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# **CURRENT AFFAIRS NOVEMBER 2018**

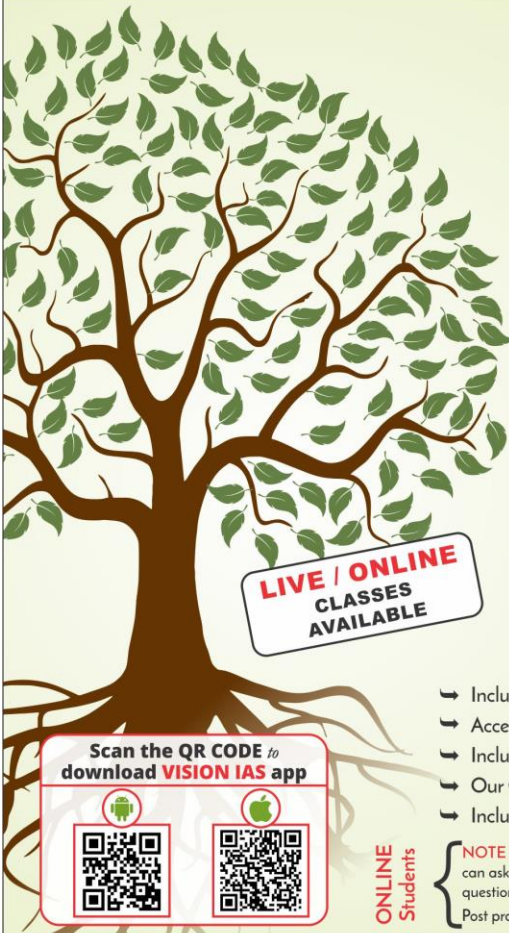
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# 1. POLITY & GOVERNANCE

## 1.1. BREACH OF PRIVILEGE

### Why in news?

- Claiming they had misled Parliament on the Rafale fighter jet deal issue, a breach of privilege motion was moved against Prime Minister and Defence Minister.
- A claim of 'breach of privilege' was raised against chairman of the Parliamentary Standing Committee on finance, for "lowering the dignity and ethics of the Finance Committee" by tweeting about the committee's deliberations

### Concept of privileges and types of privileges

- The concept of privileges **emerged from the British House of Commons** when a nascent British Parliament started to protect its sovereignty from excesses of the monarch.
- The Constitution (under **Art. 105** for Parliament, its members & committees /**Art. 194** for State Legislature, its members & committees) confers certain privileges on legislative institutions and their members to:
  - Protect freedom of speech and expression in the House and insulates them against litigation over matters that occur in these houses
  - Protect against any libel through speeches, printing or publishing
  - Ensure their functioning without undue influence, pressure or coercion
  - Ensure sovereignty of Parliament
- Currently, **there is no law that codifies all the privileges** of the legislators in India. Privileges are based on five sources: i) Constitutional provisions ii) Various laws of parliament (iii) Rules of both the houses iv) Parliamentary conventions v) Judicial interpretations
- Whenever any of these rights and immunities is disregarded, the offence is called a **breach of privilege** and is punishable under law of Parliament. However, there are no objective guidelines on what constitutes breach of privilege and what punishment it entails.
- Following **procedure** is followed in privilege cases:
  - A notice is moved in the form of a motion by any member of either house against those being held guilty of breach of privilege.
  - The Speaker/ Rajya Sabha chairperson is the first level of scrutiny of a privilege motion. They can take a decision themselves or refer it to the privileges committee of parliament. Privilege committee in Parliament as well as in state legislatures decides upon such cases.
  - An inquiry is conducted by the committee and based on findings a recommendation is made to the legislature.
  - A debate can be initiated on the report in the House and based on the discussion, the Speaker can order the punishment as defined by the privileges committee.

#### Types of Privileges

##### Collective

- Exclude strangers from proceedings. Hold a secret sitting of the legislature
- Freedom of press to publish true reports of Parliamentary proceedings. But, this does not in case of secret sittings
- Only Parliament can make rules to regulate its own proceedings
- There is a bar on court from making inquiry into proceedings of the house (speeches, votes etc.)

##### Individual

- No arrest during session and 40 days before and 40 days after the session. Protection available only in civil cases and not in criminal cases
- Not liable in court for any speech in parliament
- Exempted from jury service when the house is in session.

#### Committee on Privileges

- Standing committee constituted in each house of the Parliament/state legislature.
- Consists of 15 members in Lok Sabha (LS) and 10 members in Rajya Sabha (RS) to be nominated by the Speaker in LS and Chairman in RS.
- Its function is to investigate the cases of breach of privilege and recommend appropriate action to the Speaker/Chairperson.

### Challenges with respect to privileges

- **Against 'Constitutionalism'** or doctrine of limited powers. **Absence of codified privileges** gives unbridled power to house to decide when and how breach of privilege occurs.
- Judicial scrutiny is barred in cases of privileges, which is **against the doctrine of judicial review**.

- Discredits **separation of powers**, as speaker acts as complainant, advocate and the judge. Used as a substitute for legal proceedings.
- **Penal action in cases of breach of privileges unwarranted**, unless there is an attempt to obstruct the functioning of the house or its members.
- **Must only be invoked by legislature when there is "real obstruction to its functioning"**. Breach of privilege invoked for genuine criticism of members of the house or due to political vendetta, reduces accountability of elected representatives. Violation of FR of expression and personal liberty.

#### Instances of breach of privileges

- In 1978, Indira Gandhi faced a motion for breach of privilege on the basis of observations of excesses during emergency (Justice Shah Committee report). Subsequently, she was expelled from the house.
- Expulsion of Subramanyam Swami from Rajya Sabha in 1976 on charges of bringing disrepute to the Parliament.
- Tamil Nadu assembly punished the journalists of The Hindu for criticizing the CM in 2003.
- Karnataka assembly passed a resolution imposing imprisonment and fines on scribes in 2017.

- **Invoked on grounds of defamation by individual members**, while judicial remedy available under defamation and libel law.

#### Way Forward

- Constituent Assembly envisaged the system of **uncodified privileges based on British House of Commons, as only temporary**. Indian & British Parliament have different political and legal status (popular sovereignty vs parliamentary sovereignty). Therefore, there is a need for proper codification of privileges. E.g. **Australia** passed **Parliamentary Privileges Act in 1987**, clearly defining privileges, the conditions of their breach and consequent penalties.
- The decisions of the speaker may be influenced by his/her political affiliations. Therefore, the **trial must be conducted by a competent, independent and impartial tribunal**.
- Higher judiciary must **set limits** on punitive powers.
- The 'sovereign people of India' have restricted right to free speech while 'their representatives' have absolute freedom of speech in the houses. Courts must **revisit earlier judgments to find right balance between Fundamental Rights of the citizens and privileges of legislature**.

## 1.2. NONE OF THE ABOVE (NOTA)

#### Why in News?

Maharashtra State Election Commission (MSEC) recently made an order for local body polls that **fresh elections** should be held **if NOTA 'emerges winner'**.

