issues.
- These include operational and financial inefficiencies of power generation, transmission and distribution utilities, access and quality of power supply, political interference, lack of private investments, inadequate public infrastructure and lack of consumer participation.
- Bringing transparency and accountability to protect the interest of consumers and ensuring healthy growth of the power sector.

- **Key Objectives:**

- Ensure consumer centricity,
- Promote Ease of Doing Business,
- Enhance sustainability of the power sector,
- Promote green power,

Electricity (Amendment) Bill of 2020:

- **National Selection Committee:** Instead of the separate Selection Committee (for appointment of Chairperson and members of State Electricity Regulatory Commissions-SERCs), there is a proposal to set up a National Selection Committee.
- **Introduction of Direct Benefit Transfer:** Direct Benefit Transfer will be beneficial for both the State Governments as well as Distribution Companies.
- It will be beneficial for the State Government because it will ensure that the subsidy reaches the people who are actually entitled and the State Government gets clear accounts of the amount given as subsidy.
- It will benefit the distribution company by making sure that the subsidies due are received as per the number of beneficiaries.
- **National Renewable Energy Policy:** India is a signatory to the Paris Climate Agreement. It is therefore proposed to have a separate policy for the development and promotion of generation of electricity from renewable sources of energy.
- The policy prescribes a minimum percentage of purchase of electricity from renewable sources of production. It seeks to give special attention to hydro power.
- **Sustainability:**

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- **Cost Reflective Tariff:** There had been the issue of lazy attempts from the commissions in adopting the tariffs determined, causing issues of cost escalation.
- To address this problem, the Amendment has prescribed a period of 60 days to adopt the determined tariffs. Failing such a timeline of 60 days, the tariff would be deemed to be accepted.
- **Payment Security:** It is proposed to empower Load Dispatch Centres to oversee the establishment of adequate payment security mechanisms before dispatch of electricity, as per contracts.
- Late payment of dues of generating and transmission companies have reached unsustainable levels. This impairs the finances of the Gencos and Transcos and also increases the Non-Performing Assets of the Banks.

Miscellaneous:

- **Strengthening of the Appellate Tribunal (APTEL):** It is proposed to increase the strength of APTEL to at least seven to facilitate quick disposal of cases.
- To be able to effectively enforce its orders, it is also proposed to give it the powers of the High Court under the provisions of the Contempt of Courts Act.
- **Penalties:** In order to ensure compliance of the provisions of the Electricity Act and orders of the Commission, section 142 and section 146 of the Electricity Act are proposed to be amended to provide for higher penalties.
- **Cross Border Trade in Electricity:** Provisions have been added to facilitate and develop trade in electricity with other countries.
- **Distribution sub-licensees:** To improve quality of supply, an option is proposed to be provided to Discoms to authorise another person as a sub-license to supply electricity in any particular part of its area, with the permission of the State Electricity Regulatory Commission.

Way Forward

- Open access for purchasing power from the open market should be implemented across States and barriers in the form of cross subsidy surcharge, additional surcharge and electricity duty being applied by States should be reviewed.
- Discoms and regulators should be brought on board for proper implementation of open access, which will provide more options to consumers to choose their discom just as they are able to choose telecom providers.
- The question of tariffs needs to be revisited if the power sector is to be strengthened.
- Tariffs ought to be reflective of average cost of supply to begin with and eventually move to customer category-wise cost of supply in a defined time frame.
- This will facilitate reduction in cross subsidies.
- Electrical energy should be covered under GST, with a lower rate of GST, as this will make it possible for power generator/transmission/distribution utilities to get a refund of input credit, which in turn will reduce the cost of power.
- Other antidotes to the problem include use of technology solutions such as installation of smart meters and smart grids which will reduce AT&C losses and restore financial viability of the sector.

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- Push for renewal energy: The impetus to renewal energy, which will help us mitigate the impact of climate change, is much needed.
- One option is to encourage roof-top solar plants. Despite its inherent benefits, the segment has shown relatively slow progress with an estimated installed capacity of 5-6 GW as on date, well short of the 2022 target.

