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THE HINDU

GS 2 : Polity, Governance, International Relations

1. Study says fertility rates of Hindus and Muslims converging

An analysis by US-based Pew Research Center published recently, titled 'Religious Composition of India'.

- The study was based on data sourced from **India's decennial census** and the **National Family Health Survey (NFHS)**.
- It looked at the **three main factors** that are known to **cause changes in religious composition of populations** – fertility rate, migration, and conversions.

Highlights of the study:

- The religious composition of India's population since Partition has **remained largely stable** showing not only a marked decline but also a **convergence in fertility rates**.
 - It includes the two largest religious groups- Hindus and Muslims.
- Every religious group in India has seen its **fertility fall**, including the majority Hindu population and Muslim, Christian, Sikh, Buddhist and Jain minority groups.
- While **Muslims have the highest fertility rate** among India's major religious groups, their total fertility rate has declined dramatically.
- There are usually **three factors** that cause religious groups to shrink or expand– migration, religious conversion and fertility.
 - **Migrants leaving India outnumber immigrants** three-to-one, and religious minorities are more likely than Hindus to leave.
 - **Religious conversion** had a "relatively small impact" on India's overall composition, with 98 per cent of Indians still identifying with the religion in which they were raised.
 - **Sex selective abortions** have caused an estimated deficit of 20 million girls compared with what would naturally be expected between 1970 and 2017.
- Women in **central India tended to have more children**, with Bihar and Uttar Pradesh showing a total fertility rate (TFR) of 3.4 and 2.7 respectively, in contrast to a TFR of 1.7 and 1.6 in Tamil Nadu and Kerala respectively.

Growth rates:

- **Between 1951 and 1961**, the Muslim population expanded by 32.7%, 11 percentage points more than India's overall rate of 21.6%.
- From 2001 to 2011, the difference in growth between **Muslims (24.7%)** and Indians overall (17.7%) was **7 percentage points**.
- India's **Christian population grew at the slowest pace** of the three largest groups in the most recent census decade- gaining 15.7% between 2001 and 2011.
 - It shows lower growth rate than the one recorded in the decade following Partition (29.0%).

In terms of absolute numbers:

- In percentage terms, between 1951 and 2011, **Muslims grew by 4.4 percentage points** to 14.2% of the population, Hindus **declined by 4.3 points** to 79.8%.
 - Hindus comprised **84.1 per cent of the population in 1951**, and 79.8 per cent in 2011, while Muslims comprised 9.8 per cent of the population in 1951, and 14.2 per cent in 2011.
- All the **six major religious groups**- Hindus, Muslims, Christians, Sikhs, Buddhists, and Jains- have grown in absolute numbers.
- **Parsis** are in exception, whose number halved between 1951 and 2011, from 110,000 to 60,000.

On fertility rates:

- **Gaps in fertility rates** between India's religious groups have **shrunk over the years**.
 - Fertility rate refers to the **average number of children born to a woman** in childbearing age (15-44 years).
- While Muslim women were expected to have an average of 1.1 more children than Hindu women in 1992, the gap had shrunk to 0.5 by 2015.
- If all the women had an average amount of wealth and education, were the same age and lived in the same places, **Hindu women would be predicted to have 0.9 fewer children than their Muslim counterparts**, on average.
 - Analysed using **multilevel mixed-effects analysis**- a statistical technique.
- All religious groups have shown a **major decline in fertility rates between 1992 and 2015**.
- Muslims have the highest fertility rate, followed by Hindus. This reflects a long-standing pattern since 1992.

Christians may be undercounted:

- India's population has **more than tripled since Partition** and, accordingly, all religious groups have grown in size.
- **Indian Christian rose to 2.8 crore from 0.8 crore**, siting this could be an undercount.
 - People who indicate that they are Christian on the census are **not able to also identify as belonging to Scheduled Castes**.
- Members of Scheduled Castes are eligible for government benefits, reportedly prompting some people in that category to identify as Hindu when completing official forms.
- **Dalits who identify as Christians and Muslims can't avail of reservation** benefits and remain excluded from the Constitution (Scheduled Castes) Order, 1950.

2. South China Sea Issue

The South China Sea is an **arm of western Pacific Ocean in Southeast Asia**.

It is south of China, east & south of Vietnam, west of the Philippines and north of the island of Borneo.

Bordering states & territories (clockwise from north): the People's Republic of China, the Republic of China (Taiwan), the Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam.

It is connected by **Taiwan Strait with the East China Sea** and by **Luzon Strait with the Philippine Sea**.

It contains numerous shoals, reefs, atolls and islands. The **Paracel Islands, the Spratly Islands and the Scarborough Shoal** are the most important.

Importance of South China Sea

This sea holds tremendous strategic importance for its location as it is the connecting link between the **Indian Ocean and the Pacific Ocean**. (Strait of Malacca)

According to the **United Nations Conference on Trade And Development (UNCTAD)** one-third of the global shipping passes through it, carrying trillions of trade which makes it a significant geopolitical water body.

According to the **Department of Environment and Natural Resources, Philippines**, this sea has one-third of the entire world's marine biodiversity and contains lucrative fisheries providing food security to the Southeast Asian nations.

The South China Sea is believed to have **huge oil and gas reserves** beneath its seabed.

In News: The Chinese fishing fleets have been seen raiding the rich waters of the South China Sea that are internationally recognised as exclusively Indonesia's to fish. The fishermen in Natuna Islands (Indonesia) are worried.

The Chinese steel trawlers scrape the bottom of the sea and **destroy other marine life**. Chinese trawling also **breaches the maritime borders**. Since China is its **largest trading partner**, it has been argued that the **Indonesian government has not taken any steps** to deal with the incursions by Chinese fishing boats.

