



vaccination

GS-I	Chamoli Glacier Break	POLITY •	Disengagement process on in Pangong Tso Major Port Authorities Bill, 2020
GS-2	Kuruba community demanding ST status	• INTERNATIONAL • RELATIONS • • • • ENVIRONMENT •	Vijayanagara became Karnataka's 31st district Chinese energy project in Sri
GS-2	Continuity in India's ties with Central Asia		Lanka Hydrogen: The next clean energy frontier RBI gives retail investors
GS-3	What does energy security mean for Moldivoo2		direct access to Government 'Gilt bonds' Eco-sensitive zones (ESZ) declaration around the Wayanad Wildlife Sanctuary
	Pulses for Food Security and	SCIENCE • & TECHNOLOGY •	Depletion of particular brain tissue linked to chronic depression, suicide: Study Transparent wood is coming
GS-4	Sustainable Future Ethical issues with	•	United Arab Emirates celebrates its first mission at Mars



WEEK-3

FEBRUARY

on in



- Disclaimer -

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

CURRENT AFFAIRS ANALYST WEEK- 3 (FEBRUARY, 2021)

CONTENTS

17Section - A: MAINS CURRENT AFFAIRS					
Area of GS		Topics in News	Page No.		
GS-I	GEOGRAPHY	Chamoli Glacier Break			
GS-II	GOVERNANCE	Kuruba Community demanding ST status			
	INTERNATIONAL RELATIONS	Continuity in India's ties with Central Asia			
GS-III	ΕCONOMY	What does energy security mean for Maldives?			
		Pulses for Food Security and Sustainable Future			
GS-IV	ETHICS	Ethical issues with vaccination			

Section - B: PRELIMS CURRENT AFFAIRS					
Area of GS		Topics in News	Page No.		
GS-II	POLITY	Disengagement process on in Pangong Tso			
		Major Port Authorities Bill, 2020			
		Vijayanagara became Karnataka's 31st district			
	INTERNATIONAL RELATIONS	Chinese energy project in Sri Lanka			
	ECONOMY	Hydrogen: The next clean energy frontier			
		 RBI gives retail investors direct access to Government 'Gilt bonds' 			
GS-III	ENVIRONMENT	Eco-sensitive zones (ESZ) declaration around the Wayanad Wildlife Sanctuary			
	SCIENCE & TECHNOLOGY	Depletion of particular brain tissue linked to chronic depression, suicide: Study			
		Transparent wood is coming			
		United Arab Emirates celebrates its first mission at Mars			



IAS 2021-22 GS FOUNDATION



SECTION: A (MAINS)

CURRENT AFFAIRS

CHAMOLI GLACIER BREAK

CONTEXT

A major disaster struck the Himalayan state of Uttrakhand recently. A glacier broke after an avalanche in the Joshimath area of the state's Chamoli district.

• BACKGROUND

- Human activities profoundly affect the earth's climate and mountains are a sensitive indicator of that effect and they provide an early glimpse of what could come to pass in a lowland environment.
- The mountain ecosystem is easily disrupted by variations in climate owing to their altitude, slope, and orientation to the sun.
- As the earth heats up, mountains glaciers melt at unprecedented rates, while rare plants and animals struggle to survive over everdiminishing areas.
- The melting of Himalayan glaciers has doubled since the start of the 21st century due to rising temperature, losing over vertical foot-and-half or ice each year, and potentially threatening water supply for hundreds of millions of people in countries.
- Now, another disaster induced by climate change due to the negative impact of humans on the environment has been witnessed.
- Previously, the region has witnessed devastating earthquakes and in the recent past earthquakes in Chamoli and flood in Kedarnath has been witnessed.

• ANALYSIS

What is a glacier outburst? What causes this disaster?

- Glacial lake outburst floods (GLOF) is being considered to be the most likely trigger for this event.
- GLOF is a reference to flooding caused downstream due to a breach in a glacial lake.
- Retreating glaciers, like several in the Himalayas, usually result in the formation of lakes at their tips, called **proglacial lakes**, often bound only by sediments and boulders.
- If the boundaries of these lakes are breached, it can lead to large amounts of water rushing

down to nearby streams and rivers, gathering momentum on the way by picking up sediments, rocks, and other material, and resulting in flooding downstream.

- GLOF events are not unusual, but their impact depends on the size of the proglacial lake that burst, and its location.
- In the Hindu Kush Himalaya, moraine-dammed glacial lakes are common and numerous GLOF events have been traced back to the failure of moraine dams.

Why made the Himalayas so prone to disasters?

- There are four major faults in the Himalayas, including the **Himalayan Frontal Fault** and the **Trans Himadri Fault**. Multiple faults have developed parallel to these four.
- This branching and sub-branching mean that this is a zone of faults. The movement of thousands of years means that all rock formations are broken and crushed.
- Water penetrates deep into the interior and sabotages the rocks from the inside. It washes away the base of the rocks.
- Even if smaller ruptures occur along with short segments of the mountains, stress builds up along the faults. That accumulated stress eventually triggers an enormous earthquake.
- Thus the number of landslides is high in the region. Landslides and earthquakes will continue to happen in the region because of the movement of the plates in the Himalayas.

What is a 'fault'?

- A fault is a fracture or zone of fractures between two blocks of rock. Faults allow the blocks to move relative to each other.
- This movement may occur rapidly, in the form of an earthquake or may occur slowly, in the form of creep.
- Faults may range in length from a few millimeters to thousands of kilometers.





How rapidly the Himalayas is losing its ice?

- As per the first-ever assessment of climate change impacts on the **Hindu Kush Himalayan** (**HKH**) region, the number of glaciers in the Himalayan area has increased in the last five decades.
- This is an indicator of how severe glacier melting has been due to global warming.
- The increase in the number of glaciers is primarily due to glacier fragmentation.
- Glacier fragmentation refers to the splitting of big glaciers into smaller ones.
- And this is happening due to consistent loss in areas the glaciers occupy.
- Since the 1950s, only reductions have been observed in glacier area (or shrinkage).
- Based on a compilation of area change studies, eastern Himalayan glaciers have tended to shrink faster than glaciers in the central or western Himalayas.
- In the northern slopes of the Himalayas, glaciers are receding.

Glacier area change ranges between -0.1 percent/year for the **Chandra-Bhaga** basin (northwestern Indian Himalayan region) between 1980 and 2010 to more than -1 percent/year for the Poiqu basin (on the northern slopes of central Himalaya) between 1986 and 2001.

What can be the reasons behind the recent disaster?

- Low snowfall: Reduced snowfall this winter due to climate change may have played a major part in the glacier bursts. The glacial outbursts are also related to global warming. As the temperature soars during summers, the glaciers retreat, leaving behind water-filled, unstable moraine-dammed lakes.
- Large hydropower projects: The entire State of Uttarakhand is categorized as falling in Zone-IV and V of the earthquake risk map of India. Despite the threat of such calamity, large hydropower projects are in vogue in the state. The potential of the cumulative effect of multiple such projects has turned out to be more environmentally damaging than sustainable, given the current policy of the state government of pursuing hydro-power projects indiscriminately.

• CONCLUSION

Uttarakhand is a wake-up call, not just for the Government and people in the state, but also the planners and decision-makers all over the country. It is said that those who fail to learn from history are doomed to suffer from it repeatedly. It is high time, therefore, for the government to realize that the Himalayan mountains are fragile and impatient, and the government shall set its development priorities and projects based on the potential of the mountains, local and traditional knowledge as well as aspirations of the place.



KURUBA COMMUNITY DEMANDING ST STATUS

CONTEXT

The Kuruba community has been demanding the Schedule Tribe tag and held a massive rally in the outskirts of Bengaluru, Karnataka.