The Hindu Link:

<https://www.thehindu.com/opinion/op-ed/powering-the-energy-sector/article37046277.ece>

Question- List out the provisions of Electricity (Amendment) Bill 2020. Also give the implications of such measures for both consumers and electricity providers.

Why global fuel prices are up, how India is impacted

Context:

- As the global recovery gains strength, the price of crude oil is nearing its highest level since 2018, while the price of natural gas and coal are hitting record highs amid an intensifying energy shortage.

Reason behind the fuel price rise

- The price of Brent Crude breached the \$85 per barrel mark, reaching its highest level since 2018 on the back of a sharp increase in global demand as the world economy recovers from the pandemic.
- Key oil producing countries have kept crude oil supplies on a gradually increasing production schedule despite a sharp increase in global crude oil prices.
- The price of Brent crude has nearly doubled compared to the price of \$42.5 per barrel a year ago.
- Recently, the OPEC+ group of oil producing countries reaffirmed that they would increase total crude oil supply by only 400,000 barrels per day in November 2021 despite a sharp increase in prices.
- The output of the top oil-producing countries – Saudi Arabia, Russia, Iraq, UAE and Kuwait — would still be about 14 per cent lower than reference levels of production post the increase in November 2021.
- OPEC+ had agreed to sharp cuts in supply in 2020 in response to Covid-19 global travel restrictions in 2020 but the organisation has been slow to boost production as demand has recovered.
- India and other oil importing nations have called on OPEC+ to boost oil supply faster, arguing that elevated crude oil prices could undermine the recovery of the global economy.
- Supply side issues in the US including disruptions caused by hurricane Ida and lower than expected natural gas supplies from Russia amid increasing demand in Europe have raised the prospect of natural gas shortages in the winter.
- International coal prices have also reached all-time highs as China faces a coal shortage that has led to factories across China facing power outages.

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- A faster than expected recovery in global demand has pushed the price of Indonesian coal up from about \$60 per tonne in March to about \$200 per tonne in October.

Probable Impact on India

- High crude oil prices have contributed to the prices of petrol and diesel regularly setting new record highs across the country in 2021.
- India has seen a faster recovery in the consumption of petrol than of diesel after pandemic-related restrictions with petrol consumption up 9 per cent in September compared to the year ago period but diesel consumption remaining 6.5 per cent below 2020 levels.
- Diesel accounts for about 38 per cent of petroleum product consumption in India and is a key fuel used in industry and agriculture.
- S&P Global Platts Analytics noted in a report;
- Demand for diesel in India was expected to go up in the next few months with the upcoming festive season set to accelerate the economic recovery and push up diesel consumption.
- However predict that India's total demand for crude oil would only surpass pre pandemic levels in 2022.
- High international gas prices have led to an upward revision in the price of domestically produced natural gas.
- The Petroleum Planning and Analysis Cell (PPAC) set the price of natural gas produced by state owned ONGC and Oil India under the nomination regime to \$2.9 per mmbtu up from \$1.79 per mmbtu in the previous six month period.
- The PPAC also increased ceiling price of \$6.13 per mmbtu for gas extracted from ultra deep water, and high pressure, high temperature discoveries from \$3.62 per mmbtu in the previous six month period.
- The increase in gas prices has put upward pressure on the price of both Compressed Natural Gas (CNG) used as a transport fuel and Piped Natural Gas (PNG) used as a cooking fuel.
- High international prices of coal have added to a coal shortage at India's thermal power plants by forcing thermal plants using imported coal that could not pass on the higher price of coal to procurers to stop supplying power.
- Low coal stocks at a number of coal fired thermal power plants have led to power outages in a number of states including Punjab and Rajasthan and have forced states to buy power at well above normal prices on the power exchange.