#### About NOTA

- It was introduced in India following the 2013 Supreme Court directive. It is an option the voting machine, designed to **allow voters to disapprove all the candidates** while delivering their vote.
- However, NOTA in India **does not provide for a 'right to reject'**. The candidate with the maximum votes wins the election irrespective of the number of NOTA votes polled.
- The NOTA votes have not been accounted while calculating votes polled by candidates for making them eligible (1/6th of valid votes) for getting back their security deposits.
- **An Association of Democratic Reforms** analysis says that since 2013 till March 2018, **NOTA has secured a total of 1.33 crores votes** from all assemblies and Lok Sabha polls combined.
- Election Commission currently has **no plenary power to call a fresh election** even if NOTA secures highest votes.
- To give greater sanctity to NOTA and even order a fresh election, **Rule 64 of Conduct of Election Rules will have to be amended** and can be done by the law ministry. It will **not require Parliament sanction**.

#### Rule 64

It refers to "**declaration of result of election and return of election**". But the rule does not take into account a situation where Nota votes may be higher than those polled by any candidate.

### Significance of re-elections

- **Freedom of expression:** NOTA emanates from our fundamental right of 'Right to liberty' and 'Freedom of Expression' as it gives a way for the voter to register her consent or discontent for candidates chosen by the political parties.
- **Conducive for democracy:** Participation of people is one of the crucial pillars of democracy thus in exercising the NOTA the voter is participating in the electoral process while not abstaining from voting altogether.
- **Betterment of democracy:** There is an opaqueness in the selection process of the candidates chosen for representing a political party, with nepotism, favoritism and money power being the driving force. It gives voters an opportunity to express their dissent and may also force parties to field better candidates known for their integrity.

### Challenges of conducting fresh election

- **Financial Pressure:** Fresh elections lead to massive expenditures by Government as it has to conduct re-election which put extra pressure on the public exchequer.
- **Disrupting democracy:** It leads to frequent elections which results in disruption of normal public life and impact the functioning of essential services.
- **Administrative pressure:** Election Commission of India has to take help of a significant number of polling officials as well as armed forces to ensure smooth, peaceful and impartial polls.
- **Governance issues:** Conducting fresh election impacts development programs and governance due to imposition of Model Code of Conduct by the Election Commission.

## 1.3. GOVERNOR'S ROLE IN DISSOLUTION OF STATE ASSEMBLIES

### Why in News?

Jammu and Kashmir Governor recently dissolved the State Assembly (which has been in suspended animation) when two political parties separately staked claim to form a government.

### More About News

- The reasons for the dissolution were: the “**extensive horse trading**” and the possibility that a government formed by parties with “**opposing political ideologies**” would not be stable.
- The move is being seen as **harmful for democracy** as J&K's relationship with the Centre is rooted in constitutional safeguards as well as in the participation of its major parties in electoral politics and parliamentary democracy.

### Constitutional provisions

- **Article 172** says that every Legislative Assembly of every State, unless sooner dissolved, shall continue for five years.
- **Article 174 (2) (b)** of the Indian Constitution merely states that the Governor may, from time to time, dissolve the Legislative Assembly.
- **Article 356 (“President’s rule”):** In case of failure of constitutional machinery in State the President, on receipt of report from the Governor of the State or otherwise,
  - may assume to himself the functions of the Government of the State
  - declare that the powers of the Legislature of the State shall be exercisable by or under the authority of Parliament
- **With Respect to J&K Constitution:** The powers under **Section 92** (failure of constitutional machinery) and **Section 52** (provides for dissolution of assembly) were invoked for this move.

### Issues related to Dissolution Powers

- **Lack of Objective Criteria for untimely dissolution:** While Article 174 gives powers to the governor to dissolve the assembly, but the **Constitution is silent on as to when and under what circumstances** can the House can be dissolved.
- **Political reasons being cited for Dissolution:** Potential for political instability in the future being cited as a reason in J&K to prevent emerging alliances is undemocratic in nature.
  - Moreover, describing an alliance as opportunistic is fine as far as it is political opinion but it cannot be the basis for constitutional action.

- **Missing Political Neutrality in Governor's Office:**

- The post has been reduced to becoming a retirement package for politicians for being politically faithful to the government of the day. Consequently, the office has been used by various governments at the centre as a political tool to destabilise elected state governments.
- **For e.g.** Bihar State Assembly was dissolved by the governor in 2005 on apprehensions of "horse trading. Later the Supreme Court called the decision to be illegal and mala fide.

### Suggestions

- **Sarkaria Commission**

- The state assembly should not be dissolved unless the proclamation is approved by the parliament.
- Sparing use of article 356 of the constitution should be made.
- All possibilities of formation of an alternative government must be explored before imposing presidential rule in the state.

- **M M Punchhi Commission**

- The governor should follow "**constitutional conventions**" in a case of a hung Assembly.
- It suggested a provision of '**Localized Emergency**' by which the centre government can tackle issue at town/district level **without dissolving the state legislative assembly**

- **Supreme Court Judgements:**

- **Bommai case of 1994:**

- ✓ The court accorded primacy to **a floor test** as a check of majority.
- ✓ The court also said that the power under Article 356 is extraordinary and must be used wisely and not for political gain.

- **Rameshwar Prasad case (2006)**

- ✓ Bihar Governor's recommendation for dissolving the Assembly the previous year was held to be illegal and mala fide
- ✓ A Governor cannot shut out **post-poll alliances** altogether as one of the ways in which a popular government may be formed.
- ✓ The court had also said **unsubstantiated claims of horse-trading** or corruption in efforts at government formation cannot be cited as reasons to dissolve the Assembly

## 1.4. CENTRAL BUREAU OF INVESTIGATION (CBI)

### Why in News?

Andhra Pradesh and West Bengal have withdrawn the "**general consent**" granted to the Central Bureau of Investigation (CBI), effectively curtailing the agency's powers in the States without prior permission.

### More about news

- The CBI which is under the Delhi Special Police Establishment (DSPE) Act, 1946, **will now have to approach the State government for permission** for investigation on a case by case basis.

- It is not the first time. Over the years, several states had also withdrawn consent for some time.

- **What can the CBI do now?**

- The CBI would still have the power to investigate **old cases** registered when general consent existed. (as decided by the Supreme Court in Kazi Lhendup Dorji of 1994)
- Withdrawal of consent will only bar the CBI from registering a case within the jurisdiction of Andhra and Bengal. Thus, for **new cases** the CBI could still file cases in Delhi and continue to probe people inside the two states.
- Moreover, cases registered anywhere else in the country, but involving people stationed in Andhra Pradesh and West Bengal would allow CBI's jurisdiction to extend to these states.

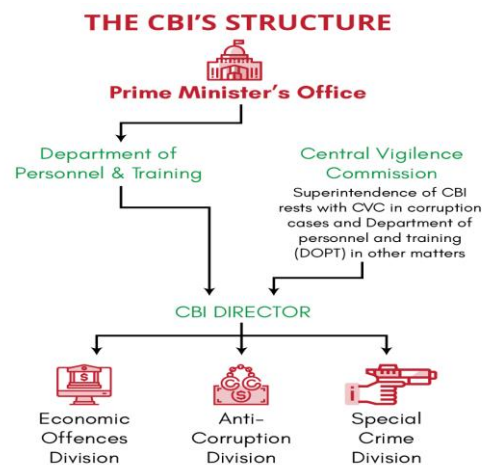
#### General Consent

- Given that the CBI has jurisdiction only over central government departments and employees, it can investigate a case involving state government employees or a violent crime in a given state only after that state government gives its consent. Thus, it gets a general consent instead of a case-specific consent to **avoid taking permission each time**.
- The general consent is normally given for periods ranging from six months to a year.