• BACKGROUND

- Three years after Karnataka witnessed a demand from the Lingayat community for a separate religion tag, the Kurubas have decided to revive a decades' old demand of including them in the Scheduled Tribes (ST) category.
- After more than seven decades of Independence, there is now a growing number of communities desiring to be classed as scheduled tribes.
- There are probably many reasons behind this current spurt in the wish for marginality.
- One of these would be the fear of small ethnicities that they would be pushed to the margins of political power as well as on landholdings in their traditional home grounds by the inflow of settlers, therefore needing protection.
- The tension, however, is also internal. Here the contest is for the benefits of government job reservation.

• ANALYSIS

The Kurubas Community

- The Kurubas of Karnataka are a traditional sheep rearing community.
- They are known by different names in other states, such as Kuruma in Andhra Pradesh, Golla in southern Karnataka, Dhangar in Maharashtra, Pal in Rajasthan, and Maldhari/Gadariya in Gujarat.
- Presently, the Kurubas constitute 9.3% of the state's population and come under the backward classes category sharing 15% reservation with 104 other castes.
- They subscribe to the teachings of Kanakadasa who was a renowned composer of Carnatic music, poet, philosopher, and saint
- From pre-Independence till 1977, the community enjoyed the ST status.
- In 1977, Justice LG Havanur, who headed the backward class commission, removed the ST

tag, moving the Kurubas to the 'most backward classes' category, and brought in an area restriction stating that those living in Bidar, Yadgir, Kalaburagi, and Madikeri with Kuruba synonyms can continue to avail the ST benefits.

What is the present reservation quota in Karnataka?

- Adhering to the Supreme Court's 1992 order, Karnataka has capped the reservation to 50% where 32% has been earmarked for backward classes, including Muslims, Christians, and Jains, 15% for SCs, and 3% for STs.
- This reservation quota has been further paired into categories: Category 1 (4), Category 2A (15), Category 2B (4), Category 3A (4), Category 3B (5), SC (15), and ST (3).

Supreme Court 1992 Order

- In 1991, the Narasimha Rao government issued an order providing an additional reservation of 10% for "other economically backward"' sections, to the existing 27% reservation recommended by the **Mandal Commission** for the **other backward classes**.
- This was challenged by an advocate, **Indra Sawhney**, and the apex court struck down the additional 10% and upheld the 27% reservation by capping the overall quota at 50%.
- Presently, only Tamil Nadu and Maharashtra have exceeded the apex court's ceiling of 50%.
 - ➤ Tamil Nadu has 69% reservation, which was achieved by including the reservation legislation in Schedule 9 of the Constitution.
 - In the case of Maharashtra, the Bombay High Court upheld the state government's quota for Marathas.



What is meant by Scheduled Tribes?

 The Constitution of India in Article 366 (25) prescribes that the Scheduled Tribes means such tribes or tribal communities as are deemed under Article 342 of the Constitution to be Scheduled Tribes.

- The National Commission for Scheduled Tribes explains:
 - Primitiveness, geographical isolation, shyness, and social, educational & economic backwardness due to these reasons are the traits that distinguish Scheduled Tribe communities of our country from other communities.

How Scheduled Tribes are protected?

- Article 342 gives the President the power to notify those communities in specific regions that fall under the classification of Scheduled Tribes.
- Apart from the fundamental rights under Articles 15, 16, and others which assure nondiscrimination based on caste, gender, race, religion, or place of birth, the other provisions protecting the fundamental rights of Scheduled Tribes are as follows.
- Article 46 directs the state to work for the welfare and promotion of the interests of Scheduled Tribes and to take steps to safeguard their interests.
- Additionally, Articles
 243 D, 243 T, 330, and 332 promise
 proportionate
 reservation of seats
 for both Scheduled
 Castes and Scheduled
 Tribes in Panchayats,
 Municipalities, State
 Legislative Assemblies,
 and the Lok Sabha.
- Article 338A directs the state to create a National Commission

for Scheduled Tribes, to oversee the implementation of the provisions and safeguards of the rights of Scheduled Tribes in India.

- Apart from the rights under the Constitution, the Scheduled Castes and Tribes (Prevention of Atrocities Act) also extends protection to Scheduled Tribes.
- Article 164 also provides for the appointment of a minister in charge of tribal welfare in the states of Chhattisgarh, Jharkhand, Madhya Pradesh, and Orissa, who may also be in charge of the welfare of the Scheduled Castes and backward classes or any other work.
- **The Fifth Schedule** of the Constitution outlines the provisions for the administration of Scheduled areas. It assures the establishment of Tribes Advisory Councils, with three-fourths representation from the tribes in the area, in states with Scheduled Tribes but without Scheduled Areas. The council's duties include advising on matters of welfare and advancement of the tribes.





WEEK - 3 (FEBRUARY, 2021)

- The Sixth Schedule of the Constitution also contains provisions for the administration of Tribal Areas, but in the states of Assam, Meghalaya, Tripura, and Mizoram.
- The **SC/ST Atrocities Act** places Scheduled Tribes under its ambit as well.

What are the challenges faced by STs in India?

- Unemployment, poverty, homelessness, and water scarcity continue to plague the Scheduled Caste (SC) and Scheduled Tribe (ST) populations
- On the economic front, indebtedness among STs remains an issue.
- Lack of sustainable livelihood opportunities has also made it difficult for them to maintain personal assets acquired through government financial aid and otherwise.

Why the demand for ST status is increasing?

• Getting ST status means that members of the group have access to highly desired tangible benefits such as political representation, reserved seats in schools, and government jobs.

 Over the years, social and political mobilization has led to the number of STs growing from 225 in 1960 to more than 700 today (with overlapping communities in more than one state).

ONCLUSION

- The Indian Constitution ensures certain protection for communities deemed as having Scheduled Tribe (ST) status. However, which groups should be accorded that status has been contentious. To avail of the protections and benefits of being accorded ST status, communities in India try to prove themselves as meeting the criteria.
- The situation needs well-developed, transparent criteria and a clear definition of what makes groups eligible for ST status. Developing such criteria with specific economic and social data that can help compare communities requesting ST status with other STs and to the Indian population at large would limit the precarious character of deciding who belongs to what group, thereby ensuring greater transparency and confidence in the process of awarding deserving communities ST status.

CONTINUITY IN INDIA'S TIES WITH CENTRAL ASIA

CONTEXT

As India cements its position as one of the fastest-growing major economies of the world, its increased engagement with the Central Asian region can lead to mutually beneficial gains — both in economic and strategic terms.

• BACKGROUND

- India has a long history of cultural and commercial relations with Central Asia, facilitated by its geographical proximity and the Silk Route.
- However, India-Central Asia relations stagnated in the 20th century, due to the **Anglo-Russian**

Central Asia, India redesigned its ties with the region.

 However, in recent times, India has adopted a coherent strategy to upscale its relationship with CA and reinvigorate the ancient socioeconomic and traditional ties with the region through new initiatives.



rivalry in the **"Great Game"** and the consequent emergence of nation-states with differing ideologies.

- ➤ The Great Game, also known as 'BolshayaIgra', which started in 1830 was intense rivalry between British and Russia empires over Central Asia and the trade routes.
- Britain sought to influence or control much of Central Asia to buffer the "crown jewel" of its empire, and Russia sought to expand its territory and sphere of influence.
- After the breakup of the Soviet Union and the formation of the independent republics in

ANALYSIS ANALYSIS

What is Central Asia?

- Central Asia is a landlocked region, which is located in the heart of Asia.
- Central Asia is composed of the 5 postsoviet countries: Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan.
- The countries are also known as 5 "Stans" due to the same ending in their names.
- It is bounded on the north by Russia and on the south by Iran, Afghanistan, and China.

Why Central Asia assumes significance for India?