The Indian Express Link

<https://indianexpress.com/article/explained/high-international-fuel-prices-impact-on-india-7579955/>

Question- The rising crude oil prices in international markets are a cause of worry for both energy security and balance of trade of India. Comment.

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International trade is not a zero-sum game

Context:

- During the recent G-20 ministerial meeting in Italy, the Commerce Minister made a pitch for deepening India's trade ties with several countries.
- India is negotiating free trade agreements (FTAs) with several countries.
- However, rising trade protectionism at home, demonstrated by several examples, could throw a spanner in the works.

Free Trade Agreement

- A free trade agreement is a pact between two or more nations to reduce barriers to imports and exports among them.
- Under a free trade policy, goods and services can be bought and sold across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.
- The concept of free trade is the opposite of trade protectionism or economic isolationism.
- For example:
- The major FTAs that India has signed and implemented so far include South Asia Free Trade Agreement (SAFTA), India-ASEAN Comprehensive Economic Cooperation Agreement (CECA), India-Korea Comprehensive Economic Partnership Agreement (CEPA) and India-Japan CEPA.
- Comprehensive Economic Partnership Agreement: It is a kind of free trade pact which covers negotiation on the trade in services and investment, and other areas of economic partnership.
- Comprehensive Economic Cooperation Agreement: CECA involves only "tariff reduction/elimination in a phased manner on listed / all items except the negative list and tariff rate quota (TRQ) items"
- Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement (FTA) between the countries of Association of South East Asian Nations (ASEAN) and the six states with which ASEAN has free trade agreements (Australia, China, India, Japan, South Korea and New Zealand).
- The RCEP came into force in November 2020 without India. The signatories of the agreement include 10 ASEAN countries – Singapore, Thailand, Vietnam, Cambodia, Indonesia, Malaysia, Brunei, Laos, Myanmar and the Philippines and 5 key partners (China, Japan, South Korea, Australia and New Zealand).

Challenges for international trade in India

- Rising tariffs: The simple average of India's tariffs that stood at 8.9 per cent in 2010-11 has increased by almost 25 per cent to 11.1 per cent in 2020-21.

- The proportion of tariff lines with rates above 15 per cent in 2020-21 stood at 25.4 per cent, up from 13.6 per cent in 2014-15. These increases in tariff rates have reversed the political consensus on tariff liberalisation that India followed since 1991.
- Tariffs are used to restrict imports. Simply put, they increase the price of goods and services purchased from another country, making them less attractive to domestic consumers.
- India is the highest initiator of anti-dumping measures aimed at shielding domestic industry from import competition.
- According to the WTO, from 2015 to 2019, India initiated 233 anti-dumping investigations, which is a sharp increase from 82 initiations between 2011 and 2014 (June).
- The anti-dumping initiations by India from 1995 (when the WTO was established) till 2020 stand at 1,071.
- This is higher than the anti-dumping initiations by the US (817), the EU (533), and China (292), despite India's share in the global merchandise exports being far less than these countries.
- The government imposes anti-dumping duty on foreign imports when it believes that the goods are being "dumped" – through the low pricing – in the domestic market.
- Anti-dumping duty is imposed to protect local businesses and markets from unfair competition by foreign imports.
- India recently amended Section 11(2)(f) of the Customs Act of 1962, giving the government the power to ban the import or export of any good (not just gold and silver, as this provision applied earlier) if it is necessary to prevent injury to the economy.
- The power to ban the import or export of gold and silver is consistent with WTO regime, provided the ban is not applied in an arbitrary or discriminatory manner.
- However, expanding the scope to cover any good is inconsistent with India's WTO obligations.
- WTO allows countries to impose restrictions on imports in case of injury to domestic industry, not to the "economy".
- However, these trade remedial measures can be imposed only if certain conditions are satisfied and after an investigation. India already has laws to impose these trade remedial measures.
- Additionally, countries can also impose restrictions on trade on account of balance of payment difficulties and national security purposes.
- However, section 11(2)(f) of the Customs Act does not talk of any of these grounds to restrict trade, thus is unnecessary.
- India amended the rules of origin requirement under the Customs Act. Rules of origin determine the national source of a product.
- This helps in deciding whether to apply a preferential tariff rate (if the product originates from India's FTA partner country) or to apply the most favoured nation rate (if the product originates from a non-FTA country).
- But India has imposed onerous burdens on importers to ensure compliance with the rules of origin requirement.