China's illegal fishing near the Natuna islands carries global consequence, reminding regional governments of Beijing's expanding claims to the South China Sea through which **one-third of the world's maritime trade flows**. China wants to claim the resources such as **oil, natural gas, and fish** in the South China Sea. The presence of Chinese fishers also helps to **embody China's maritime claims**. The **nine dash line** (rejected by an international tribunal) asserted by China violates the principle of **Exclusive Economic Zones (EEZ)**.

History of South China Sea Dispute

In the first half of the 20th century, the Sea remained almost quiet. In fact, at the end of World War II, no claimant occupied a single island in the entire South China Sea.

China laid claim to the South China Sea in 1947. It demarcated its claims with a U-shaped line made up of **eleven dashes** on a map, covering most of the area.

But two "dashes" were removed in the early 1950s to bypass the Gulf of Tonkin as a gesture to communist comrades in North Vietnam.

The remaining '**nine-dash line**' stretches hundreds of kilometers south and east of its southerly Hainan Island, covering almost 90% of South China Sea.

After 1960's when the huge reserve of oil and natural gas were discovered in the region, the territorial claims started growing in an unprecedented manner.

The United Nations Convention on the Law of the Sea (UNCLOS), which came into force in 1994, established a legal framework intended to balance the economic and security interests of coastal states with those of seafaring nations.

While UNCLOS has been signed and ratified by nearly all the coastal countries in the South China Sea, based on their own interpretation of the UNCLOS, claimant countries started to legitimize their claims.

In 2002, ASEAN and China came together to sign the Declaration on the Code of Conduct of Parties in the South China Sea to keep disputes away. However, it didn't achieve the desired outcomes.

In 2009, Malaysia and Vietnam sent a joint submission to the Commission on the Limits of the Continental Shelf (CLCS) for setting out some of their claims. In response to this China submitted a map containing the infamous "nine-dash" line and due to which, there was no headway in the dispute resolution.

Why is South China Sea in the news?

The **Permanent Court of Arbitration (PCA)**, based in The Hague, Netherlands, recently ruled that China's claims of historical rights over the South China Sea (SCS) has no legal basis. The case against China was initiated by the Philippines.

The Permanent Court of Arbitration (PCA) has ruled that China's claims to the waters within the "nine-dash line", was in breach of the **UN Convention on the Law of the Sea (UNCLOS)**. The court also observed that China has caused "severe harm to the coral reef environment" by building artificial islands.

The Philippines had lodged the suit against China in 2013 and has welcomed the ruling, but China has reacted furiously, saying that it "does not accept and does not recognise" the decision.

China had even refused to participate in the case, saying that the tribunal had "no jurisdiction" over the issue.

Geopolitics and Activities undertaken in the region:

Between China and the Philippines, the conflict centers around the **Scarborough Shoal**. The Scarborough Shoal, is essentially a triangle-shaped chain of reefs and rocks with a total area of 150 square kilometers.

In 1995, China took control of the disputed **Mischief Reef**, constructing octagonal huts on stilts- Chinese officials said at the time that these would serve as shelters for fishermen. The Philippines registered a protest through the Association of Southeast Asian Nations.

In fact, the current round of tension between the two countries began in 2008-2009 after a tense but bloodless stand-off over the Scarborough Shoal, led to China gaining de facto control of it in 2012.

Also recently, China has constructed and installed military-capable infrastructure in the **Spratly Islands**.

Reasons for the stalemate on a possible solution

ASEAN member nations, namely, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, often show signs of anxiety whenever claimants over the South China Sea, most often China, escalate the conflict.

In fact, one of the fundamental principles of the Association of Southeast Asian Nations (ASEAN) has been to resolve disputes by peaceful means and to reach agreement by a consensus.

But on the issue of the South China Sea, ASEAN has been unable to formulate a consensus policy. Reasons for this can be attributed partly to the fact that not all 10 ASEAN members are claimants to the South China Sea. While another reason is that members of ASEAN have overlapping claims among themselves. Moreover, bilateral relations between China and some smaller ASEAN members, such as Laos and Cambodia, are also a factor. Because of its economic and military power, China has been able to win over some ASEAN members.

In fact, when China insisted on talks among the parties concerned, the claimants in ASEAN wanted to pursue it through multilateralism or the Court of Arbitration. Thus, the existence of two opposing approaches was, and continues to be a major challenge for bringing a mutually acceptable solution to the South China Sea disputes.

India's Stand on South China Sea

It is important to note that in July 2014, an Arbitration Tribunal, set up under the Permanent Court of Arbitration, delivered its ruling, in the matter of the Bay of Bengal Maritime Boundary Delimitation between India and Bangladesh. The maritime boundary so delimited covered the territorial sea, the exclusive economic zone (EEZ) and the continental shelf.

The United Nations tribunal awarded Bangladesh 19,467 sq. km of the 25,602 sq. km sea area of the Bay of Bengal.

India has been widely credited, with her acceptance of the decision and the manner in which she has abided by it. This is an example which China should be encouraged to emulate. In fact, it is interesting to note that the US has asked China to learn from India's handling of its maritime disputes with its neighbours- referring to the maturity with which India has agreed to the settlement on the maritime boundary with Bangladesh.

Under the 'Act East' policy, India has been taking a higher position at the global high table- this was reflected in the joint statement issued in September 2014, by the Governments of U.S. and India when Indian PM Narendra Modi, travelled to U.S. The joint statement "urged the concerned parties to pursue resolution of their territorial and maritime disputes through all peaceful means, in accordance with universally recognized principles of international law, including the United Nations Convention on the Law of the Sea." The joint statement also, "affirmed the importance of safeguarding maritime security and ensuring freedom of navigation and over flight throughout the region, especially in the South China Sea."

In the wake of the recent judgement by the Permanent Court of Arbitration, it is a good time for India to assert that it believes in global commons, and in freedom of navigation. India has rightfully not come out in 'open' support of the verdict from the tribunal, as any overt support to this verdict might run against India's ambitions of securing membership into the NSG- where China's support is needed.