- Also, if the Supreme Court or a High Court directs that a particular investigation be handed over to the CBI, there is no need for any consent under the DSPE Act.

### Central Bureau of Investigation

- It is the main investigation agency of the central government for cases relating to corruption and major criminal probes.
- It is **not** a statutory body.
- The Lokpal Act 2013 prescribed that the CBI director shall be appointed on the recommendation of a committee comprising the **Prime Minister, Leader of the Opposition** in the Lok Sabha and **Chief Justice of India or a judge** of the Supreme Court nominated by him.
- The Central Government can authorize CBI to investigate such crime in a State only **with the consent** of the concerned State Government. The Supreme Court and High Courts, however, can order CBI to investigate such a crime anywhere in the country **without the consent** of the State.



### Other Issues with CBI's functioning:

PROBLEMS	MEASURES
<ul style="list-style-type: none"> <li>• <b>Legislative loopholes:</b> <ul style="list-style-type: none"> <li>○ Its functions are based merely on a government resolution that draws its powers from the DPSE Act 1946.</li> <li>○ Its dependence on State governments' approval for investigation in certain cases also is a concern.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Committee suggestions</b> <ul style="list-style-type: none"> <li>○ The <b>Second Administrative Reforms Commission</b> (2007) also suggested that "a new law should be enacted to govern the working of the CBI".</li> <li>○ The <b>parliamentary standing committees</b> (2007 and 2008) recommended that "the need of the hour is to strengthen the CBI in terms of legal mandate, infrastructure and resources"</li> </ul> </li> <li>• CBI should be vested with the <b>required legal mandate and pan-India jurisdiction</b> and must have powers to investigate corruption cases against officers of All India Services irrespective the state they are serving.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Administrative Hurdles:</b> <ul style="list-style-type: none"> <li>○ The CBI does not have its own cadre and is run by officers on deputation which makes them prone to manipulation by the government of the day.</li> <li>○ Additionally, lack of sufficient manpower often leads to delay in solving cases.</li> <li>○ Internal conflicts such as the recent one between Director and Special Director and their public allegations against each other are a serious concern.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Manpower strengthening</b> <ul style="list-style-type: none"> <li>○ The CBI should develop its <b>own cadre</b> of officers who are not hindered by deputation issues and abrupt transfers.</li> <li>○ The manpower of CBI should be enhanced for effective and timely investigation.</li> <li>○ <b>The service conditions</b> for direct recruitment to the CBI can be improved to attract a wider talent pool. The process of direct recruitment through UPSC which was stopped in 2000 can be restarted.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>Overlapping jurisdictions:</b> There is an overlap in jurisdictions of CVC, CBI and Lokpal in certain cases leading to problems. In corruption cases the rates of conviction are just 3%.</li> </ul>	<ul style="list-style-type: none"> <li>• The anti-corruption wings of CBI and CVC can be brought under Lokpal which should utilize both the organisations for investigation and prosecution. Such an integrated setup would lead to a more potent body.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Political Pressure:</b> The CBI has often been criticized as acting at the government's behest. In 2013, the Supreme Court called it a "caged parrot speaking in its master's voice".</li> </ul>	<ul style="list-style-type: none"> <li>• It should be granted more autonomy by making it accountable only to the Parliament like the office of CAG.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Lack of Transparency:</b> CBI is exempt from the provisions of the RTI Act of 2005</li> </ul>	<ul style="list-style-type: none"> <li>• There has been suggestion from an information commissioner that agencies like NIA, CBI, IB and paramilitary forces should come under the purview of RTI as there are adequate safeguards in the Act to keep sensitive information outside the public domain.</li> </ul>



## 1.5. ENEMY PROPERTY

### Why in News?

The Union Cabinet has approved the mechanism and procedure for **sale of the enemy shares**.

### More on the News

- The approval has been accorded for **sale of enemy shares** under the Custody of Ministry of Home Affairs/ Custodian of Enemy Property of India (CEPI, is an **Indian** government department that is empowered to appropriate **property in India** owned by Pakistani nationals under Defence of India Act), as per **Section 8A of Enemy Property Act, 1968**.
- **Department of Investment and Public Asset Management (DIPAM)** has been authorized under the provisions of the Enemy Property Act, 1968 (promulgated in 1968 after India-Pakistan war of 1965), to sell the same.
- Sale proceeds are to be **deposited as disinvestment proceeds** in the Government Account maintained by Ministry of Finance.

### Impact of the decision

- The decision will lead to **monetization of enemy shares that had been lying dormant** for decades since coming into force and the Enemy Property Act in 1968.
- With the approval, now, of the procedure and mechanism for sale of enemy shares an **enabling framework** has been institutionalized for their sale.
- It will lead to monetization of movable enemy property and the sale proceeds from this may be used for **development and social welfare programmes**.

### About Enemy property

- According to Enemy Property Act, 1968, "**Enemy property**" refers to any property belonging to, held or managed on behalf of an enemy, an enemy subject or an enemy firm.
- The Defence of India Acts **defined an 'enemy'** as a country that committed an act of aggression against India.
- When nations go to war, they often seize the properties in their countries of the citizens and corporations of the enemy country. The idea behind seizing these properties is that an **enemy country should not be allowed to take advantage of its assets in the other country** during war.
- To administer the enemy property seized during the wars, the government enacted **the Enemy Property Act in 1968**. It laid down the powers of the CEPI for management and preservation of the enemy properties.
- A recent amendment to the Enemy Property (Amendment and Validation) Act, 2017, ensures the **heirs of those who migrated to Pakistan and China** during Partition and afterwards will have **no claim over the properties left behind in India**.

## 1.6. 'BEYOND FAKE NEWS' PROJECT

### Why in News?

UK-based broadcasting channel BBC launched the **Beyond Fake News project** on how and why misinformation is shared in India.

### Background

- Fake news can be **propagated through any media-print, electronic and social**.
- There have been instances of mob unrest, death and injury due to fake news as most of the citizens view any news published by mainstream media as true **without ascertaining its authenticity**.
- It is used to **influence public opinions, to gain popularity or to malign the image, character of certain individuals** or opponents or to defame them. For example- it has been found that on an average 2% tweets have relevant information on the disaster, the rest of the tweets contains sympathetic and mostly gibberish conversations.

### Right to free speech and fake news

Fake news refers to news, stories, information, data and reports which is or are wholly or partly false. Fake news exploits the freedom allowed to media in a democracy to spread misinformation which in turn affects the right to free speech in the following ways:

- Free publication or broadcast of news in India flows from the fundamental right to freedom of expression as enshrined under **Article 19** of the Constitution. However, there is **no specific law in India to deal with fake news**.
- Freedom of speech can only be curtailed as per the **limited circumstances** set out in **Article 19(2)** of the Constitution of India – and **falsehood isn't one of those 'reasonable restrictions'**.
- In the case of tackling 'fake news', the problem of sharing of mass misinformation must be tackled. But while tackling the problem, the priority of any responsible Government must be to first **ensure that freedom of speech is not unduly restrained**.

- **Self-regulation** by mainstream media to contain fake news has largely been **ineffective**. Any **direct effort by the government** to control fake news is prone to be seen as an **assault on the freedom of media** which functions as the fourth pillar of democracy.
- The project '**Beyond Fake News**' is a new campaign that is aimed at **fighting back against disinformation and fake news** with a major focus on global media literacy, including workshops and debates in countries like India.