- The intent appears to be to dissuade importers from importing goods from India's FTA partners.
- The call given by the Prime Minister to be "vocal for local" (giving preference to domestically made goods) is creating an ecosystem where imports are looked at with disdain, upsetting competitive opportunities and trading partners.
- International trade is not a zero-sum game. India can't maximise its interests at the expense of others. Its experiment with trade protectionism in the decades before 1991 was disastrous. We should recall Winston Churchill's warning: "Those who fail to learn from history are condemned to repeat it."

The Indian Express Link:

<https://indianexpress.com/article/opinion/columns/international-trade-is-not-a-zero-sum-game-7584023/>

Question- Write about the challenges being faced in strengthening India's international trade.

ENVIRONMENT

Seas will rise for centuries to come

Context:

- According to the new study, even if humanity beats the odds and caps global warming at 1.5 degrees Celsius above pre-industrial levels, seas will rise for centuries to come and swamp cities currently home to half-a-billion people.

Key Highlights of the Environmental Research Letters

- In a world that heats up another half-degree above that benchmark, an additional 200 million of today's urban dwellers would regularly find themselves knee-deep in sea water and more vulnerable to devastating storm surges.
- Worst hit in any scenario will be Asia, which accounts for nine of the 10 mega-cities at highest risk.
- Land home to more than half the populations of Bangladesh and Vietnam fall below the long-term high tide line, in a world with even a 2 degrees Celsius rise.
- Built-up areas in China, India and Indonesia would also face devastation.
- Most projections for sea level rise run to the end of the century.
- But oceans will continue to swell for hundreds of years beyond 2100 (fed by melting ice sheets, heat trapped in the ocean and the dynamics of warming water) no matter how aggressively greenhouse gas emissions are drawn down.

Sea Level Rise (SLR):

- SLR is an increase in the level of the world's oceans due to the effects of climate change, especially global warming, induced by three primary factors: Thermal Expansion, Melting Glaciers and Loss of Greenland and Antarctica's ice sheets.
- Sea level is primarily measured using tide stations and satellite laser altimeters.

SLR is Linked to Three Primary Factors:

- Thermal Expansion: When water heats up, it expands. About half of the sea-level rise over the past 25 years is attributable to warmer oceans simply occupying more space.
- Melting Glaciers: Higher temperatures caused by global warming have led to greater-than-average summer melting of large ice formations like mountain glaciers as well as diminished snowfall due to later winters and earlier springs.
- That creates an imbalance between runoff and ocean evaporation, causing sea levels to rise.
- Loss of Greenland and Antarctic Ice Sheets: As with mountain glaciers, increased heat is causing the massive ice sheets that cover Greenland and Antarctica to melt more quickly, and also move more quickly into the sea.

Rate of SLR:

- **Global:** Global sea level has been rising over the past century, and the rate has accelerated in recent decades. The average global sea level has risen 8.9 inches between 1880 and 2015. That's much faster than in the previous 2,700 years.
- **Also,** Intergovernmental Panel on Climate Change (IPCC) released 'The Special Report on the Ocean and Cryosphere in a Changing Climate' in 2019 which underlined the dire changes taking place in oceans, glaciers, and ice-deposits on land and sea.
- **Regional:** SLR is not uniform across the world. Regional SLR may be higher or lower than Global SLR due to subsidence, upstream flood control, erosion, regional ocean currents, variations in land height, and compressive weight of Ice Age glaciers.