WEEK - 3 (FEBRUARY, 2021)

- Geostrategic location: Central Asia, forms a part of India's extended neighbourhood. Its geographical proximity, strategic location, and historical linkages make it an important partner for New Delhi.
- **Energy:** Central Asia is significant for India as it has an abundance of oil and gas deposits.
 - The region contains vast **hydrocarbon fields** both on-shore and off-shore in the Caspian Sea which homes around **4 percent of the world's natural gas reserves** and approximately **3 percent of oil reserves.**
 - ▶ Gas in Turkmenistan
 - > Oil, gas and uranium in Kazakhstan
 - Uranium and gas in Uzbekistan
 - > Hydropower in Tajikistan and Kyrgyzstan
- Global power hub: Strategically, Central Asia is emerging as the next high-stakes competition ground for global powers, hence, it would behoove India to pay closer attention.
- Significant transportation hub: Central Asia is a major transportation hub for gas and oil pipelines and multi-modal corridors connecting China, Russia, Europe, and the IOR.

How India is increasing engagement with the region?

- India-Central Asia Dialogue: As a part of moving India's engagement with the region forward, the first India-Central Asia Dialogue was held in Samarkand, Uzbekistan on 13 January 2019. The participants included India, the five Central Asian republics and Afghanistan. The second India-Central Asia Dialogue was hosted virtually in October 2020.
- India is also involved in three connectivity initiatives that involve Central Asia. These initiatives are the International North South Transport Corridor (INSTC), the Ashgabat Agreement and the development of Chabahar Port in Iran.

Connectivity Initiatives

• **TAPI Pipeline:** The long-delayed Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline, backed by the Asian Development Bank (ADB), was first proposed in the mid-1990s and all four actors officially signed an intergovernmental agreement in 2010.

ATTRACTIVENESS TO INDIA

Tajikistan

- Geo-strategic location; shares borders with China, Afghanistan, Uzbekistan and Kyrgyzstan and proximity to Pakistan-occupied Kashmir (PoK).
 Rich in hydroelectric power
- . The largest natural water resources in the region
- Rich mineral deposits
- Tajik military officers receive training at Indian defence institutions

Kazakhstan

 Immense hydrocarbon reserves and growing role in the region

 Cooperation in hydrocarbons, civil nuclear energy, space, information technology and cyber

care, agriculture, and cultural

Kyrgyzstan

exchange programmes.

security, pharmaceuticals, health

Turkmenistan

Enormous gas reserves
 Transit potential and
 geo-strategic location as
 a gateway to Central
 Asia through Iran.

Uzbekistan

- Supports India's candidature for full membership in the SCO and UNSC
- Cooperate in coal gasification, oil and gas, banking, pharmaceuticals, textiles, science and technology,
- standardisation, small and medium enterprises and tourism.
 More than 60 Indian companies operating in the country
- Economic reconstruction projects and cooperation on counter-terrorism
- Training for Kyrgyz armed forces in UN
- peacekeeping operations
- English language skills
- MoUs for cooperation in research and development in high altitude base agriculture, plantation, animal husbandry, poultry, education, sports, culture, IT, health, S&T and food processing



- **Chabahar port:** The Chabahar port that was recently made partially operational gives New Delhi direct land access to CA.
- International North–South Transport Corridor (INSTC): In the last few years, India has invested in projects such as the International North–South Transport Corridor (INSTC). India sees the INSTC as an import-export route to Russia, Europe and Central Asia.
- Engagement with the region in 2020 saw a clear focus on issues of regional economic development, connectivity, and security — apart from the immediate need of dealing with the ongoing pandemic.
 - Among the highlights was the announcement of an additional 1 billion USD Line of Credit extended by India for priority development projects in energy, healthcare, connectivity, IT, agriculture, education, etc.
- **India's 'Connect Central Asia Policy**' covers an entire gamut of a multi-model approach to strengthen politico-economic, security, and cultural ties between the two.
 - ➤ The policy received a significant boost in 2018, when New Delhi's diplomatic efforts paid dividends in the form of admission into the Ashgabat Agreement, signed in 2011 between Iran, Oman, Turkmenistan and Uzbekistan and Qatar, for the establishment of an international transport and transit corridor.

Understanding India's constructive approach

- India, for its part, has so far chosen to take the 'constructivist' approach.
- Subsequently, India revived its "Indian Technical and Economic Cooperation" (ITEC) programme to provide assistance to the CARs countries, as well as capacity building through training programmes, study tours, technology transfers and, in some cases, aid for disaster relief.
- The ITEC programmes covered information technology, management, journalism, diplomacy, entrepreneurship, and banking.
- New Delhi also signed the Strategic Partnership Agreements (SPA) with three of the five CARs—Kazakhstan, Tajikistan and Uzbekistan to stimulate defence cooperation and deepen

trade relations.

- New Delhi has established Indian Cultural Centres in Kazakhstan, Tajikistan and Uzbekistan.
- New Delhi's constructivism is more concretely manifested in its 'Connect Central Asia' policy.
- The policy, launched in 2012, aimed to enhance India's political, economic, historical and cultural connections with Central Asia.
 - As a region, Central Asia has received special attention in Prime Minister Modi's foreign policy. India has designated Central Asia as part of its extended neighborhood.
 - In 2015 Modi visited all the five Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan – in a period of one week.
 - He became the first Indian prime minister to visit all the five Central Asian countries in a single trip.

What needs to be done?

Efforts are now being made to address the weak trade ties by encouraging cooperation among businesses on both sides, as is evident in the launch of the **India-Central Asia Business Council** in 2020. However, various other measures can also effectively strengthen the ties:

- Strategic and economic cooperation: India also needs to direct investment to the region to reap the economic benefits of the strategic location of Central Asia that puts it at the crossroads of key trade and commerce routes. Sectors like the construction industry, sericulture, pharmaceuticals, IT, and tourism offer potential for collaboration.
- People-to-people tie: India must increase its developmental and humanitarian aid to the region and promote closer people-to-people ties through education, knowledge transfer, medicine and health, culture, cuisine, and tourism.
- Multilateralism: While India has strong relations with the U.S., it needs to apply multilateralism in Central Asia.
 - First, India needs to define its economic and strategic interests in the region.
 - Second, India must explore the extent to which it can act independently of the U.S.



WEEK - 3 (FEBRUARY, 2021)

regarding Iran, Afghanistan and the Central Asian countries.

• **Utilizing Multilateral Organization:** Multilateral organisations like SCO, EAEU, and CICA can serve as platforms for sustained engagement and regular exchange of ideas.

Shanghai Cooperation Organisation (SCO)

- SCO is a permanent intergovernmental international organisation, created in 2001 in Shanghai (China) by Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan.
- The SCO currently comprises eight Member States (China, India, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan and Uzbekistan), four Observer States interested in acceding to full membership (Afghanistan, Belarus, Iran, and Mongolia) and six "Dialogue Partners" (Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka and Turkey).

Eurasian Economic Union (EAEU)

• EAEU is an international economic union and free trade zone comprising countries located in central and northern Asia and Eastern Europe. • The founding member states of Belarus, Kazakhstan, and Russia established the union by treaty in 2014 and officially implemented the agreement beginning on Jan. 1, 2015.

Conference on Interaction and Confidence-Building Measures in Asia (CICA)

- CICA is an inter-governmental forum for enhancing cooperation towards promoting peace, security and stability in Asia.
- CICA members consist of: Afghanistan, Azerbaijan, Bahrain, China, India, Iran, Iraq, Israel, Jordan, Kazakhstan, Kyrgyzstan, Egypt, Mongolia, Pakistan, Palestine, South Korea, Russia, Tajikistan, Thailand, Turkey, United Arab Emirates, Uzbekistan and Vietnam.

ONCLUSION

How far India and Central Asian countries will take this renewed, centuries-old relations remains to be seen. India must take into consideration its future energy needs and the market potential of the greater Eurasian region, and seize the opportunity to stretch its economic borders while maintaining its constructive approach.



WHAT DOES ENERGY SECURITY MEAN FOR MALDIVES?

CONTEXT

Being one of the top energy importers, India understands the current 'energy diplomacy' and is investing in engaging potential future energy partners like Maldives and addressing its challenges.