India has legitimate commercial interest in the South China Sea (SCS) region. But India follows the policy of not involving itself in the disputes between sovereign nations.

India has been concerned about the security of its trade-flows and energy interests in the South China Sea. Vietnam has offered India seven oil blocks in its territory of the SCS- this move didn't get down well with China. India has signed energy deals with Brunei too.

India has been a strong advocate of the idea of freedom of navigation. This belief is strongly echoed by most other major powers, including the U.S.

Possible Way Forward

China operates from a position of strength in the South China Sea, wherein it has physical control over critical islands in the region, coupled with this, her policy of gradual militarization of the disputed islands in the South China Sea, would impact freedom of navigation- making China the main arbiter of the accepted range of 'legitimate' operations in the South China Sea.

Also, although the ruling is historic, the tribunal lacks powers to enforce its rulings, it is important that the claimant nations do not escalate the issue, but work on arriving at a consensus through effective diplomacy.

Judicial verdicts on issues of contested sovereignty have had historical precedents of triggering a nationalist backlash. It is thus important to consider possible solutions to this dispute. Some measures are as under:

To resolve the disputes peacefully, the claimants in the region should be willing to abandon their confrontational attitude, and instead agree to find a middle path—even if this requires sacrificing certain portions of their claims.

All claimants can perhaps limit their claim to the areas of 200 nautical miles of the Exclusive Economic Zone in accordance with the United Nations Convention on the Law of the Sea (UNCLOS). Thus, by agreeing to such a proposal, the claimants can also reach an agreement to leave international waters for free navigation.

Another possible solution would be for the parties concerned to establish a common ownership of the disputed areas whereby all the revenues from the South China Sea are equitably shared among the littoral countries.

Perhaps another possibility would be for the disputing countries to specifically lay out their claims and allow a neutral party to adjudicate on the basis of the UNCLOS or any other relevant international laws.

3. The big deal behind the ruckus over AUKUS

The announcement of the new Australia-U.K.-U.S. (AUKUS) trilateral security pact has naturally generated animated debate in strategic circles, before the QUAD summit.

AUKUS

- The first major initiative of AUKUS would be to deliver a nuclear-powered submarine fleet for Australia.
- The nuclear-powered submarines will give Australia naval heft in the Pacific, where China has been particularly aggressive.
- While the US and Britain have had the capability for decades, Australia has never had an n-sub.

Motive: To counter China

- China has nuclear-powered submarines, as well as submarines that can launch nuclear missiles.

- The three signatories to the AUKUS deal have made it clear though, that their aim is not to arm the new subs with nuclear weapons.
- China has been one of Australia's biggest trading partners, but the relationship has soured over the last few years.
- It was in consideration of Chinese sensibilities that Australia had pulled out of the Malabar Naval Exercise with the US, India, and Japan after participating in the 2007 edition (of which Singapore too, was part).
- Australia came back to Malabar in 2020, which marked the first time in 13 years that the navies of the four Quad nations war-gamed together.

Australia at the Centrestage

- This is primarily because a nuclear-powered submarine gives a navy the capability to reach far out into the ocean and launch attacks.
- A nuclear-powered submarine offers long distances dives, at a higher speed, without being detected gives a nation the ability to protect its interests far from its shores.
- In the context of the AUKUS agreement, nuclear-powered submarines will give the Royal Australian Navy the capability to go into the South China Sea.
- It conclusively puts to rest a long-standing domestic debate on whether it was time for Australia to assess China through the strategic lens, overcoming the purely mercantile considerations that tended to dominate its China policy.

What makes nuclear submarines so important?

- A nuclear-powered submarine is classified as an "SSN" under the US Navy hull classification system, wherein 'SS' is the symbol for submarine, and 'N' stands for nuclear.
- A nuclear-powered submarine that can launch ballistic missiles is called "SSBN".
- Conventional diesel-engine submarines have batteries that keep and propel – though not very fast – the vessel underwater. The life of these batteries can vary from a few hours to a few days.
- The newer Air-Independent Propulsion (AIP) submarines have additional fuel cells that allow them to stay underwater for longer and move faster than the conventional vessels.
- However, the fuel cells are used only at strategic times, when the endurance to remain submerged is required.
- Both conventional and AIP subs need to come to the surface to recharge their batteries using the diesel engine.
- The diesel engine also propels the vessel on the surface. However, the fuel cells of AIP can only be charged at on-land stations, not while at sea.

Why is France unhappy about Australia getting these submarines?

- The deal has complicated the relations between France and Australia, and also France and the US.
- France is upset as it has been kept out of the loop. But, with the core objective of pushing back against China's aggression, all five countries – US, UK, Australia, France and India – are on the same track.
- The deal between France and Australia had been marked by delays and other issues.
- The first submarine was expected to be operational around 2034.

Does India have nuclear-powered submarines?

- Yes, India is among the six nations that have SSNs. The other five are the US, the UK, Russia, France and China.
- India has had the capacity since it got the Soviet-built K-43 Charlie-class SSN in 1987.
- Commissioned with the Red Fleet of the USSR in 1967, it was leased to the Indian Navy, and was rechristened INS Chakra. The submarine was decommissioned in 1991.

Indo-Pacific is the core issue

- France, which like the UK has historically been an Indo-Pacific power with territories and bases across the region.
- It has participated in a multi-nation naval exercise in the Bay of Bengal with the four Quad nations.
- There is no gainsaying the fact that rapid accretion in China's economic and military capacities, but more particularly its belligerence, has led to a tectonic shift in regional security paradigms.
- Several countries have been obliged to review their defence preparedness in response to China's rising military power and its adverse impact on regional stability.

A chance for the UK

- The AUKUS pact is also an emphatic assertion of the relevance of the U.S.-Australia Security Treaty (ANZUS).
- New Zealand, the outlier, walked away in 1984 from the treaty that ironically still bears its initials.
- Its "nuclear-free" stance ran counter to the U.S. Navy's non-disclosure policy in regard to nuclear weapons aboard visiting vessels.