### Legal recourses available for people affected by fake news

- **Broadcasting Content Complaint Council (BCCC):** A complaint relating to objectionable TV content or fake news can be filed to the BCCC if a broadcaster incites communal hatred, encourages violence against women or child abuse, airs contents having gory scenes of violence, promotes superstition or consumption of drugs and other contraband substances.
- **Indian Broadcast Foundation (IBF):** It look into the complaints against contents aired by 24x7 channels.
- **News Broadcasters Association (NBA):** It represents the private television news and current affairs broadcasters. It is self-regulatory in nature and probes complaints against news broadcasters in a fair manner.
- **Press Council of India:** According to the **Press Council Act, 1978**, it can warn, admonish or censure the newspaper, the news agency, the editor or the journalist found guilty of spreading misinformation.
- **IPC Sections 153A and 295:** It can be invoked against someone creating or spreading fake news if it can be termed as **hate speech**.
- **Defamation suit:** It is another legal tool available in the case of fake news. If a person finds a fake news defamatory, s/he can file a civil or criminal case for defamation.
- **The Information Technology (IT) Act:** It imposes an obligation on intermediaries such as search engine giant Google to remove any objectionable content pursuant to takedown notices by law enforcement agencies.
- **Contempt of Court laws:** False stories about judicial proceedings would be covered by contempt of court laws and false stories about Parliament and other legislative bodies would violate privilege.

#### Related Information

- To curb the **menace of fake news** IIT-Kharagpur has come up with a solution that **uses artificial intelligence** to extract critical information from viral social media content that is manually not possible.
- Similar innovative ways can be further developed and utilized for applying on the mass level.

(To read more about Fake news issue, refer April 2018 Vision current affairs magazine.)

## 1.7. INTERNET SHUTDOWNS

### Why in News?

- India has topped the world with the **highest number of internet shutdowns** by government with reportedly 121 in 2018, according to data compiled by Software Freedom Law Centre's 'Internet Shutdown Tracker'.
- Additionally, India's performance has declined in the '**Freedom on The Net 2018**' report.



### IMPACT OF INTERNET SHUTDOWN



**Economic Impact:** According to a study by ICRIER, Internet shutdowns caused loss of \$3.04 billion to India, with 12,615 hrs of mobile internet shutdown and 3,700 hrs of fixed-line Internet shut downs between 2012-2017.



**Human Right Impact:** Internet shutdowns disable all means of communications which can be considered as potential Human Rights violations including violation of right to free speech.



**Technical Impact:** Shutdowns are prone to generate collateral damages such as over-blocking of websites not intended to be restricted, exposing user to security risks when people turn to untrustworthy ways in order to route around restrictions etc.

## Reasons for Internet Shutdowns in India

- **Fake News circulation:** It has emerged as a major problem for democratic societies and governments across the world are using internet shutdown as a tool to deal with it. For example: Internet shutdown was recently resorted for preventing child kidnapping rumors in Tamil Nadu.
- **For maintaining Internal security:** internet shutdowns have also been carried to prevent spread of inflammatory messages, misguiding of youth into terror activities through false propaganda, and have been used maximum times in J&K to maintain peaceful atmosphere.
- **Other Issues:** Shutdowns have also been utilized for a plethora of other activities such preventing protests against movies, prevent cheating in state recruitment examinations such as in Rajasthan, etc.

## Arguments against Internet Shutdown

- **Ensuring Freedom of Speech and Expression:** The Supreme Court in a 2017 judgement has said that the right to access Internet comes under fundamental right of expression and cannot be curtailed at any cost. Various shutdowns compromise the right to free and fair speech
- **Archaic Laws:** Section 144 and Section 5(2) contain **almost no checks and balances** to prevent their abuse by officials. Moreover, they are archaic laws that have been **carried down from the British Raj** and are clearly not designed to oversee state actions like Internet shutdowns.
- **No definite criteria:** The criteria for enforcing shutdowns are entirely up to the subjective interpretation of the authority issuing orders as there is **no objective standard** to determine if a given situation qualifies as a public emergency or threatens public safety, etc.
- **Non-resolution of the issue:** The frequent instances of shutdowns have failed to address the underlying causal issue such as fake news, hate speech, etc. as the vastness of the internet users (over 50 crores in India) makes tracing the origin of fake news almost impossible.
- **Increase in Preventive shutdown:** In 2017, the number of preventive shutdowns were almost three times the number of reactive shutdowns, indicating that Internet shutdowns are increasingly being resorted to even before law and order breakdowns have actually taken place. Thus, users in affected areas are often unaware and have no time to mitigate the impact of shutdowns.
- **Against the spirit of Digital India:** It is in contradiction to the Government of India's flagship initiative Digital India.

### Legislative Backing in India

- **Section 144 of the Criminal Procedure Code, 1973:** A vast majority of Internet shutdowns recorded in India in the recent years have been ordered under this. It is used to prevent obstruction, annoyance, danger to human life, disturbance of the public tranquility, etc.
- **Section 5(2) of the Indian Telegraph Act, 1885**
  - It allows authorized officers to prevent the transmission of class of messages during a **public emergency** or in the interest of **public safety**.
  - The broad and future-proof definition of the term "Telegraph" brings virtually any communication system – including the Internet – within the Act's purview
- **The Temporary Suspension of Telecom Services (Public Emergency and Public Safety) Rules, 2017.**

## Way Forward

- **Measures by Tech companies:**
  - Social media giants such as Twitter, Facebook, etc. must **"self-regulate"** themselves by filtering out fake news, increasing transparency regarding how personal data is collected and used, etc.
  - Tech companies must work to spread digital literacy, culture of skepticism, scientific temper and prevent misinformation. For example: WhatsApp is working together with seven organizations in India to draft a digital literacy training program for its users.
- **Civil Society and Media:** They should continue to raise awareness about government's attempt at  **censorship** and undue **surveillance** efforts.
- **Measures by Government:** A **Standard Operating Procedure** must be created with adequate safeguard to minimize subjective and whimsical approach to enforcing shutdowns and we must move towards a regime where such a step is taken only if there a tangible threat.

## 1.8. YUVA SAHAKAR-COOPERATIVE ENTERPRISE SUPPORT AND INNOVATION SCHEME

### Why in News?

Union Agriculture Minister launched **National Cooperative Development Corporation (NCDC)**'s new scheme 'Yuva Sahakar-Cooperative Enterprise Support and Innovation Scheme'.

### About Yuva Sahakar

- **Purpose:** To cater to the needs and aspirations of the youth, NCDC has come up with this youth-friendly scheme for attracting them to cooperative business ventures. It would encourage cooperatives to venture into new and innovative areas.
- **CSIF fund:** The scheme will be linked to a 'Cooperative Start-up and Innovation Fund (CSIF)' created by the NCDC with an annual outlay of Rs 100 crore and it has special incentive for cooperatives of North Eastern region, Aspirational Districts and cooperatives with women/SC/ST/PwD members.
- **Funding:** The funding for the project will be up to 80% of the project cost for the special categories as against 70% for others. The scheme envisages 2% less than the applicable rate of interest on term loan for the project cost up to Rs 3 crore including 2 years moratorium on payment of principal.
- **Eligibility:** All types of cooperatives in operation for at least one year and having positive net-worth are eligible.