• BACKGROUND

- Energy has, no doubt, become an essential strategic component of bilateral equations.
- This is because energy security is not only a crucial foreign policy goal, but is tied inextricably to a nation's larger security concerns.
- As India and Maldives look to become energy partners, it is important to consider the specific ways in which they can address each other's energy challenges.
- It is further useful for India to understand energy security from the specific point of view of a small island nation.

• ANALYSIS

Understanding the concept of 'Energy Security'

- Energy security refers to the ability to ensure the reliability of energy supply flows at stable and affordable prices.
- The goal is to mitigate risk, whether geopolitical, environmental, on the supply side, or to do with price stability.
- There are many dimensions to a country's desire for energy security, depending on where it sits on a world map, what stage of development its economy is at and whether it's a supplier or a consumer of energy.
- Demographics, size, material capabilities, availability of energy resources, technical expertise, human resource development and several other attributes, further add layers of complexity to the challenge of energy security.

Why energy diplomacy has take centre stage?

• **Rise in demand:** The world is witnessing a burgeoning demand for energy in the years to come, along with reserves of conventional fossil fuel becoming critically depleted.

- **Increased competition:** There will be increased competition for energy resources underpinned by other forms of competition and rivalry between nations, particularly the great powers.
- **Interlinked nature:** Energy diplomacy will become interlinked with other kinds of diplomacy pertaining to trade, environment and development assistance.

What are the chokepoints in this direction?

- Disruption to supply lines: Considering that much of the world continues to depend on fossil fuels, there is a strong maritime component to energy security. Disruptions to supply lines occur for various reasons such as:
 - piracy or natural disasters
 - extreme weather conditions like tsunamis and floods
 - global pandemics
- Spike in prices: These delays lead to higher shipping costs and an invariable spike in prices, whether directly or indirectly.
- Geopolitical tensions: However, geopolitical tensions are what make nation states most wary. Supply routes are particularly vulnerable to chokepoints that can be easily blockaded in times of crisis, such as the Malacca Straits, Sunda Strait, Lombok Strait and Straits of Hormuz, amongst others.

What are Maldives's energy challenges?

- Reliance on imports: Overdependence on imports is a vulnerability from the point of view of energy security. Maldives has no proven fossil fuel reserves, i.e., oil or gas, so its energy needs are almost entirely met by imports.
- **Energy storage:** An alternative to mitigating the vulnerabilities associated with imports is to have better energy storage. This must be addressed across all energy types:



- For solar power, it would be batteries, but the challenge here is that they are prohibitively expensive
- For oil, developing a reserve stock is an option.
- **Environmental challenges:** Nation states face a two-part challenge, how to meet the shortterm challenge of providing their populations with energy services while addressing the longterm goal of a zero-carbon economy. Energy goals cannot be addressed one after the other, such as energy access first and climate change later.
 - For India, as it addresses the many dimensions of its energy security goals, its biggest challenge will be addressing the presence of coal in its energy mix.
- Human resource development: Another challenge that needs to be addressed in the Maldives is one of human resource development.

• **Inequality challenge:** There is a larger challenge of inequality, which need to be addressed both in the Maldives as well as in India. Disparities exist in terms of affordability, availability and quality of services. There is an urban rural divide when it comes to energy security in both countries as also a strong urban bias.

Why helping Maldives is important for India?

- The Strait of Hormuz and the Strait of Malacca are the world's most important strategic chokepoints by volume of oil transit.
- The Maldives is geographically positioned like a 'toll gate' between the western Indian Ocean chokepoints of the Gulf of Aden and the Strait of Hormuz on the one hand, and the eastern Indian Ocean chokepoint of the Strait of Malacca on the other.
- Since the Indian Ocean itself is a key highway for global energy and trade flows, the importance of Maldives for international sea lanes of communication is vital.







- Thus, while the International Shipping Lanes (ISLs) in the vicinity of the Maldives have broad strategic significance for global maritime trade, they are of particular importance to India.
- Fifty per cent of India's external trade and eighty per cent of its energy imports transit these ISLs
- Helping to address Maldives' energy concerns is a step in the right direction for India's own goals of energy security.

Quick facts about Maldives

- The Republic of the Maldives is located in the **Indian Ocean.**
- It is an archipelago comprising approximately **1,200 islands** with a geographical spread over **90,000 sq.km**
- Incorporating some 26 atolls, the Maldives is one of the world's most geographically dispersed countries, and is a **99 per cent** water-nation.

 Maldives is the lowest-lying country on the planet. With the highest elevation being just 2.3 metres (7 feet 7 inches) above sea level, the archipelago has the world's lowest naturally-occurring 'highest-point'.

ONCLUSION

- Energy is vital to how our economies and societies function. India is becoming increasingly influential in global energy trends. The country's demand for energy is set to grow rapidly in the coming decades, with electricity use set to increase particularly fast.
- The country's reliance on fuel imports makes further improving energy security a key priority for the Indian economy. Therefore, the approach to energy security has to be an integrated one.



PULSES FOR FOOD SECURITY AND SUSTAINABLE FUTURE

CONTEXT

World Pulses Day is observed on February 10 of every year to recognize the importance of pulses as a global food.

• BACKGROUND

- The celebration of World Pulses Day' is an opportunity to heighten public awareness of the nutritional benefits of pulses and their contribution to sustainable food systems and a #ZeroHunger world.
- Pulses have intrinsic value being packed with nutrients, high protein content, low fat and high fiber, which keeps cholesterol and blood sugar under control.

International Year of Pulses (IYP)

- The IYP 2016 heightened public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition.
- The Year created a unique opportunity to encourage connections throughout the food chain that would better utilize pulse-based proteins, further global production of pulses, better utilize crop rotations and address the challenges in the trade of pulses.
- Not only do they improve food security and create economic stability, but they also contribute to climate change mitigation by reducing greenhouse gases.
- Pulses play a crucial role in addressing food insecurity and achieving healthy and balanced diets for all, pointing to the need to unlock their full potential to accelerate progress towards the Sustainable Development Goals (SDGs) of the 2030 Agenda.

What is International day of Pulses?

- February 10 is designated as an International day of Pulses to Celebrate a day that may express the worth, value and benefits of Pulses.
- This year's theme for World Pulse Day is "Nutritious Seeds for a Sustainable Future", which explains in itself the value of pulses.

- The day aims to spread the benefits of not only eating pulses, but also growing pulses.
- The Day also comes under the second goal of the United Nations i.e. **Zero Hunger.**
- World Pulses Day is not limited to the 2nd goal of the UN. It also covers objectives that have been mentioned in the UN's Agenda 2030. This may include the
 - 3rd goal of the UN "Good Health and Well-being"
 - > 13th goal of the UN "Climate Action"

• ANALYSIS

What are Pulses?

- Pulses are the edible seeds of plants in the legume family. Pulses grow in pods and come in a variety of shapes, sizes and colors.
- The United Nations Food and Agriculture Organization (FAO) recognizes 11 types of pulses: dry beans, dry broad beans, dry peas, chickpeas, cow peas, pigeon peas, lentils, Bambara beans, vetches, lupins and pulses nes (not elsewhere specified – minor pulses that don't fall into one of the other categories).
 - India is the **largest producer of pulses** in the globe, with an annual output of over **23** million metric tons.
 - The country widely grows pulses like Bengal Gram, Pigeon Peas, Green Beans, Chick Peas, Black gram, Red Kidney Beans, Black Eyed Peas, Lentils, and White Peas.
 - India accounts for 25% of the global production, 27% of world pulses consumption and imports 14% of pulses in the world.
 - Apart from India, other countries, which produce a large number of pulses include Canada, Myanmar, China, Nigeria, Brazil, Australia, the USA, Russia, and Tanzania, while Argentina, France, Ethiopia, and Turkey.





Why 'hunger' still continues to grow?