- Close ties notwithstanding, Australia's future fleet of nuclear submarines will not be permitted access to New Zealand's ports or waters, as averred by PM Jacinda Ardern.
- AUKUS provides a fresh opportunity to the United Kingdom to reinsert itself more directly into the Indo-Pacific.
- It is already a member of the Five Eyes (FVEY), an intelligence-sharing alliance built on Anglo-Saxon solidarity (Australia, Canada, New Zealand, the U.K., and the U.S.).

AUKUS is not a substitute for the Quad

- It does not erode the Quad's significance as a platform for consultations and coordination on broader themes of maritime security, free and open trade, health care, critical technologies, supply chains and capacity-building.
- The AUKUS submarine deal, on the other hand, is an undiluted example of strategic defence collaboration, and a game-changer at that.

Chinese reception of AUKUS

- China, expectedly, has strongly criticised AUKUS and the submarine deal as promoting instability and stoking an arms race.

The exposed double standards

- China has the world's fastest-growing fleet of sub-surface combatants.
- This includes the Type 093 Shang-class nuclear-powered attack submarine (SSN) and the Type 094 nuclear-powered Jin-class ballistic missile submarine (SSBN).
- Its nuclear submarines are on the prowl in the Indo-Pacific.
- Yet, China denies Australia and others the sovereign right to decide on their defence requirements.

Way forward

- The setback 'down under' may spur France to focus afresh on partners such as India.
- India must strike a balance between continuing imports and implementing the all-important Atmanirbhar Bharat in defence manufacturing.
- France should take AUKUS as a business deal.
- Its momentary reaction at the cancellation of the contract by Australia should soon subside.
- As a major Indo-Pacific power, France is an important part of the regional security calculus.

4. Kasturirangan panel for National Curriculum Framework

The Centre has started the process to revise school textbooks by appointing former Indian Space Research Organisation (ISRO) chairman K. Kasturirangan as the head of a 12-member steering committee responsible for developing a new National Curriculum Framework (NCF).

National Curriculum Framework (NCF)

- The new NCF is in line with the National Education Policy (NEP) 2020.
- The committee will be headed by K Kasturirangan, who had also led the NEP 2020 drafting committee.
- The national curriculum framework serves as a guideline for syllabus, textbooks, teaching and learning practices in the country.
- India is currently following its fourth national curriculum framework that was published by the NCERT in 2005.

What was the last NCF?

- The last such framework was developed in 2005.
- It is meant to be a guiding document for the development of textbooks, syllabi and teaching practices in schools across the country.

Why revamp NCF?

- The subsequent revision of textbooks by the National Council of Educational Research and Training will draw from the new NCF.
- In fact, the steering committee will develop four such frameworks, one each to guide the curriculum of school education, teacher education, early childhood education, and adult education.

GS 3 : Economy, Science and Technology, Environment

5. Nagaland Issue

Four years after the government inked **the Naga peace accord in 2015**, the Centre has now said that the process had almost concluded, despite the fact that the talks had hit a roadblock in its final stages.

Why is the Naga Peace talks being delayed?

It is mainly because of unrealistic demands. NSCN I-M has issued statements in the past claiming that it wanted a separate Constitution, flag and integration of all contiguous Naga-inhabited areas under Nagalim (Greater Nagaland).

Government of India's stand:

A mutually agreed draft comprehensive settlement, including all the substantive issues and competencies, is ready for inking the final agreement. Respecting the Naga people's wishes, the Government of India is determined to conclude the peace process without delay.

How old is the Naga political issue?

Pre- independence:

1. The British annexed Assam in 1826, and in 1881, the Naga Hills too became part of British India. The first sign of Naga resistance was seen in the formation of **the Naga Club** in 1918, which told the Simon Commission in 1929 "to leave us alone to determine for ourselves as in ancient times".
2. In 1946 came **the Naga National Council (NNC)**, which declared Nagaland an independent state on August 14, 1947.
3. The NNC resolved to establish a "**sovereign Naga state**" and conducted a "**referendum**" in 1951, in which "**99 per cent**" supported an "**independent**" Nagaland.

What are the Naga peace talks?

- The talks seek to settle disputes that date back to colonial rule.
- The Nagas are not a single tribe, but an ethnic community that comprises several tribes who live in the state of Nagaland and its neighbourhood
- One key demand of Naga groups has been a Greater Nagalim that would cover not only the state of Nagaland but parts of neighbouring states, and even of Myanmar.

Rise of Naga nationalism

- The British had annexed Assam in 1826, in which they subsequently created the Naga Hills district and went on to extend its boundaries.
- The assertion of Naga nationalism, which began during British rule, has continued after Independence, and even after Nagaland became a state.
- Along the way, the unresolved issues gave rise to decades of insurgency that claimed thousands of lives, including of civilians.

How has the Naga assertion played out historically?

- The earliest sign of Naga resistance dates back to 1918, with the formation of the Naga Club.

- In 1929, the Club famously told the Simon Commission “to leave us alone to determine for ourselves as in ancient times”.
- In 1946, A Z Phizo formed the Naga National Council (NNC), which declared Naga independence on August 14, 1947, and then, in 1951, claimed to have conducted a referendum.
- The referendum got overwhelming majority in support of an independent Naga state.
- By the early 1950s, the NNC had taken up arms and gone underground.
- The NNC split in 1975, the breakaway group being the NSCN, which split further in later years, most prominently into the NSCN(I-M) and NSCN (Khaplang) in 1988.

And how have the peace talks played out in recent years?

Before the ongoing talks, which followed a framework agreement in 2015, there were two other agreements between Naga groups and the Centre.

1975:

- A peace accord was signed in Shillong in which the NNC leadership agreed to give up arms.
- Several NNC leaders, including Isak Chishi Swu, Thuingaleng Muivah and S S Khaplang refused to accept the agreement and broke away to form the NSCN.
- In 1988 came another split, with Khaplang breaking away to form the NSCN(K) while Isak and Muivah headed the NSCN(I-M).