Consequences of SLR:

- **Coastal Flooding:** Globally, eight of the world's 10 largest cities are near a coast, which is threatened by coastal flooding.
- **Destruction of Coastal Biodiversity:** SLR can cause destructive erosion, wetland flooding, aquifer and agricultural soil contamination with salt, and lost habitat for biodiversity.
- **Dangerous Storm Surges:** Higher sea levels are coinciding with more dangerous hurricanes and typhoons leading to loss of life and property.
- **Lateral and Inland Migration:** Flooding in low-lying coastal areas is forcing people to migrate to the higher ground causing displacement and dispossession and in turn a refugee crisis worldwide.
- **Impact on Infrastructure:** The prospect of higher coastal water levels threatens basic services such as internet access.
- **Threat to Inland Life:** Rising seas can contaminate soil and groundwater with salt threatening life farther away from coasts.
- **Tourism and Military Preparedness:** Tourism to coastal areas and military preparedness will also be negatively affected by an increase in SLR.

Steps taken to Tackle SLR:

- **Relocation:** Many coastal cities have planned to adopt relocation as a mitigation strategy. For example, Kiribati Island has planned to shift to Fiji, while the Capital of Indonesia is being relocated from Jakarta to Borneo.
- **Building Sea Wall:** Indonesia's government launched a coastal development project called a Giant Sea Wall or "Giant Garuda" in 2014 meant to protect the city from floods.
- **Building Enclosures:** Researchers have proposed Northern European Enclosure Dam (NEED), enclosing all of the North Sea to protect 15 Northern European countries from rising seas. The Persian Gulf, the Mediterranean Sea, the Baltic Sea, the Irish Sea, and the Red Sea were also identified as areas that could benefit from similar mega enclosures.
- **Architecture to Steer Flow of Water:** Dutch City Rotterdam built barriers, drainage, and innovative architectural features such as a "water square" with temporary ponds.

Vulnerability of India:

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- India's 7,516-kilometre-long coastline includes 5,422 kilometres of coastline on the mainland and 2,094 kilometres on the islands belonging to nine states and four Union Territories.
- The coastline accounts for 90% of the country's trade and it spans 3,331 coastal villages and 1,382 islands.

India's Efforts:

- **Coastal Regulation Zone:**
- The coastal areas of seas, bays, creeks, rivers, and backwaters which get influenced by tides up to 500 m from the high tide line (HTL) and the land between the low tide line (LTL) and the high tide line were declared as Coastal Regulation Zone (CRZ) in 1991.
- The latest regulation also takes into account rising sea-levels due to global warming.
- **National Action Plan on Climate Change:**
- It was launched in 2008 by the Prime Minister's Council on Climate Change.
- It aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it.

The Hindu Link:

<https://www.thehindu.com/todays-paper/tp-international/seas-will-rise-for-centuries-to-come/article36976644.ece>

Question- Describe the primary factors responsible for Sea level rise (SLR). Also give out the consequences of Sea level rise and methods to prevent it.

Why govt proposes to redefine forests, and the concerns this raises

Context:

- Recently, the Ministry for Environment, Forests and Climate Change (MoEFCC) published proposed amendments to the Forest Conservation Act, 1980, easing diversion of forests and exempting certain categories of development from the need to take clearance from the Ministry.

More in News

- The Ministry has invited feedback from state governments and the general public within 15 days.
- After examining the feedback, it will draw up a draft amendment, followed by a second round of public consultation before an amendment Bill is finally drawn up and tabled in Parliament.

Need of Amendment

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- It has been amended only once before, in 1988.
- The current definition of forests has locked land across the country; even private owners cannot utilise their own property for non-forestry purposes.
- Under the Act, any diversion of any forest land for any purpose, including assignment of leases, needs prior approval of the Centre.
- In 1996, ruling in *T N Godavarman Thirumulpad v Union of India*, the Supreme Court had expanded the definition and scope of forest land to include all areas recorded as forest in any government record, irrespective of ownership, recognition and classification.
- Previously, the Act had applied largely to reserve forests and national parks.
- The court also expanded the definition of forests to encompass the “dictionary meaning of forests”, which would mean that a forested patch would automatically become a “deemed forest” even if it is not notified as protected, and irrespective of ownership.
- The order was also interpreted to presume that the Act is applicable over plantations in non-forest land.