- Despite the global progress that has been achieved in advancing food security and alleviating poverty, the number of hungry people in the world continues to grow, reductions in child stunting remain insufficient, and obesity is on the rise.
- With more than 840 million people estimated to be undernourished by 2030, the world is not on track to achieve 'Zero Hunger'.
- The pandemic has further threatened lives and livelihood by reversing decades of progress on ending hunger and achieving food security.
- A UN World Food Programme (WFP) report indicates a rise in hunger due to the pandemic, with an approximately 270 million people facing food insecurity as opposed to the 149 million during pre-COVID times. This is a matter of grave concern.

Global Hunger Index 2020

India ranks 94 out of 107 countries on the **Global Hunger Index 2020.** It falls under the category of 'serious' level of hunger.

- **Malnutrition:** The Lancet attributed two-thirds of the 1.04 million deaths in children under the age of five in India to malnutrition.
- **Stunted:** Of the 144 million stunted underfive children in the world, India alone accounts for 46.6 million.

• **Wasted:** Furthermore, India is home to 25.5 million off the 47 million wasted under-five children globally.

The COVID-19 pandemic will possibly take the toll up by ten to twenty percent, worsening India's malnutrition problem.

Correlation between Dietary Diversity and quality of diet

- Research indicates a direct correlation between dietary diversity—with the quality of diet and household food security—and higher socio-economic status in terms of maternal education and employment.
- According to the NFHS-4 2015-16, only 9.6 percent children (6-23 months) are fed a minimum acceptable diet.
 - Going by the latest NFHS-5 for 22 states/UTs, there is a slight improvement in percentage of children receiving an adequate diet, ranging from 5.9 percent in Gujarat to 29.8 percent in Meghalaya.
- In India only 42 percent children (6-23 months) have minimum meal frequency (fed the minimum number of times per day for their age),and a mere 21 percent have minimum dietary diversity (diet containing four or more food groups—Grains, Pulses and Legumes, Milk and Milk products, Eggs, Fruits and Vegetables, and Fresh Foods).



CURRENT AFFAIRS WEEKLY

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PULSES CONTRIBUTE TO FOOD SECURITY



How Pulses can help India?

 Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.

- **Food insecurity** is a major issue for many people and households in poor and developing countries—it is estimated that 795 million people are undernourished. Pulses can help contribute to food security in a number of ways.
- Health
 - According to the Eat-Lancet Commission on Food, Planet, Health, India needs to enhance dietary diversity and behaviour change as it is crucial to achieving nutrition security.
 - Pulses are inexpensive, easy to store, highlynutritious.
 - FAO suggests 'Overcoming hunger and malnutrition in the 21st century means increasing food quantity and quality, while making sure we produce food sustainably, efficiently and safely'.
 - Pulses contribute 10 percent of dietary protein, with a modest increase in monthly per capita consumption. Supplementing cerealbased diets with pulses can potentially bring down malnutrition.
 - Pulses are nutritional powerhouses among all the protein sources as they have zero cholesterol, high content of iron, glutenfree, rich in minerals and vitamins, low-fat content, and an important source of dietary fibre.
 - Moreover, pulses are a rich source of fermentable fibre, which is beneficial to maintain the intestine health.
 - They feed intestinal bacteria and promote the assimilation of nutrients, thus facilitating proper immune system functioning.
 - Pulses can contribute to the overarching issue of food security in a number of ways, as elicited in figure.
- Environment
 - Lower carbon footprint: Pulse crops have a lower carbon footprint than most foods because they require a small amount of fertilizer to grow.

- Low water footprint: They also have a low water footprint as they are adapted to semiarid conditions and can tolerate drought stress.
- Enhance soil microbiome: They have the ability to enhance the soil microbiome has been key in improving farming techniques in low-income rural areas.
- How Government is ensuring pulses into diet?
- Pulses are an indispensable source of protein in Indian diets. The Government of India's food security programmes provide for 50 percent of the recommended dietary allowance of protein to children, adolescent girls, and pregnant and lactating women.
- The government announced a relief package during the pandemic, providing for an additional supply of 5 kg rice/wheat and 1 kg of preferred pulses per month.
- Some states namely Andhra Pradesh, Telangana, Haryana, and Himachal Pradesh have succeeded in providing pulses through the **Public Distribution System (PDS).**

Progress of National Food Security Act

- The implementation of the National Food Security Act was expected to make a dent in the nutritional challenges.
- The Act made access to food a legal entitlement for a large part of the society — 75 per cent of the rural and 50 per cent of the country's urban population.
- Today, NFSA is the key pillar supporting India's food-safety-net schemes, especially the:
 - Targeted Public Distribution System (TPDS)
 - Mid-Day-Meal (MDM)
 - Integrated Child Development Services (ICDS-Anganwadi-Supplementary Nutrition Programme)
- National figures for food grain procurement, off-take, and budget allocations under the NFSA are staggering.
- Procurement of rice and wheat increased by nearly 35 per cent between 2009-10 and 2018-19.
- Annual off take of food grains increased by roughly 30 per cent during the same period.



- Overall, the annual consumer food subsidy

 or the difference between economic cost of procurement and sales realisation at central issue prices has nearly tripled, from Rs 42,489.7 crore in 2009-10 to Rs 1,15,570 crore in 2020-21.
- In fact, the actual budget figures could be higher due to dues pending to the Food Corporation of India.
- NFSA, however, seems to have missed its mark in achieving nutritional outcomes for a number of reasons.

• WAY FORWARD

As a policy, the PDS should provide pulses at subsidised rates to make them more affordable and available. This will provide the much needed nutritional security, especially to the vulnerable section of our population. There is an urgent need to create awareness on the consumption of macronutrient rich pulses for the dual benefit of nutrition and sustainability. For a healthier future generation, act now!



ETHICAL ISSUES WITH VACCINATION

CONTEXT

The World Health Organization recently included vaccine hesitancy in the Top 10 of global health threats. In high income as well as low-income countries, people increasingly question the need for, and safety of, vaccinations and therefore decide to forego immunization of their children. In the past, it was often religious convictions that led people to refuse vaccination. Nowadays the main ground for refusal or hesitance is fear of side-effects and doubts about the importance of protecting one's children against diseases like measles or pertussis. Often these beliefs are triggered or sustained by 'viral misinformation', undermining trust in vaccines and vaccinations.

• BACKGROUND:

- Second, only to the development of clean water and sewage systems, vaccines have been a major force in reducing the occurrence of infectious diseases worldwide.
- Universal vaccination programs have eliminated smallpox and reduced serious diseases including measles, mumps, rotavirus, and polio.
- However, many ethical issues surround the development and use of vaccines. These issues include:
 - 1. Requiring vaccination by law;
 - 2. the development and testing of vaccines;
 - 3. informed consent about the benefits and risks of vaccination; and
 - 4. the equitable distribution of vaccines.
- Vaccination has raised controversies ever since Edward Jenner conducted his experiments with cowpox.
- For public health authorities and professionals, vaccine hesitancy and refusal create ethical dilemmas.
- It is always argued that to what extent it can be justified to coerce parents to accept vaccination for their children.
- Moreover, many experts also question whether citizens have to be responsible to accept vaccination and contribute to population-level immunity that benefits everyone.

Ethics of immunization and vaccines

- The economic and human benefits of vaccination are clear for many vaccines. But, economic and political realities, along with philosophical questions, raise certain ethical issues concerning the use and distribution of vaccines.
- Mandatory vaccination:
 - Vaccines have become victims of their own success.

- ➤ As diseases disappear from the general population after successful vaccination campaigns, the real risk of an individual contracting the disease decreases, and the perception of the seriousness of the disease, even if contracted, is reduced.
- Concomitantly, concerns about the real or imagined adverse effects of the vaccines increase.
- As a result, individuals might disagree with government mandates for population-wide vaccination.
- More recently, heightened fears of the perceived adverse effects of other vaccines (such as measles and hepatitis B), even if unproven, have had an impact on immunization rates and the incidence of disease.
- Greater awareness of the consequences of failure to vaccinate, through better education, might be the best tool to combat this problem.
- Poverty and priorities:
 - In wealthier countries, the ethical issues that surround vaccination tend to focus on the rights of individuals versus government or society.
 - In poorer countries, the fundamental issue is the lack of access to necessities for health, such as adequate nutrition, clean water, medicines, or vaccines.
 - Although poverty is the main cause of these deficiencies, other factors contribute, such as the low priority given to health and preventive measures, the disenfranchisement and lack of political and economic power of the people most affected (children and women), corruption, and regional warfare.
 - At present, only about 1% of contributions to overseas development are directed towards immunizations.