1997:

- The NSCN(I-M) signed a ceasefire agreement with the government in 1997, preceded by rounds of talks since 1995.
- The key agreement was that there would be no counter-insurgency offensive against the NSCN(I-M), who in turn would not attack Indian forces.
- The NSCN(I-M) had then announced to “every citizen of Nagalim wherever they may be”, that a ceasefire agreement was entered into between India and the outfit to bring about a lasting political solution.

2015:

- In August that year, the Centre signed a framework agreement with the NSCN(I-M).
- PM Modi described it as a “historic agreement” towards settling the “oldest insurgency” in India. This set the stage for the ongoing peace talks.

- In 2017, six other Naga armed outfits under the banner of the Naga National Political Groups (NNPGs) joined the talks.
- Today, Muivah remains the senior-most Naga rebel leader. Isak died in 2016. In the NSCN(-K), its leader Khaplang died in 2018.

What are the other issues?

- The government and the NSCN(I-M) have failed to agree on issues relating to a separate Naga flag and a constitution.
- In its latest statement, the NSCN(I-M) has said it will not budge from the demand for the flag and the constitution — and that it is looking for a lasting solution.
- However the NSCN(I-M) has adopted a procrastinating attitude to delay the settlement raising the contentious symbolic issues of separate Naga national flag and constitution.

Where could the disagreement lead to?

- The statement from the Governor's office has given rise to speculation that the government is ready to sign a final peace agreement with other groups without the NSCN(I-M), the largest group.
- Civil society groups in Nagaland are divided in their opinion.
- Some have said the talks should be wrapped up with whatever is offered now and keep other issues open for later negotiations.
- Others believe all issues should be settled and the NSCN(I-M) should be on board, even if it takes longer than the deadline.

6. Rooftop Solar Scheme

India has added 521 megawatts (MW) of rooftop solar capacity in the second quarter (Q2) of the calendar year (CY) 2021, a 53% increase than earlier quarter showing good signs of popularity.

Solar Rooftop

- A solar photovoltaic (PV) system mounted on a rooftop of a building is a mini-power requirement or feed into the grid.
- The size of the installation varies significantly depending on the availability of space, amount of electricity consumed by the property and the ability or willingness of the owner to invest the capital required.

Why rooftop?

- Rooftop solar with a storage system is a benefit for both, end consumers as well as discoms (power distribution companies).
- A one-kilowatt (kW) rooftop system can produce three to five units of electricity a day.
- The combination increasingly becomes cost-effective for electricity generation compared to the traditional grid supply and diesel generators.
- In 2021, solar and storage will be cheaper than grid supply for most commercial and industrial (C&I) customers.
- The increase in penetration of rooftop solar in the distribution grid will have a significant impact on the stability of the grid.

A viable alternative

- Most housing societies in urban India rely on diesel generators for power backup. However, as power availability improves in the country, diesel generators will become redundant.
- The operational cost of diesel generators is quite high – R16-18 per unit against Rs 5-6 a unit for solar rooftop systems. So rooftop solar power makes financial sense. Solar rooftop is also a perfect solution for commercial and institutional buildings that operate mostly during the day.
- Their rooftops can be utilized to generate electricity, and they can, partially or completely, replace diesel generators. This would also help them reduce their electricity bills.

Question of energy storage

- In order to integrate rooftop solar and electric vehicles, the grid needs to be flexible and smart.
 - Energy storage systems will play a key role in providing this flexibility by acting as a load when there is a surplus generation, as well as generating sources when there is a supply shortage.
 - There are two major methods of integrating battery storage into the electric grid:
1. **Front-of-the-meter (FTM):** It is implemented at the utility scale, wherein the battery system is connected to the transmission or distribution network that ensures grid reliability. This happens on a considerably large scale (~MWh scale).
 2. **Behind-the-meter (BTM):** The other method is implemented at the residential and commercial/industrial level, mainly to provide backup during a power failure or to store excess locally generated energy from solar rooftop photovoltaic (PV) systems.

India's storage capacity

- About 34 GW / 136 GWh of battery storage is expected to be installed by 2030, according to the Central Electricity Authority of India.
- This capacity would be used for RE integration, demand-side and peak load management services.

Storage challenges

- The solar segment offers a huge market opportunity for advanced battery technologies.
- However, manufacturers have some ground to cover in addressing technical limitations of batteries, such as charging characteristics, thermal performance and requirement of boost current to charge deep cycle batteries.
- Since solar companies may directly procure batteries from manufacturers and require after-sale services and technical support, battery companies should have wider a presence to address these expectations.

Other key challenges

- Rooftop solar source doesn't match the rise in renewable energy in India.
- While industrial and commercial consumers account for 70% of total installed capacity residential consumers remain a big untapped potential to give the boost
- Solar rooftops also face several challenges such as little consumer awareness, lack of innovative government policies or attention, bureaucratic hassles, and limited support from discoms.

Way forward

- Supportive policies and innovative technological approaches are needed for the sector to achieve its potential.
- Indian policymakers need to plan for rooftop solar plus storage, rather than rooftop solar alone with the grid as storage (net / gross metering).
- The declining cost of storage solutions, along with that of rooftop solar solutions, is likely to change the future of the Indian power sector.
- Several countries such as Australia, the United States, Germany, among others have already endorsed solar power with battery storage.
- Energy storage, therefore, represents a huge economic opportunity for India.
- The creation of a conducive battery manufacturing ecosystem on a fast track could cement India's opportunity for radical economic and industrial transformation in a critical and fast-growing global market.

7. Changing the agri exports basket

The article talks about the steps that India must take to unleash its potential of becoming a global leader in the food processing sector.