### About NCDC

- It is the sole **statutory** organisation (under **Ministry of Agriculture & Farmers Welfare**) functioning as an apex financial and developmental institution exclusively **devoted to cooperative sector**.
- It strengthens and promotes programmes across sectors relating to agriculture and allied fields like dairy, poultry, livestock, fisheries, cotton ginning and spinning, sugar and notified services like hospitality, transport, rural housing, hospitals/health care etc.

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- ▶ करंट अफेयर्स मैगजीन

## 2. INTERNATIONAL RELATIONS

### 2.1. INDIA AND EUROPEAN UNION

#### Why in News?

The **European Union** has unveiled a 'strategy paper' outlining the broad roadmap for accelerating cooperation with India in a range of key sectors.

#### What does the strategy paper focus on?

- **Strategic Partnership**
  - It focuses on developing **military-to-military relations** under which deploying an EU military advisor in the EU Delegation in New Delhi and vice-versa is being considered.
  - It will focus on negotiation of a broader contemporary Strategic Partnership Agreement supplanting 1994 EU-India Cooperation Agreement and **intensify dialogue on Afghanistan and Central Asia**.
  - Also supports strengthening **technical cooperation on fighting terrorism**, countering radicalization, violent extremism and terrorist financing.
- **Maritime cooperation-**
  - Efforts will be made to identify common interests of both at policy and operational levels to **enhance maritime security**.
  - It will **focus on working with India and other key regional players** such as South Africa to help build the capacity of maritime nations in the Indian Ocean and East Africa.
- **Renewed focus on trade**
  - India and EU since 2007 are unable to strike a free trade agreement called Bilateral Trade and Investment Agreement (BTIA) due to incoherent interest of both.
  - The European Union (EU) now is looking at **reworking the proposed free trade pact** with India called the Broad Based BTIA in a post-Brexit scenario.
  - Though the strategy paper did not mention BTIA, but it **aims to negotiate a "balanced, ambitious and mutually beneficial" free trade agreement (FTA)** with sufficient level of ambition to respond to each side's key interests in trade and investment.
- **Political Partnership** - This includes reinforcing **cooperation on foreign policy**, promoting effective multilateralism and building on common values and objectives.

#### Why this immediate thrust?

- After the promising beginnings in 2000s, the EU-India partnership lost its momentum as it largely focused on trade and cultural rather than broad strategic and political issues.
- Europe's main focus earlier was on China as its key partner and market in Asia while India viewed Europe largely as a trade bloc.
- But now the new strategic and power realities have pushed the two towards each other.
  - **Chinese Challenge**
    - ✓ China's increasing presence in Eurasia and South Asia is creating similar security,

#### Deadlock in Broad-based Trade and Investment Agreement (BTIA) India

- The deadlock is due to issues including India's pitch for a '**data secure**' status (important for India's IT sector to do more business with EU firms) as well as to ease norms on temporary movement of skilled workers
- For India non-tariff barriers such as sanitary and phytosanitary measures, and technical barriers to trade are also a major concern. The EU has been imposing stringent labeling requirements and trademark norms, which have dented India's exports.
- Further in terms of trade in services, India demands strong binding promises by the EU on liberalizing trade in service.

#### EU

- EU is keen on finalization of an India-EU Bilateral Investment Treaty (BIT) before the re-launch of the FTA talks while India wants to make 'investment protection' a part of the negotiations on the proposed comprehensive FTA.
- There are differences over the EU's demands on elimination of India's duties on goods such as automobiles and wines and spirits, further liberalization of multi-brand retail and insurance and opening up of the currently closed sectors such as accountancy and legal services.
- India's model BIT and its Investor-State Dispute Settlement Mechanism which allows companies to seek international arbitration only when all domestic options have been exhausted has also been a contentious issue.

political and economic concerns for Europe and India. Both are driven by the need to diversify its partnerships and balance.

- **BREXIT- a new opportunity**
  - ✓ Both EU and India can seize an opportunity to work without Britain. Brexit is pushing India to look for new 'gateways' to Europe, as its traditional partner leaves the union. A renewed trade and political cooperation are the need of the hour.
- **Fall of the conventional Liberal Trade Order-**
  - ✓ Trade war, crumbling WTO and break down of TPP etc has made EU understand the economic importance of India.
  - ✓ Also for India, EU is one of the largest trading partner (13.5% of India's overall trade with the world in 2015-16), well ahead of China (10.8%), USA (9.3%), UAE (7.7%) and Saudi Arabia (4.3%).
  - ✓ India is the EU's 9th trading partner in 2016 (2.2% of EU's overall trade with the world), after South Korea (2.5%) and ahead of Canada (1.9%).
  - ✓ With the rise of protectionism by USA, both have opportunity to increase the trade.

### Conclusion

- The EU sees a larger role of India in the regional (Asian) and global security- economic architecture therefore is working on a new strategy with respect to India.
- Indian multi-alignment approach has made room for reviving India-EU partnership while rebalancing power relations in Eurasia has pushed Europe to carve out its own Asia policy. Hitherto Europe-India partnership was all about trade but now it is finally shifting to a strategic one.

## 2.2. INDIA-AUSTRALIA RELATIONS

### Why in News?

Australia Prime Minister has announced implementation of “**An India Economic Strategy to 2035**”, a vision document that will shape India- Australia bilateral ties.

### What is the vision and Why?

- **A three-pillar strategy-** The focus of this report is on building a sustainable long-term India economic strategy. The report identifies 10 sectors and 10 states in an evolving Indian market where Australia has competitive advantages, and where it should focus its efforts. These are divided into a flagship sector (education), three lead sectors (agribusiness, resources, and tourism) and six promising sectors (energy, health, financial services, infrastructure, sport, science and innovation).
  - **First Pillar - Economic Ties-** India is already in the first tier of Australia's diplomatic relations. It has been a high foreign policy priority for at least two decades. But the economic relationship is stuck in the second tier. This vision thus focuses on upgrading ties into full blown economic partnership.
    - ✓ **Building on India's Economic Rise-** Over the past decade and a half, India's economic growth, its appetite for resources, energy demand, skill development, technical knowhow and investments have made it an important trade partner and export destination for Australia.
    - ✓ Therefore, this strategic vision aims at capturing this rise of India economy. India's growing economic weight makes it an unavoidable economic partner, despite the challenges in navigating its market. Australian exports to India are expected to grow from 14.9 billion dollars in 2017 to around 45 billion dollars in the next 20 year, and Australian investment to India rise from 10.3 billion dollars to over the 100-billion mark, reflecting a transformational expansion of the relationship. This investment will be spread over various sectors like resources, education, infrastructure etc.
    - ✓ The **core of the trade ties are energy resources** and now Australia is moving forward in providing assured Uranium supply under Civil Nuclear Cooperation agreement which is important for India's energy security and economic growth.
  - **Second Pillar-Geostrategic Engagement**
    - ✓ **Indo-Pacific – A global Strategic region-** Recently there is a shift to Indo pacific which is becoming a centre of economic and strategic gravity. With a high volume of seaborne trade passing through the Strait of Malacca, the Straits of Singapore and the Gulf of Hormuz, the region has become a theatre of

competing claims and power plays. India and Australia enjoy strategic position in Indo-pacific and therefore are natural allies in the region.