- The hurdle is not simply the purchase price or availability of vaccines, but for many poor countries, there is a lack of infrastructure for health care in general, and vaccine delivery specifically.
- ➤ The trade-off of protecting children now from disease versus an emphasis on the development of new vaccines to protect children in the future is not a debate that can be resolved even by Solomonic wisdom.
- Neither trade-off is ethically defensible, nor the world should, instead, work constructively to increase the resources devoted to health, nutrition, prevention, and specifically immunization, to make vaccines available to all people as required.

• 'Trickle-down' or simultaneous introduction:

- A marked effort is required to introduce vaccines into all necessary areas of the globe in a more timely fashion.
- The average time lag between licensing of a new vaccine for industrialized countries and its use in less developed countries is 10–20 years.
- There are many reasons for this, including the lack of manufacturing capability for vaccines that require new technology in their production, return on investment, and the cost of manufacturing newer technologybased vaccines.
- For example, when the recombinant hepatitis
 B virus vaccine was first introduced, there was not sufficient capacity worldwide for its production.
- Moreover, the cost of manufacturing such a high-tech vaccine put it beyond the reach of the existing purchasing programs at the time.
- Although the technology that supports recombinant protein vaccines is now available worldwide, it took time and effort to develop that capacity, even in developed countries.

Steps to be taken to address ethical dilemmas:

- The developed countries should treat all of the world's children as their own, rather than denouncing particular groups as causing these inequities.
- Further support must be given rapidly to those whose efforts will result in vaccines that are better tailored for developing countries, both in terms of the disease focus and the development of technologies that will facilitate vaccine access and sustainability.
- New paradigms like public-private partnerships and alliances that are designed to engage local governments and manufacturers at the early stages of research and development are required.
- ➤ In this way, each group can contribute what they do best to the common goals of improving access to existing vaccines, developing new vaccines and technologies for existing diseases, and ensuring that increases in immunization rates are sustainable.
- Perhaps most difficult of all will be to change the mindset of people all over the globe.
- We need to place a higher priority on health and disease prevention, and above all to value the lives of all people, no matter where they live even if they are impoverished and powerless.

• CONCLUSION:

Vaccination poses many such ethical dilemmas from the time of formulation of research hypothesis to the final implementation of the vaccination and its conduct till completion including post-vaccination issues that have to be clearly understood by all the stakeholders in vaccination to carry out their responsibilities in protecting the rights of the citizens. However, in the absence of a wellstructured vaccination policy in the country, there is a pressing need for continuous capacity building exercises at all levels. Awareness about national and international guidelines and regulations and putting in place appropriate laws in the country will go a long way in ensuring public confidence about the safety and well being of the people taking the vaccination.





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SECTION: B (PRELIMS)

CURRENT AFFAIRS

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DISENGAGEMENT PROCESS ON IN PANGONG TSO

 CONTEXT: After a nine-month standoff, militaries of Indian and China reached an agreement on disengagement in the north and south banks of Pangong lake that mandates both sides to cease forward deployment of troops in a "phased, coordinated and verifiable" manner.

• ABOUT: The disengagement agreement

The two sides had reached an agreement to withdraw from Pangong Tso, a glacial lake at 14,000 ft (4,270 metres), after several rounds of talks between military commanders and diplomats from the nuclear-armed neighbours.

- Chinese forces will continue to have a troop presence in the north bank of Pangong Lake to the east of **Finger 8.** Meanwhile, Indian troops will also re-position its forces at its permanent base at the **Dhan Singh Thapa post near Finger 3.**
- Similar disengagement is set to take place along the **south bank of Pangong Lake**. It is worth noting though that this region houses the **Kailash range**, a crucial area that, if controlled, provides a sizeable tactical advantage.
- The disengagement will also entail that any structures built by both forces since April last year in the north and south banks of the Pangong Lake area will be dismantled, with landforms restored.
- The two parties have also agreed to conduct the next meeting of Senior Commanders within 48 hours from when complete disengagement in Pangong Lake takes place, with a view towards resolving outstanding issues.

About Pangong Lake

- Pangong Tso is an endorheic lake (landlocked) that is partly in India's Ladakh region and partly in Tibet.
- The name reflects the mixed heritage of the lake: **Pangong** in Ladakhi means extensive concavity, the word **Tso** is Tibetan for lake.
- Situated at an elevation of about 4,270 m, it is a nearly 135-km long, narrow lake
 — 6 km at its widest point and shaped liked a boomerang. Its total area is over
 600 sq km.
- The **Karakoram Mountain range**, which crosses Tajikistan, Afghanistan, Pakistan, China and India, with heights of over 6,000 metres including **K2**, the world's second highest peak, ends at the north bank of Pangong Tso.
- Its southern bank too has high broken mountains sloping towards **Spangur Lake** in the south.

MAJOR PORT AUTHORITIES BILL, 2020

• CONTEXT: In a latest development, Rajya Sabha passed the Major Port Authorities Bill, 2020. The Lok Sabha had passed the bill on September 23, 2020, by voice vote.

• **ABOUT:** Major ports in India

- State-run ports in the country, termed 'major ports'.
- In terms of volume, 70 per cent of cargo movement is through ports while 90 per cent in value terms.



- India has 12 major ports Deendayal (erstwhile Kandla), Mumbai, JNPT, Marmugao, New Mangalore, Cochin, Chennai, Kamarajar (earlier Ennore), V O Chidambarnar, Visakhapatnam, Paradip and Kolkata (including Haldia).
- These together had handled 705 million tonnes (MT) of cargo in 2019-20.

Key-highlights of the Bill

- The Bill aims to provide for the regulation, operation and planning of Major Ports in India and to vest the administration, control and management of such ports upon the **Boards of Major Port Authorities** and for matters connected therewith or incidental thereto.
- The new law will supersede the major Port Trusts Act, 1963 governing the country's 12 major ports.
- The bill seeks to convert 11 of the 12 ports (**except Kamarajar Port Ltd, located at Ennore, Chennai**) run by the Centre into "authorities" from the current "trustee" set-up, in a biggest structural reform of state-owned ports ever attempted by any government.
- **Application:** The Bill will apply to the major ports situated in Chennai, Cochin, Jawaharlal Nehru Port, Kandla, Kolkata, Mumbai, New Mangalore, Mormugao, Paradip, V.O. Chidambaranar, and Vishakhapatnam.
- **Governance:** It will be curtains down for the Tariff Authority for Major Ports (TAMP); every port will now be governed by a **Port Authority (board)** which will have the powers to fix reference tariffs for various port services.
 - The role of Tariff Authority for Major Ports (TAMP) has been redefined in the bill. The port authority has now been given powers to fix tariffs which will act as a reference tariff for purposes of bidding for PPP projects.
 - PPP operators will be free to fix tariffs based on market conditions.

Boards to replace trusts

- Under the 1963 Act, all major ports are managed by the respective Board of Port Trusts that have members appointed by the central government.
- The Bill provides for the creation of a Board of Major Port Authority for each major port.
- These Boards will replace the existing **Port Trusts**, a not-for-profit group involved in legislative research.

VIJAYANAGARA BECAME KARNATAKA'S 31st DISTRICT

• **CONTEXT:** The government of Karnataka notified the formation of a new district called Vijayanagara, bifurcating the district of Ballari in the State. With Vijayanagara, the state now has 31 districts.