Proposed amendments

- The Ministry has proposed that all land acquired by the Railways and Roads Ministries prior to 1980 be exempted from the Act.
- These lands had been acquired for expansion, but subsequently forests have grown in these areas, and the government is no longer able to use the land for expansion.
- If the amendment is brought in, these Ministries will no longer need clearance for their projects, nor pay compensatory levies to build there.
- For individuals whose lands fall within a state-specific Private Forests Act or come within the dictionary meaning of forest as specified in the 1996 Supreme Court order, the government proposes to allow “construction of structures for bona fide purposes” including residential units up to 250 sq m as a one-time relaxation.
- Defence projects near international borders will be exempted from forest clearance.
- Oil and natural gas extraction from forested lands will be permitted, but only if technologies such as Extended Reach Drilling are used.
- The Ministry has proposed doing away with levies for non-forestry purposes during the renewal of a lease, saying the double levy at the time of awarding of the lease and the renewal is “not rational”.
- Strip plantations alongside roads that would fall under the Act will be exempted.

Significance

- It has proposed making forest laws more stringent for notified forests, making offences non-bailable with increased penalties including imprisonment of up to one year.
- It has disallowed any kind of diversion in certain forests.
- It has attempted to define and identify forests once and for all — something that has been often ambiguous.

Concerns

- Activists and opposition leaders say the relaxation of forest rules will facilitate corporate ownership and the disappearance of large tracts of forests.
- About the exemption of forests on private land, even former forest officials said many forests will disappear. For instance, 4% of land in Uttarakhand falls under private forests.
- Another concern is citing tribals and forest dwelling communities — an issue the amendments do not address.
- Environmentalists say exemption for Roads and Railways on forest land acquired prior to 1980 will be detrimental to forests as well as wildlife – especially elephants, tigers and leopards.
- Environmentalists say one time exemption for private residences on private forest will lead to fragmentation of forests, and open areas such as the Aravallimountains to real estate.

The Indian Express Link:

<https://indianexpress.com/article/explained/why-govt-proposes-to-redefine-forests-and-the-concerns-this-raises-7568889/>

Question- Diversion of forest land for infrastructural projects needs to be driven by a ethos of sustainable development. Elucidate.

SCIENCE AND TECHNOLOGY

Indian Space Association (ISpA)

Context:

- Prime Minister Narendra Modi recently launched the Indian Space Association (ISpA), an industry body consisting of various stakeholders of the Indian space domain.

About the Indian Space Association (ISpA)

Significance

- Governments and government agencies collaborated to explore newer planets and galaxies in search of life forms that exist outside Earth.
- In the recent past, private sector companies such as Elon Musk's SpaceX, Richard Branson's Virgin Galactic, and Jeff Bezos' Blue Origin have taken the lead in spaceflight, promising to start tourist flights to space.
- Though India too has made significant strides in space exploration over time, state-run ISRO has been at the centre and front of this progress.
- Several private sector companies, however, have shown an interest in India's space domain, with space-based communication networks coming to the fore.

Objective

- One of the main goals of the organisation is to supplement the government's efforts towards making India a global leader in commercial space-based excursions.
- Of late, ISRO's rockets have been carrying the payload and communication satellites of various countries;
- Now, private players will also look to broach this space with the new organisation.
- It would engage with stakeholders across the ecosystem for the formulation of an enabling policy framework which fulfils the government vision of leading commercial space exploration.

Members

- ISpA will be represented by leading domestic and global corporations that have advanced capabilities in space and satellite technologies.
- **The founding members** include telecom service providers such as Bharti Airtel, engineering firm Larson & Toubro, and other companies such as Nelco of Tata Group, OneWeb, Mapmyindia, Walchandnagar Industries and Alpha Design Technologies.
- **Other core members** include Godrej, Hughes India, Ananth Technology Limited, Azista-BST Aerospace Private Limited, BEL, Centum Electronics, and Maxar India.