- ✓ **Preserving the status quo**- Both Australia and India support a rules based international order which currently is under increasing threat. Its defenders are shrinking and its challengers growing.
- ✓ **Chinese revisionism**- China is continuously revising its power in the region. Blatant disregard for international law, construction of artificial islands, an active defence strategy weaponising capital and trade, and adoption of a military posture that seeks to keep other powers out from parts of the western Pacific is disturbing the balance of power in the. It provides India and Australia an opportunity to be net security providers thereby ensuring rebalancing.
- ✓ **Ambiguous American leadership**- Though during the Indo-Pacific Business Forum US laid out a partnership based economic engagement in Indo pacific to reassure friends but still the countries have reservations about its America first policy.
- **Third pillar-Rethinking Culture-thrust on soft power diplomacy**
  - ✓ In the last decade a large scale has been witnessed in the Indian Diaspora in Australia which now constitute 700,000 strong and the fastest growing large Diaspora in Australia. This Diaspora can play a big role to enhance the partnership by creating personal links, in business, arts, education, politics and civil society.

### Concerns

- **Dichotomous Australian Foreign Policy**- Historically, a key problem with Australia's bilateral relationships has been the misalignment of Australia's economic and political-security interests. While Australia is reliant on the US for its defence and security through the Australia-New Zealand-US treaty, its economy depends on China, which accounts for a huge share in bilateral trade and investment.
- **Challenges of Indian Economy**- India is too complicated for its growth story to be linear. Canberra has skepticism about India's economic progress which is constrained by the political compromises demanded by a diverse democratic federation, held back by thinly resourced institutions, burdened by a interfering bureaucracy, dented by corruption and shaped by a political tradition which puts much greater faith in government intervention than the efficiency of markets.
- **Trade implications for India**- India and Australia are "too far apart" to conclude the bilateral Comprehensive Economic Cooperation Agreement (CECA) in the near term.
- **Perception of Indo pacific**- There is no coherent Indo pacific strategy as countries do not have one definitive vision for the region. It is largely seen as global construct to arrest China's rise.

### Way forward

- India-Australia needs to **formulate a comprehensive shared Indo pacific vision** which ensures inclusivity, transparency, openness and a rule based order.
- India has to **remove various governance bottlenecks** and ensure speedy engagement. CECA need to be concluded immediately in order to realize the untapped trade potential.
- Both sides should share the **benefits of increased cooperation** equally.

## 2.3. INDIA-US TRADE RELATIONS

### Why in news?

Recently U.S. has withdrawn **Generalized System of Preferences (GSP)** benefits on 94 products for all countries.

### What is Generalized System of Preferences?

- It is a **non-reciprocal preferential tariff system** which **provides for exemption from the Most Favored Nation principle of World Trade Organization**.
- It involves reduced MFN tariffs or duty free entry of eligible products exported by **beneficiary countries (developed countries) to markets of donor countries (developing countries)**.
- GSP measure was **adopted at UNCTAD Conference** in 1968 and later enacted by General Agreement on Trade and Tariff (now WTO) in 1971.
- The objective of GSP was to give development support to poor countries by **promoting capacity development and trade**.

- 11 Developed countries including the US, EU, UK, Japan etc., extend GSPs to imports from developing countries.
- U.S. has a particularly strong GSP regime, under Trade Act, 1974. India has been the largest beneficiary of the GSP. In 2017, India's duty-free export to the US under the GSP was more than \$5.6 billion.
- Now, 50 products (out of a total of 94 products) from India have been removed from GSP particularly impacting handloom and agriculture sectors.

#### Impact of GSP withdrawal on India

- **Impact on Current Account Deficit (CAD) and rupee:** GSP withdrawal will cost India \$70 million in raised duties from GSP benefits. It will reduce the trade surplus that India has against trade with US leading to higher CAD which also runs the risk of further weakening rupee.
- **Impact on MSME and agriculture:** Small and medium size business could be impacted. Especially export of handloom made home textiles products are expected to be affected.

#### Most Favored Nation

- MFN clause under WTO requires a country to provide any concessions, or granted in a trade agreement to one nation to all other World Trade Organization member countries.
- It ensures non-discriminatory trade policy because it ensures equal trading among all WTO members.
- However, in the case benefits are provided under free-trade agreements, like those laid out in the North American Free Trade Agreement, those are not subject to the MFN clause as long as the goods are traded between the participating countries only.

#### India -US Trade Relations

##### Some facts:

- U.S. goods and services trade with India totaled an estimated \$126.2 billion in 2017. (exports-\$76.7 billion & imports-\$49.9 billion, Trade deficit- \$27.5 billion)
- US foreign direct investment (FDI) in India was USD \$44.5 billion in 2017.

##### Major Impediments in trade relations

- **Tariff issues:** US under Trump regime has taken different position as compared to previous stands in trade negotiations. **US President called India "the tariff king"** and raised issues with India like:
  - Indian motorcycles imported into the US tariff free while US motorcycles imported to India face high tariffs.
  - Intellectual property rights: India has been placed in Priority Watch List of the USTR's Special 301.
- **Subsidies issues:**
  - Subsidies given by some US states to local renewable energy producers.
  - US is against the Minimum Support Price (MSP) regime of India and accuse India of violating WTO subsidies norms and limitations.
- **Visa related tensions: India is the largest beneficiary of H1-B visa scheme of US.** But US in recent times has increased visa fees for H1-B applicants and cut their quotas. This has been detrimental for the interest of Indian IT companies. India has raised concerns on this issue.
- **India – US have been also engaged WTO in dispute resolution:** India dragged the US to the WTO dispute settlement mechanism over the imposition of import duties on steel and aluminium. Also, India and US are at loggerheads on subsidies and Domestic Content Requirement (DCR) provisions to renewable energy sector in their respective countries.

##### Way Forward

Unlike US-China there is no trade war between India and US but tension do exist in trade relations.

- **India is not in position to engage in tit-for-tat approach in raising tariffs like China.** India needs cooperation of US in many other sectors like defense, technology transfers, regional security (strategic relationship).
- US has granted some relief to India in recent times. **US has granted Strategic Trade Authorization (STA-1) status to India**, giving India same access as NATO allies to latest technology. **Also India is among the eight countries to get exemption from US in purchasing oil from Iran** even though Trump administration has imposed its "toughest ever" sanctions against Iran This is an indication of US seeking deeper strategic ties with India.
- **India should stay the course in its current approach to trade negotiations** while not reacting to rhetorical moves by US, preventing any escalations and also avoiding the spilling of friction in trade relations to other areas of relations.
- **India should continue negotiating for a trade package with the US**, and demand a waiver on tariff hikes similar to the ones granted to Argentina, Brazil and South Korea.
- **India needs to boost exports and cut non-essential imports** in the backdrop of its current account deficit (CAD) touching 2.4%.



## 2.4. US WAIVER FROM IRAN OIL SANCTIONS

### Why in news?

US has agreed to let eight countries including Japan, India and South Korea, **keep buying Iranian oil after it re-imposes sanctions on Iran**, in recognition of their significant efforts to reduce imports from Iran.

### Why U.S. is imposing sanctions on Iran?

- The sanctions that are being imposed are the most damaging to the Iranian economy - targeting its oil sales, its wider energy industry, shipping, banking, insurance and so on. These are known in the trade as "secondary sanctions", as they are intended to apply pressure on other countries to prevent them trading with Tehran.
- The idea is to dissuade them from purchasing Iranian oil, which brings in a huge proportion of Iran's revenue. In addition, sanctions will be imposed upon hundreds of named entities and individuals.
- Earlier USA has withdrawn from JCPOA (**Joint Comprehensive Plan of Action**) as the deal did not target Iran's ballistic missile programme, its nuclear activities beyond 2025 and its role in conflicts in Yemen and Syria.
- It was alleged that Iran was placing restrictions on the work of the inspectors of the International Atomic Energy Agency (IAEA). It was reluctant to give IAEA inspectors access to military installations which were part of Iran's 'clandestine nuclear weapons programme'.
- Also many analysts points to Tehran's banking on Paris and Berlin to come up with an alternative arrangement, one that allows Europe and Iran to conduct trade, business and diplomacy, a major cause of concern for US.