• ABOUT : The Vijayanagara district

- Named after the capital of the **Vijayanagar Empire**, the new district was carved out from **Ballari under the Karnataka Land Revenue Act**, **1964.**
- It is famous for its UNESCO World Heritage sites Hampi and VirupakshaTemple.



- Vijayanagara has six taluks Hosapete, Kudligi, Hagaribommanahalli, Kotturu, HoovinaHadagali, and Harapanahalli.
- VIJAYANAGARA Vijayanagara District Hosapete STRICT Kampli OUTER BOUNDARY MAP Hagaribommanahalli Kottur Hadagali Harapanahalli H B HALLI **Ballari District** Ballari Kurugodu KUDLIGI Siraguppa ARAPANAHAI I Sandur Kudligi
- **Hosapete** is its headquarters.

Formation of a new district

- For the formation of a new district, no central government permission is required whereas the formation of a new state is in the purview of Central government.
- This will be under the state government only.

CHINESE ENERGY PROJECT IN SRI LANKA

 CONTEXT: In a latest development, Sri Lanka cleared Chinese energy project, 50 km off Tamil Nadu.

- ABOUT
 Under the project, China will set up hybrid wind and solar energy projects on three
 Sri Lankan islands off the northern Jaffna peninsula 45 km from Rameswaram in
 Tamil Nadu.
 - **Project's local partenr:** The energy project's local partner, the Ceylon Electricity Board.
 - Funding: The funds for the project are to come from the Asian Development Bank.

The concerned islands

- The islands concerned are the Delft Island, Analativu and Nainativu.
- **Delft island,** the largest of the three islands, is the closest to Rameswaram, which lies to the island's south west.
- Between the two is Kachchativu, the tiny island that India ceded to Sri Lanka in 1974.
- The waters around these islands are an area of contest and rivalry between Tamil Nadu and Jaffna fishers. The matter has been on the bilateral agenda for decades.



25

WEEK - 3 (FEBRUARY, 2021)



Why Sri Lanka's tilt towards China is concerning for India?

- Two recent developments seem to have affected India's relationship with Sri Lanka.
- Sri Lanka recently pulled out of the East Container Terminal (ECT) deal with India and Japan at the Colombo port.
- On the same day, the Central Bank of Sri Lanka (CBSL) returned US\$400 million currency swap facility, which it availed in July 2020 to meet its emergency needs during the Covid19 induced lockdown.

East Container Terminal (ECT) deal

- India, Japan and Sri Lanka had inked an agreement in 2019 to develop Colombo's East Container Terminal.
- The project, worth an estimated \$500-\$700 million, was a key marker for infrastructure investment in the island nation where Chinese projects are most prominent.

HYDROGEN: THE NEXT CLEAN ENERGY FRONTIER

CONTEXT: Researchers from the Indian Institute of Technology, Delhi have come up with a way to generate clean fuel hydrogen from water at a low-cost, which is a significant step towards efforts across the globe that are being made to look for cleaner and greener energy sources.

A fuel cell works much like an electric battery, converting chemical energy into electrical energy.

• ABOUT: What is hydrogen?

- Hydrogen is a clean alternative to methane, also known as natural gas.
- It's the most abundant chemical element, estimated to contribute 75% of the mass of the universe.



Key-highlights of the research

- The researchers have successfully split water by a process known as Sulphur-Iodine (SI) thermochemical hydrogen cycle to generate low-cost, clean hydrogen fuel for industrial consumption.
- The thermo-chemical hydrogen cycle for splitting water offers a practical means of generating hydrogen as a fuel and also oxygen as a byproduct.
- Hence, it can be considered favourably for the commercial production of hydrogen on a large scale, in the near future.

Sulphur-Iodine (SI) thermochemical hydrogen cycle

• The S–I cycle is a pure thermochemical water splitting process consisting of three steps. The three steps are as follows:

 $I_2 + SO_2 + 2 H_2O$ heat $\rightarrow 2 HI + H_2SO_4$ (120 °C)

The HI is then separated by distillation or liquid/liquid gravitic separation.

$2H_2SO_4$ heat $\rightarrow 2 SO_2 + 2 H_2O + O_2$ (830 °C (1,530 °F))

The water, SO2 and residual H2SO4 must be separated from the oxygen byproduct by condensation.

$\mathbf{2HI} \rightarrow \mathbf{I_2} + \mathbf{H_2} \text{ (450 °C)}$

Iodine and any accompanying water or SO2 are separated by condensation, and the hydrogen product remains as a gas.

Net reaction: $2 \text{ H}2O \rightarrow 2 \text{ H}2 + O2$

RBI GIVES RETAIL INVESTORS DIRECT ACCESS TO GOVERNMENT 'GILT BONDS'

 CONTEXT: In a major move aimed at encouraging small investors to become direct investors in government bonds, the Reserve Bank has proposed to allow them to directly buy government debt, also called "gilt bonds", making India the first Asian country to do so and among a handful globally.

• ABOUT: What are Gilt Funds?

- Gilt funds are debt funds that invest in government securities. The government bonds used to be issued in golden-edged certificates.
- The nickname gilt comes from gilded edge certificates.
- Types: There are two kinds of gilt funds.
 - One, gilt funds that invest mostly in government securities across maturities.
 - Two, gilt funds with constant maturity of 10 years these funds must invest at least 80% of their assets in government securities with a maturity of 10 years.



G-Secs

• G-Secs are tradeable investment instruments issued by the Central or state governments and are the most risk-free sovereign-backed bonds available in the country.

- They can broadly be classified into four categories, namely **Treasury Bills** (**T-bills**), **Cash Management Bills** (**CMBs**), **dated G-Secs**, and **State Development Loans** (**SDLs**).
- These securities are available in both short-term and long-term tenures ranging from three months to 30 years with an annual yield starting from 3.37 per cent.
- Although government securities do not carry credit risk, they are not a risk-free instrument. They are subject to interest rate risk.

Impact of the decision

- **Regularisation:** The decision will encourage formalisation, digitisation, and financialisation of savings with low yield non-financial assets expected to move to better yield and secure instruments.
- Secure and fixed income: Besides opening a near endless demand source, it will also provide the retail investors a highly secure sovereign-guarantee rated fixed income investment avenue.
- **Denationalisation of banks:** If most risk-averse depositors could be persuaded to shift to the G-Secs, the government could go ahead with the denationalisation of banks at a faster pace.

Challenges/Issues

- Less interest rate: Since g-secs carry low risks, the commensurate returns offered are also low. Interest rates have not been attractive when compared to other fixed-income instruments like company fixed deposits, small saving instruments and non-convertible debentures.
- Poor liquidity: Poor liquidity in the secondary market is a cause of concern for most investors.
- **Huge investment required:** Another big problem is the lot size required to trade in g-secs. Typically, g-sec market sees trades worth Rs 5 crore and above.

ECO-SENSITIVE ZONES (ESZ) DECLARATION AROUND THE WAYANAD WILDLIFE SANCTUARY

CONTEXT: The State government of Kerala has requested Prime Minister Narendra Modi's intervention on the draft notification issued by the Ministry of Environment Forest and Climate Change (MoEFCC) notifying 118.59 sq kms around Wayanad wildlife sanctuary as an eco-sensitive zone (ESZ).

• ABOUT: What is Eco-Sensitive Zone?

The Eco Sensitive Zones are envisaged as a cushion or shock absorbers for protected areas. They are supposed to act as the transition zones from areas of high protection to less protection.



- They are notified by the Ministry of Environment, Forests and Climate Change, Government of India around Protected Areas, National Parks and Wildlife Sanctuaries.
- They are like an **ecotone** the transition between two biological communities or ecosystems, and it is crucial for the protection of protected areas like wildlife sanctuaries and forests.
- Its aim is to reduce the impact of human intervention in the core protected area.

What does the State want?