- In India, the space-based communications network has taken off with several Indian and international companies betting on it as the next frontier to provide high-speed and affordable Internet connectivity to inaccessible areas as well.
- This includes SpaceX's StarLink, Sunil Bharti Mittal's OneWeb, Amazon's Project Kuiper, US satellite maker Hughes Communications, etc.
- OneWeb, for example, is building its initial constellation of 648 low-earth orbit satellites and has already put 322 satellites into orbit.
- Its services are expected to begin this year to the Arctic region including Alaska, Canada, and the UK. By late 2022, OneWeb will offer its high-speed, low latency connectivity services in India and the rest of the world.
- In addition, StarLink and Amazon are also in discussion with the Indian government for a licence to offer satellite-based Internet services.
- SpaceX has a plan to create a network of 12,000 satellites of which over 1,300 are already sky-borne.

Importance of Satellite based Internet in India

- The expansion of the Internet in India is crucial to the current government's dream of a digital India where a majority of government services are delivered directly to the customer.
- Although the government aims to connect all villages and gram panchayats with high-speed Internet over the next 1000 days through **BharatNet**, **internet connectivity in hilly areas and far-flung places of Northeast India are still a challenge.**
- To overcome this, industry experts suggest that satellite Internet will be essential for broadband inclusion in remote areas and sparsely populated locations where terrestrial networks have not reached.
- As of now, however, **satellite communications remains limited to use by corporates and institutions that use it for emergency use, critical trans-continental communications and for connecting to remote areas with no connectivity.**
- As of August 2021, **India had only 3 lakh satellite communications customers, compared with 45 lakh in the US and 21 lakh in the European Union.**

Industrialists view

- Industrialists added that it was time for the private sector now to take advantage and ensure that India remained on the cutting edge of the space industry.
- New technologies, R&D where billions of dollars are being spent, are upending old technologies. In the next three to five years, the space industry will dramatically alter.
- OneWeb had entered into an arrangement through Letter of Intent with **New Space India Ltd.** the commercial arm of the Indian Space Research Organisation (ISRO), to use PSLV and the GSLV-Mk III as potential platforms to launch OneWeb's satellites in India from 2022.

The Hindu Link:

<https://www.thehindu.com/todays-paper/tp-national/industry-urges-more-clarity-on-space-policy/article36956055.ece>

Question: Write a short note on Indian Space Association (ISpA).

China's hypersonic glide vehicle test

Context:

- China in August tested a nuclear-capable hypersonic glide vehicle that circled the globe before speeding towards its target.
- Hypersonic speeds are 5 or more times the speed of sound.

More in News

- The vehicle was launched on a Long March rocket, which is used for the space programme.
- The Chinese military launched a rocket that carried a hypersonic glide vehicle, which flew through low-orbit space before cruising down towards its target.
- The test has raised new questions about why the US often underestimated China's military modernisation

Technology used:

- The exact details on technology used by China in this particular test are not known through media sources. But most of the hypersonic vehicles primarily use the scramjet technology.

Concerns and implications for India and the world:

- The weapon could, in theory, fly over the South Pole. That would pose a big challenge for the US military because its missile defence systems are focused on the northern polar route.
- India is especially concerned with the latest developments considering relations with China in the recent past. Such capabilities highlight the threat for our space assets along with the surface assets.

Global Status regarding hypersonic weapons

- The US, Russia and China are all developing hypersonic weapons, including glide vehicles that are launched into space on a rocket but orbit the earth under their own momentum.
- India's DRDO tested a hypersonic vehicle in September last year.

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The Indian Express Link:

<https://indianexpress.com/article/explained/chinas-hypersonic-glide-vehicle-test-7577005/>

Question- Write a short note on scramjet engine.



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