### Implications on Oil import arrangement

- **Oil trade Overall**
  - Energy trade anchors the Indo-Iranian relationship, helping to ensure each country gives due consideration to the interests of the other.
  - Iranian exports to India followed these trends in oil trade, peaking in 2008 (\$13.8 billion) and 2012 (\$13.3 billion) and dropping to a low in 2015 (\$6.2 billion).
  - In 2017, Iran provided 11.2 percent of India's crude oil imports, the third largest source after Iraq (18.6 percent) and Saudi Arabia (17.5 percent).
  - Again the same fear is looming large whereby India has started reducing oil imports. This again tells impermanence in Oil import arrangement of India-Iran jeopardising the energy security of India in particular and India-Iran relations in general.
- **Impact on Iran**
  - Fossil fuels contributed more than 53 percent of Iran's exports in 2017-18, and accounted for close to 15 percent of its US\$ 440-billion Gross Domestic Product. The U.S. has managed to reduce Iran's oil exports from 2.7 million to 1.6 million barrels a month, according to internal U.S. estimates.

### New Arrangement

- India has given the responsibility to UCO Bank to route the payment as it has no exposure to the US financial system.
- Oil payments are being made in rupees only as against earlier arrangements where there was a ratio of 45 percent rupees and 55 percent Euros.
- Under the US sanctions, India is allowed to export farm commodities, food, medicines, and medical devices to Iran. Iran could use the rupee to pay for imports from India.
- India may opt to go back to cost, insurance and freight (CIF) mode as against the free-on-board (FOB) mode.

### What this arrangement means

- The agreement of buying oil in rupees will help strengthen the rupee as India will not need US dollars to import the oil.
- As US dollar is considered to be the global currency, the exchange of goods from one country to another generally takes place through the exchange of dollars.
- However, as the deal comes into effect, the demand for dollar in India will not be as much to buy oil, making the overall demand fall and creating a surplus of the currency. Consequently, it will lead to the strengthening of the Indian currency.

CIF and FOB are shipping agreements between the two trading countries used for transporting goods between a buyer and a seller. The two differ in who assumes responsibility for the goods during transit. In CIF, the seller assumes the responsibility, in this case, Iran and in FOB, the buyer takes the responsibility.

In CIF, the exporter takes care of the costs and pays freight and insurance charges while in FOB, the buyer chartered a vessel to ship crude. However, if India does get into CIF mode, it can be more expensive for buying oil.

- **Bliss for China**

- The one country that has decided to take the sanctions as an opportunity is China. It has already shown interest in developing transportation and communication infrastructure in Iran. This October, China was the destination for 44 percent of Iranian crude exports, significantly rise from 26 percent in January-June.
- This is crucial in Beijing's aim to reshape the global oil market, specifically by greater use of its own currency in oil trade. It fits in conveniently with Iran's proposed approach to circumventing the sanctions – conducting trade in currencies other than the US Dollar.

### **Challenge to autonomous strategic alignment**

- Time and again US has been a major roadblock in full nurturing of India-Iran. US sanctions leads to arm twisting of India as over past years India has become entangled with US foreign policy interests.
- This severely puts India in a pickle w.r.t Iran and forcing political downturns (Iran's support for Kashmir). Also, it pushes Iran to Chinese side thus having huge implications for India strategically and economically (Iran's support for a non-Indian all open Chabahar port).

### **Way Forward**

- **What India needs to do?**

- It's high time that India **strategically aligns with both countries** on an autonomous and need based approach. For this, India has to take bold steps. As a leading power it cannot buckle under pressure of any country.
- Short term course can be **developing alternate mode of payment** to Iran and promoting flexibility in investment mode.
- Carrying out **high level talks** with US about the security and strategic concerns of India Vis a Vis China.
- In the long term, India has to keep **aligning with the other members of Iran nuclear deal** to carry out peaceful solution to end nuclear terrorism. The Iran nuclear deal is a fair deal and US cannot unilaterally end it.
- The **engagement with Iran** has to be fastened and the **work on various Indian projects** in Iran has to speed up. The engagement with Iran has to be moved to a partnership level e.g. development of Farzad B oil site.
- India also needs to develop a **comprehensive energy policy** to arrest its west Asian energy dependence.
- As India has learnt the art of **de-hyphenation**, its time it brings a consistent and autonomous Iran policy.

- **Collective Effort**

- There is a need to collectively resist American efforts to isolate Iran. **Collective bargaining** is the key to thwart American unilateralism.
- America minus implementation of the JCPOA is first step to deal with these sanctions. Also alternate payment arrangement will hugely impact American sanction diplomacy.

## **2.5. AFGHAN PEACE CONFERENCE**

### **Why in News?**

India is participating in a Russia-sponsored **peace conference with Taliban**.

### **Background**

- During the early Cold War, Afghanistan attempted to maintain a non-aligned status, receiving aid from both the **Soviet Union and the United States**, but ended up relying heavily on **assistance from the Soviets**.
- **Taliban**, ultraconservative political and religious faction that emerged in Afghanistan in the mid-1990s following the withdrawal of Soviet troops and the subsequent breakdown in civil order and were later **ousted from power by (NATO led) International Security Assistance Force** in 2001.

### **Russia's Role in Afghanistan**

Russian policymakers have extended their hand to the Taliban for the following four strategic reasons:

- It **reminds the West not to ignore Moscow's interests in discussions of the Afghanistan agenda** at regional and international platforms.
- It intends to **strengthen barriers to US interests in the region**.
- Russia feels a **threat from the Islamic State (ISIS)** in Afghanistan and in the Middle East, particularly its expansion to the north of Afghanistan into Central Asia and Russia.
- **Afghan opium** is another headache for Moscow. Afghanistan supplies 90 percent of the world's illicit opiates, which are mostly being produced in territory controlled by the Taliban.

- In a proposal made at the **Kabul Process conference** in February, 2018, President Ghani offered a ceasefire, the removal of sanctions, release of prisoners, the recognition of the Taliban as a political party, the conduct of fresh elections, and a review of the constitution.
- The **Taliban rejected his overture**, declaring that they were **ready to engage in direct talks only with the Americans**. Taliban considers the US/NATO presence to be a foreign occupation and their main objective has always been to bring it to an end.
- Now Russia is trying to **bring various parties to the conflict in Afghanistan** around a table to kick-start a peace process. A previous attempt by Moscow to host Afghan peace talks had failed, after the Afghan government objected, arguing that any such move should be Afghan-led. US and India had also declined to attend.
- Currently, the talks known as the **“Moscow format/Moscow Talks”** include a **“high-level” delegation from the Taliban** as well as a delegation of **Afghanistan’s “High Peace Council (HPC)”**, along with representatives of 12 countries. **First time an Indian delegation, in unofficial capacity**, also has represented India. While the United States embassy in Moscow also sent a representative to observe the discussions.