Details:

- India's agricultural export basket is changing from traditional commodities to non-traditional processed foods.
 - Traditionally, Basmati rice is one of the top export commodities. However, now there is an unusual spike in the export of non-basmati rice.
- Indian buffalo meat is seeing strong demand in international markets due to its lean character and near organic nature. The export potential of buffalo meat is tremendous, especially in countries like Vietnam, Hong Kong and Indonesia.
- The export of processed food products has not been growing fast enough.
 - India lacks a comparative advantage in many items.
 - This may imply that the domestic prices of processed food products are much higher compared to the world reference prices.
- The main objective of the Agriculture Export Policy is to diversify and expand the export basket. Instead of primary products, the goal is to increase the export of higher value items, including perishables and processed food.

Issues:

The exporters of processed food confront difficulties and non-tariff measures imposed by other countries on Indian exports. Some of these include:

- Mandatory pre-shipment examination by the Export Inspection Agency being lengthy and costly.
- Compulsory Spice Board certification being needed even for ready-to-eat products which contain spices in small quantities.
- Lack of strategic planning of exports by most state governments.
- Lack of a predictable and consistent agricultural policy discouraging investments by the private sector.
- Prohibition of import of meat- and dairy based-products in most of the developed countries.
- Withdrawal of the Generalised System of Preference by the U.S. for import of processed food from India.
- Export shipments to the U.S. requiring an additional health certificate.

- Absence of an equivalency agreement with developed countries for organic produce.

Steps taken by the Government:

- The Indian government has been encouraging agricultural exports to meet an ambitious target of \$60bn by 2022.
- As per the Ministry of Food Processing Industries data, the contribution of agricultural and processed food products in India's total exports is 11%.
 - The major share is of primary processed agricultural commodities.

Way Forward:

- The Centre's policy should be in the direction of nurturing food processing companies.
- Developed countries have fixed higher standards for the import of food items. Low cost of production and global food quality standards must be ensured.
- A supportive environment is needed to promote the export of processed food.
- Reputed Indian brands should be encouraged to export processed foods globally as they can comply with the global standard of codex.
- Indian companies should focus on cost competitiveness, global food quality standards, technology, and tap the global processed food export market.
- India has competitive advantages in various agricultural commodities which can be passed onto processed foods. It has the potential to become a global leader in the food processing sector.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. State Food Safety Index: FSSAI

In News : Recently, the Union Minister for Health and Family Welfare has released the 3rd State Food Safety Index (SFSI).

- Also, 19 Mobile Food Testing Vans (Food Safety on Wheels) have been flagged off to supplement the food safety ecosystem across the country.

About the Index:

- The index is developed by FSSAI (Food Safety and Standards Authority of India) to measure the performance of states on five significant parameters of Food Safety.
- The first State Food Safety Index for the year 2018-19 was announced on the first-ever World Food Safety Day on 7th June 2019.

Ranking of States:

- Among the larger states, Gujarat was the top ranking state, followed by Kerala and Tamil Nadu.
- Among the smaller states, Goa stood first followed by Meghalaya and Manipur.
- Among UTs, Jammu & Kashmir, Andaman & Nicobar Islands and New Delhi secured top ranks.

About Food Safety and Standards Authority of India (FSSAI)

- It is an autonomous statutory body established under the Food Safety and Standards Act, 2006 (FSS Act).
- The Act aims to establish a single reference point for all matters relating to food safety and standards, by moving from multi-level, multi-departmental control to a single line of command.
- **Ministry:** Ministry of Health & Family Welfare.
- It comprises a Chairperson and twenty two members out of which one - third are to be women. The Chairperson of FSSAI is appointed by the Central Government.
- The primary responsibility for enforcement is largely with the State Food Safety Commissioners.

2. Havana Syndrome

A US intelligence officer traveling with CIA director William Burns has reported symptoms of Havana Syndrome.

Havana Syndrome

- Havana Syndrome refers to a set of mental health symptoms that are said to be experienced by US intelligence and embassy officials in various countries.
- It typically involves symptoms such as hearing certain sounds without any outside noise being present, nausea, vertigo and headaches, memory loss and issues with balance.
- As the name suggests, it traces its roots to Cuba.
- In late 2016, US officials in embassy began experiencing sudden bursts of pressure in their brain followed by persistent headaches, feeling of disorientation and insomnia.

How severe is it?

- In 2018, at least three CIA officers working under diplomatic cover in Cuba had reported troubling sensations that seemed to leave serious injuries.
- Some officers are being compulsorily retired for their inability to coherently discharge his duty and another needing a hearing aid.

Has Havana Syndrome been reported anywhere else?

- Since the Cuban incident, American intelligence and foreign affairs officials posted in various countries have reported symptoms of the syndrome.
- In early 2018, similar accusations began to be made by US diplomats in China.
- The US media has reported around 130 such attacks across the world including at Moscow in Russia, Poland, Georgia, Taiwan, Colombia, Kyrgyzstan, Uzbekistan, and Austria, among others.

What are the causes of Havana Syndrome?

- No one is entirely sure. But it is speculated to be a “sonic attack”.
- Medical examination of the victims began to suggest that the victims may have been subjected to high-powered microwaves that either damaged or interfered with the nervous system.
- It was said to have built a pressure inside the brain that generated the feeling of a sound being heard.
- Greater exposure to high-powered microwaves is said not only to interfere with the body’s sense of balance but also impact memory and cause permanent brain damage.
- It is suspected that beams of high-powered microwaves are sent through a special gadget that Americans have begun calling “microwave weapon”.

Who is doing this in India?

- Sources in the Indian security establishment say they are not aware of any such weapon being in the possession of an Indian agency.
- Even if there was one, it is unlikely the government would admit to having acquired such counter-espionage technology given the sensitive nature of intelligence work.

3. District Level Committees to oversee power related schemes

Ministry of Power has issued an order for the setting up of **District Level Committees** to exercise oversight over all power related schemes of Government of India.