- The Kerala government is of the view that while notifying eco-sensitive zones, densely populated areas should be excluded.
- In the case of Wayanad wildlife sanctuary areas such as **Tholpetty**, **Kattikkulam**, **Panavalli**, **Kurukkanmoola**, **Chaligadha and Kappistore**, **Cheeyambam**, **Moodakolly**, **Cheeral are the areas to be excluded**.
- The Kerala government had prepared recommendations for notifying eco-sensitive zones around 21 protected areas in December 2019.
 - According to this amended proposal for draft notification the extent of ecosensitive zone goes up to 88.2 sq.kms.

What is in the notification?

- The ESZ, as per the draft notification, will cover an area of 118.59 km, which includes 8.89 km of the **Tirunelly reserve forest** of north Wayanad and 17.67 km of **Chedelaythu range** in south Wayanad.
- It also included 18.21 sq. km of human settlements, inside the forest.
- The State government had submitted a revised draft notification by reducing the ESZ to 88.21 sq. km after excluding the human settlements on 30 sq. Km.

The concerns

- The biodiversity-rich **Wayanad wildlife sanctuary** has a sizeable elephant and tiger population.
- However, there have been concerns over the environmental degradation of Wayanad, which is also a tourist's haven.

Wayanad wildlife sanctuary

- The Wayanad Wildlife Sanctuary is an animal sanctuary in Wayanad, Kerala, India.
- The sanctuary, spread over 344.44 sq km, is an integral part of the **Nilgiri Biosphere** in the **Western Ghats** and contiguous to the tiger reserves of **Nagerhole** and **Bandipur** of Karnataka and Mudumalai of Tamil Nadu.

DEPLETION OF PARTICULAR BRAIN TISSUE LINKED TO CHRONIC DEPRESSION, SUICIDE: STUDY

• CONTEXT:

In a recent research, a common characteristic has been found in the brain structure of people who died by suicide. There was a sharp fall in the density of 'Astrocytes', a particular nerve cell throughout the brain.



• ABOUT: What is Astrocytes?

It is a type of supportive nerve cells, look like the end of a frayed rope.

- Astrocytes are highly heterogeneous neuroglial cells with distinct functional and morphological characteristics in different parts of the brain.
- They are responsible for maintaining a number of complex processes needed for a healthy central nervous system (CNS).

Key-highlights of the Study

- Scientists found that the number of astrocytes, was much lower in brains of people who had died by suicide.
- The density was five times lower in the **mediodorsal thalamus** and **caudate nucleus** and half in the **prefrontal cortex** in the subjects who had died by suicides than those who had no psychiatric conditions till death.
- Astrocytes can strongly modulate most facets of neuronal activity, including neuronal firing, neurotransmitter synthesis, neurotransmitter reuptake and synaptic transmission.
- The human cerebral cortex has a larger volume and faster variety of astrocytes than that in mice. So, their role in the human brain will be much more significant.
- The research also noted that depression impacted the quantity of these nerve cells rather than their structure. It, however, doesn't establish the reason behind this depletion of astrocyte volume.

How reduction in astrocytes have negative effects?

- A reduction in astrocytes in the brain regions studied here may have negative effects because these brain regions make up a circuit thought to be important for decision making and emotional regulation, functions affected by depression
- With fewer astrocytes to support them, the neurons in this circuit may not function as well as they otherwise would.
- Abnormalities in the prefrontal cortex also seem to be connected to impulsivity, which may play a role in suicide in some cases.

Three regions of the brain that are considered to be responsible for emotion regulation — **dorsomedial prefrontal cortex, dorsal caudate nucleus and mediodorsal thalamus** — were the focus of the study.

TRANSPARENT WOOD IS COMING

• CONTEXT:	As per a new study, researchers have found a way to make wood transparent without using huge amounts of energy in the process.
• ABOUT:	• Wood is an ancient material humans have been using for millions of years, for the construction of housing, ships and as a source of fuel for burning.
	 Wood is essentially composed of two basic ingredients cellulose and lignin: Cellulose is tiny fibers and lignin is the bonds that keep these fibers together and resists compression.



30

- **Lignin** is a glue-like material that bonds the fibres together, a little like the plastic resin in fibreglass or carbon fibre. The lignin also contains molecules called chromophores, which give the wood its brown colour and prevent light from passing through.
- It's also a renewable source, and one way to capture excess carbon dioxide from the Earth's atmosphere.

Understanding wood's lack of transparency

- Wood's lack of transparency comes from the combination of its two main components- cellulose and lignin.
- The lignin absorbs light, and the presence of chromophores light activated compounds in the material makes the wood look brown.
- The fibres in the wood, which mainly comprise cellulose, are hollow tube-like structures.
- The air in these hollow tubes scatters light, further reducing the material's transparency.

The new method

- The new study demonstrates how to make wood transparent using a simple chemical **hydrogen peroxide** commonly used to bleach hair.
- This chemical modifies the **chromophores**, changing their structure so they no longer act to absorb light and colour the wood.
- The chemical can be brushed onto the wood, and then activated using light to produce a brilliant **white material** blond wood if you like.
- The other reason paper is white is because pores or holes in its structure scatter light, just like the hollow cellulose fibres in wood.
- Filling these fibres with resin reduces that scattering, allowing light to pass through the wood and making it transparent, while retaining its original mechanical properties.

Usgae of transparent wood

- Transparent wood would be much more resistant to accidental breakage
- It could become an alternative to glass in energy efficient buildings, or perhaps coverings for solar panels in harsh environments.

UNITED ARAB EMIRATES CELEBRATES ITS FIRST MISSION AT MARS

 CONTEXT: The United Arab Emirates has put a probe called Hope in orbit around the planet, making it only the fifth spacefaring entity to do so after the US, the Soviet Union, Europe and India.

• **ABOUT:** What is HOPE?

 The unmanned probe — named "Al-Amal", Arabic for "Hope" — is a United Arab Emirates mission to Mars.



• Hope launched from the Tanegashima Space Center near Minamitane, Japan last year (July 2020).

- The 1,350-kilogramme probe about the size of an SUV took **seven months** to travel the 493 million kilometres to Mars.
- Hope is the Arab world's first mission to another planet.





Other Mars Missions

The other two Mars mission include- **China's Tianwen-1 dual orbiter-rover** and Perseverance from NASA, are also expected to reach the red planet.

- Tianwen-1 means Questions to Heaven and comes from a poem written by Qu Yuan (about 340-278 BC), one of the well-known poets of ancient China.
- The China's first mars probe 'Tianwen-1' has entered orbit around the Red Planet.
 - China's previous 'Yinghuo-1' Mars mission, had failed after it could not leave the Earth's orbit and disintegrated over the Pacific Ocean in 2012.
- Hope and Tianwen-1 thereby made their respective countries the fifth and sixth earthly cultures to successfully reach red neighboring planet.

NASA's Perseverance rover is expected to land on the planet in the coming days.

A brief history of Mars Mission

- The US, UAE (latest one), Russia, India and the EU have so far succeeded in sending missions to Mars regarded as the most complex space mission.
- **India became the first Asian country** to have successfully launched its Mars orbiter mission Mangalyaan which has entered the orbit of the red planet in 2014.
- India also became the first country to have entered the Martian orbit in its first attempt.

India's **MOM (Mars Orbiter Mission)** successfully achieved orbit in 2014 to image the entire planet, providing a unique perspective on its weather and surface features.

Significance of the mission

- The mission will build a complete picture of Mars' climate, helping scientists better understand what Mars was like when its atmosphere could have supported life.
- Its entry into Martian orbit paves the way for the probe's science mission, during which it will make observations of the planet's atmosphere, across all times and locations.

Rapid rise of UAE in space sector

- The UAE's rise as a space power has been swift.
- The country's first space venture was just 15 years ago, when it began work with the Satrec Initiative, a company based in Daejeon, South Korea, to build an Earthobservation satellite.
- Last year, it announced plans to send a rover to the Moon in 2024.
- Unlike the Emirates Mars Mission, which involved hundreds of Emirati engineers but saw Hope designed and built mostly in the United States, the rover is intended to be developed solely in the UAE.





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