Major Highlights:

- These committees would **exercise oversight** over all power-related schemes and its impact on the **provision of services** to the people.
- **The composition of the committee would be:**
 1. Most Senior member of Parliament (MP) in the district: Chairperson
 2. Other MPs in the district: Co-chairpersons
 3. District Collector: Member Secretary) Chairperson/President of the District Panchayat: Member (e) MLAs of the district: Members
- All States and Union Territories will have to **notify and ensure establishment** of these District Electricity committees.
- The committee of a district will meet at the district headquarters **at least once in three months** to review and coordinate the overall development of power supply infrastructure in the district.

The meet might include the following aspects:

- All Government of India Schemes (power related), including their progress and quality issues.
- Development of Sub-transmission and distribution network including regular operations and maintenance of network - identifying further areas where strengthening is needed.
- Impact of the works on quality and reliability of power supply.
- Standards of Performance and consumer services quality of supply.
- Complaints and Grievance Redressal System.

GS 3 : Economy, Science and Technology, Environment

4. Rhino Horn Reverification Exercises

Assam will mark World Rhino Day – September 22 – with a special ceremony by burning a stockpile of nearly 2,500 horns of the one-horned rhinoceros.

Rhino Horn Reverification

- The public ceremony – scheduled at Bokakhat in Kaziranga National Park (KNP) has been publicized as a “milestone towards rhino conservation” aimed at “busting myths about rhino horns”.
- It’s a loud and clear message to the poachers and smugglers that such items have no value.
- Thus the case for the destruction of horns – a process that is in compliance with Section 39(3)(c) of the Wildlife (Protection) Act of 1972.

Why are Rhinos poached for horns?

- Ground rhino horn is used in traditional Chinese medicine to cure a range of ailments, from cancer to hangovers, and also as an aphrodisiac.
- In Vietnam, possessing a rhino horn is considered a status symbol.
- Due to demand in these countries, poaching pressure on rhinos is ever persistent against which one cannot let the guard down.

Indian Rhino

- The Indian rhinoceros also called the greater one-horned rhinoceros and great Indian rhinoceros is a rhinoceros native to the Indian subcontinent.
- It is listed as Vulnerable on the IUCN Red List and Schedule I animal in the Wildlife Protection Act, 1972.
- It once ranged across the entire northern part of the Indian Subcontinent, along the Indus, Ganges and Brahmaputra River basins, from Pakistan to the Indian-Myanmar border.
- Poaching for rhinoceros horn became the single most important reason for the decline of the Indian rhino.

5. Extreme weather events made women children vulnerable

International Institute for Environment and Development and Anti-Slavery International in a recent report has warned that Climate change-induced **extreme weather events** put women, children and minorities at risk of modern slavery and human trafficking.

Major Highlights:

- As per the report, **Modern slavery** – including debt bondage, bonded labour, early / forced marriage and human trafficking converge with climate change, particularly climate shocks and climate-related forced displacement and migration.
- The report established **close relationship** between lack of resources, alternative livelihoods, safety nets and the protection against loss and damage as well as debt and exploitation.

The Case of Sundarbans:

- The report observed that the **Sundarbans delta region** is characterised by intense, recurrent and sudden onset disasters and **ecological degradation**.
- Rising sea levels, erratic rainfall, increased frequency of cyclones, tidal surges and floods would mean that **millions of people** across Sundarbans are unable to work for most of the year.
- These events can leave locals **vulnerable to traffickers** and drive them into forced labour, particularly women and children who are at the risk of **trafficking, hard labour and prostitution**.

Recommendations:

- Policymakers should **develop targeted actions**, at national and international levels, to address the issue of trafficking and slavery risks due to **climate shocks**.
- **Several ongoing initiatives** including Warsaw International Mechanism Task Force on Displacement, Sendai Framework, etc. should be coordinated to increase understanding of growing risks of climate-induced migration/ displacement and exposure to modern slavery.
- Recognising **slavery as a mainstream policy issue** alongside poverty and climate change will help to:
 - Develop understanding of the underlying drivers that push disadvantaged communities into slavery.
 - Identify risky migration pathways that lead to exploitative work situations.

- Identify gaps in existing climate and development policies that leave communities facing climate crises exposed to slavery.

6. Kovalam & Eden Beaches gets Blue Flag Certification

The international eco-label “Blue Flag”, has accorded the Blue Flag Certification for 2 new beaches this year –Kovalam in Tamil Nadu and Eden in Puducherry beaches.

With this India now has 10 International Blue Flag beaches.

Which are the other 8 beaches?

1. Shivrajpur (Dwarka-Gujarat)
2. Ghoghla (Diu)
3. Kasarkod (Karnataka) [NOT Kasargod which is in Kerala] and
4. Padubidri (Karnataka)
5. Kappad (Kerala)
6. Rushikonda (AP)
7. Golden Beach (Odisha) and
8. Radhanagar (A&N Islands)

Blue Flag Beaches

- The ‘Blue Flag’ beach is an ‘eco-tourism model’ and marks out beaches as providing tourists and beachgoers clean and hygienic bathing water, facilities/amenities, a safe and healthy environment, and sustainable development of the area.
- The certification is accorded by the Denmark-based Foundation for Environment Education.
- It started in France in 1985 and has been implemented in Europe since 1987, and in areas outside Europe since 2001 when South Africa joined.
- It has 33 stringent criteria under four major heads for the beaches, that is, (i) Environmental Education and Information (ii) Bathing Water Quality (iii) Environment Management and Conservation and (iv) Safety and Services.

Prelims Practice Questions

1. Consider the following statements:

1. West Bengal is the largest rice-producing state in India.
2. Bao-Dhaan is an iron-rich genetically modified variety of rice.
3. Blast disease is a fungal disease caused in rice crops.

Which of the statements given above is/are correct?

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

Answer : D

Explanation

- **Rice is a kharif crop** which requires high temperature (above 25°C) and high humidity with annual rainfall above 100 cm.
 - Rice is grown in the plains of north and north-eastern India, coastal areas and the deltaic regions.
 - **West Bengal tops the list of rice-producing states** followed by Uttar Pradesh and Punjab. Hence, statement 1 is correct.
- The traditional rice varieties can add essential Fatty Acids in the staple diet helping in the normal brain development in infants.
- Seven rice varieties of North East India – Meghalaya lakang, Chingphourel, Manuikhamei, Kemenyakepeyu, Wainem, Thekrulha, and Koyajang – have the potential to resist leaf and neck blast disease in rice plants.
 - **Blast disease caused by fungal pathogen Pyricularia oryzae is a major threat to rice productivity worldwide. Hence, statement 3 is correct.**
- Recently, the first export consignment of **Bao-dhaan** (red rice) from Assam was sent to the US in March 2021. This enhances incomes of farming families.
 - Bao-dhaan is an **iron-rich red rice grown naturally in the Brahmaputra valley of Assam**, without the use of any chemical fertilizer. Hence, statement 2 is not correct.

2. With respect to Global Innovation Index, which of the following statements is/are correct?

1. It is published by World Economic Forum.
2. India has been on a rising trajectory, over the past several years in the Global Innovation Index (GII).

Options:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. None

Answer: b

Explanation:

- The Global Innovation Index (GII) is an annual ranking of countries by their capacity for, and success in, innovation.
- GI was published for the first time in 2007. It is published annually.
- It is published by INSEAD, Cornell University and World Intellectual Property Organization.
- India has been ranked 46th in the Global Innovation Index 2021 rankings. It has improved by 2 spots from the last ranking. India was ranked 81 in 2015. It has consistently been on a rising trajectory in the GI rankings.

3. Consider the following statements regarding India's relations with Saudi Arabia:

1. Saudi Arabia is India's largest supplier of crude oil.
2. Al-Mohed Al-Hindi Exercise is the first-ever Naval joint exercise between India and Saudi Arabia.

Which of the statements given above is/are correct?

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

Answer : B

Explanation

India - Saudi Arabia Ties:

- **Saudi Arabia is currently India's second-largest supplier of crude oil** (Iraq has been India's top supplier). **Hence, statement 1 is not correct.**
- Saudi Arabia is India's fourth largest trade partner (after China, USA and Japan). The bilateral trade was valued at US \$33.07 billion during FY 2019-20.
 - During the same period, India's imports from Saudi Arabia reached US \$26.84 billion and exports to Saudi Arabia were worth US\$ 6.24 billion registering an increase of 12.18% over last year.
- The 2.6 million-strong Indian community in Saudi Arabia is the largest expatriate community in the Kingdom and is the 'most preferred community' due to their expertise, sense of discipline, law-abiding and peace-loving nature.
- Recently, India and Saudi Arabia started their **first-ever Naval joint exercise** called the **Al-Mohed Al-Hindi Exercise**. **Hence, statement 2 is correct.**

4. SAMUDRA SHAKTI is a Naval Bilateral Maritime Exercise between India and

- a. Thailand
- b. Indonesia
- c. South Africa
- d. Maldives

Answer: b

Explanation:

- Exercise 'Samudra Shakti' was conceived in 2018 as a bilateral maritime exercise between India and Indonesia.
- The maritime exercise was conceived in pursuance of India's Act East Policy.

5. Which of the following are the Arya Satyas in Buddhism?

1. Dukkha
2. Samudaya
3. Sangha

4. Nirodha
5. Magga

Options:

- a. 1, 2, 3 and 4 only
- b. 2, 3, 4 and 5 only
- c. 1, 2, 4 and 5 only
- d. 1, 2, 3, 4 and 5

Answer: c

Explanation:

In Buddhism, the Four Noble Truths or the four Arya satyas are the truths or realities for the spiritually worthy ones. The truths are:

- Dukkha – The truth of suffering
- Samudaya – The truth of origin of suffering
- Nirodha – The truth of the end of suffering
- Magga – The truth of the path to the end of suffering

6. Which of the following indicators are used in preparation of the Global Innovation Index (GII) 2021?

1. Human capital and research
2. Market sophistication
3. Knowledge and technology outputs
4. Infrastructure

Select the correct answer using the code given below:

- A 1 and 2 only
B 2 and 3 only
C 2, 3 and 4
D 1, 2, 3 and 4

Answer : D

Explanation

- Recently, India has climbed two spots and has been ranked 46th in the **Global Innovation Index (GII) 2021** rankings launched by the **World Intellectual Property Organization (WIPO)**.
- The index ranks world economies according to their innovation capabilities and consists of roughly 80 indicators grouped into innovation inputs and outputs.
 - **Innovation inputs:** Institutions; **Human capital and research; Infrastructure; Market sophistication;** Business sophistication.
 - **Innovation outputs: Knowledge and technology outputs; Creative outputs. Hence, option D is correct.**
 - Top Five: Switzerland, Sweden, U.S., and U.K. continue to lead the innovation ranking, and have all ranked in the top 5 in the past three years.
 - The Republic of Korea joins the top 5 of the GI for the first time in 2021.
 - Asian Countries: Four Asian economies feature in the top 15: Singapore (8), China (12), Japan (13) and Hong Kong, China (14).

Mains Practice Questions

1. Describe the procedure of amendment of the Constitution of India under Article 368. Why this amendment procedure has been often criticized? (150 words)

Approach

- Briefly mention the Constitutional provisions regarding amendment of the Constitution
- Explain the procedure of amendment of the Constitution of India under Article 368
- Give reasons as to why this procedure has been criticized often.

2. The linguistic reorganization of states resulted in rationalizing the political map of India without seriously weakening its unity. Examine. (250 words)

Approach:

- Briefly discuss the linguistic reorganisation of states in India.
- Describe how linguistic reorganisation has resulted in administrative efficacy and strengthened Indian unity.
- Discuss a few challenges related to linguistic reorganisation.