### India’s Participation

On one hand there are views saying that India’s participation in the conference is a departure from its earlier stance where it held that any peace talks should be **Afghan-led, Afghan-owned, and Afghan-controlled** and with participation of the government of Afghanistan. While on the other hand there are many countering this view by showing that India has already participated in the earlier ‘Moscow Format’ by retired officers.

The reasons behind India’s decision to participate are seen to be-

- The current policy needs to be recalibrated in accordance with the **changing regional and global power dynamic**. It is part of this reassessment that saw India participating in the multilateral conference in Moscow despite its aversion to any engagement with the Taliban.
- Essentially, India has bowed to the inevitable since the US, Russia, China and even the Afghan government have **all indicated that they are ready to talk** with the Taliban.
- Also, in participating in these talks, India takes the view that since the **Afghan government, through the High Peace Council**, is present, there should be no problem. The HPC is a government body responsible for reconciliation efforts with the Taliban.
- The decision was **the outcome of “close discussions with the Afghanistan government,”** and it was felt necessary for India to have a “presence” there.
- Russia’s invitation to India to participate in Moscow talks is a **recognition of India’s stakes and its role**. India’s engagement demonstrates **commitment** to the idea of a **stable, independent and peaceful Afghanistan**.

### Conclusion

Given Russia’s overarching security interests, align with Afghan and American objectives, engaging with the Taliban for **humanitarian causes** and the initiating of a peace process is inevitable. However, Russia’s peace-making efforts must meet Afghanistan’s needs, which include initiating negotiations, achieving a political solution, and ultimately peace, and then maintaining that peace. This entails **encouraging the Taliban to the negotiating table without undermining the Afghan government**. Afghanistan can only achieve and maintain peace when the Afghan state is capable of governing, accountable to its citizens and acts as a responsible member of the international community.

## 2.6. G-20 SUMMIT

### Why in news?

Recently the **13th G-20 Summit** is being hosted by **Argentina**.

### Background

- In 2009, the global financial crisis led to the formation of G20 as a platform for major economies to coordinate policies with respect to global finances.
- Today the challenges that the economies face range from protectionism to trade war to slowdown in economic growth to oil price volatility to disenchantment with Globalization.
- Amidst this, G20 summit holds significance particularly for developing countries like India.

## India at G20

India took to the task of managing these global challenges through a multidimensional approach in congruence with its national interests. Major highlights were-

- **9 point agenda-** India presented a 9 points agenda whereby G20 countries should cooperate to take action against fugitive economic offenders. Important takeaways include-
  - **Collaboration at legal level-** Often incoherence in legal processes of countries is seen as an inefficient way in acting against economic offenders therefore India has called for streamlining the legal process by effectively freezing of the proceeds of crime, early return of offenders and efficient repatriation of the proceeds of crime.
  - **Reinforcing UN principles-** India has suggested that all principles of UNCAC (United Nations Convention Against Corruption) and UNOTC (United Nations Convention Against Transnational Organized Crime), particularly the International Cooperation should be fully and effectively implemented.
  - **Upgrading FATF-** India has asked for stronger cooperation that FATF should observe for information exchange among financial units and competent authorities. Also, FATF should formulate a standard definition of fugitive economic offenders.
    - ✓ FATF should also develop a common SOP (standard operating procedure) related to identification, extradition and judicial proceedings for dealing with fugitive economic offenders to provide guidance and assistance to G20 countries, subject to their domestic law.
- **Promoting Multilateralism-** India advocated strengthening of global governance institutions like WTO. It emphasized on the need to reform WTO to be able to carry out free and fair trade especially forming global value chain in Agriculture sector. India also promoted regional stability and cooperation through BRICS, SCO, East Asia summit etc.
- **Balancing act-Summit level diplomacy-** India used G20 as a platform to showcase its emerging power status thereby conducting trilateral meetings independently for the first time simultaneously at the summit level. This strategic autonomy manifested in the form of **Russia-India- China (RIC) meeting or Japan- America –India (JAI) meeting** is a new feather in India's independent foreign policy conduct.

## Group of Twenty (G 20)

- It is an international forum for the governments and central bank governors from 19 countries and the European Union.
- The first G20 Summit was held in Berlin in December 1999 and was hosted by the finance ministers of Germany and Canada.
- It was formed in **1999** to **discuss policies relating to financial stability**.
- Its agenda was expanded since 2008 including heads of governments / heads of states as well as finance ministers and foreign ministers.
- It thus, brings important industrialized and developing countries to discuss important issues in the global economy.
- For the first time, **India will host the annual G-20 Summit in 2022**.



\* The 20th group is the European Union, comprising 28 member countries

### Globally, the G20 Represents:



## FATF

- The FATF is an **inter-governmental body** established in **1989** to combat money laundering, terrorist financing and other related threats to the integrity of the international financial system.
- The FATF Secretariat is housed at the OECD headquarters in Paris.
- FATF consists of thirty-six members (including India) and two regional organizations, the European Commission and the Persian Gulf Co-operation Council.

## 2.7. ASIA PACIFIC ECONOMIC COOPERATION

### Why in News?

Asia Pacific Economic Cooperation (APEC) at its Summit in Papua New Guinea failed to develop consensus on a communique.

### More on news

- This was first such instance in the history of APEC when a consensus could not be achieved on final declaration.
- The unprecedented impasse blamed on tensions between China and the United States presents an opportunity of admitting India as a member — both in recognition of the country's status as a major market and as a means to avoiding a similar impasse in future.

### Current relation between India and APEC

- India was allowed in APEC summit in 2011 as an observer state.
- Although India has been attempting to join APEC since 1993, but still has not got the membership as:
  - India's **geographical location** isn't conducive for India's membership in APEC as India does not border the Pacific Ocean.
  - Some APEC members have expressed concerns that India's inclusion could shift the focus of the grouping away from its Pacific Rim.
  - **India's economic policies** are generally considered as protectionist and inward which is considered against the liberalized and free market principles of APEC.
  - **India's record in trade negotiations, bilaterally as well as in the World Trade Organization (WTO)**, has made some APEC economies concerned that including India would slow momentum for achieving the forum's objectives
  - **In 1997 a moratorium on membership** was put in place for a ten-year period which was extended further till 2010. However currently there is **no moratorium on membership**.

### Members of Asia Pacific



#### Asia Pacific Economic Cooperation

- Established in 1989 APEC is an inter-governmental forum for 21 Pacific Rim member economies.
- APEC aims for regional economic integration by promoting balanced, inclusive, sustainable growth.

### Why India belongs to APEC?

- **Economic angle:**
  - **Size of Economy:** India is 6<sup>th</sup> largest economy of World and 3<sup>rd</sup> largest economy of Asia. Also as the world's fastest-growing major economy, **India represents a significant long-term source of growth for the world economy.** This mandates an economy based forum such as APEC to take cognizance of India.
  - **Opportunities in India:** India is projected to be the world's third largest economy by 2030 and **will need well over \$1 trillion of investment in infrastructure over the next decade.** Its burgeoning middle class, estimated to number 450 million in 2030, **will offer huge opportunities for APEC countries which are experiencing sluggish growth.**
  - **Changed Conditions:** At the time of inception of APEC (1989), India had not liberalized and was out of sync of APEC economic principles. **However, India starting from 1991 has liberalized and India's trade stands at 40% of GDP now.** India even has extensive trade relations with all the APEC member economies.

#### New challenges to APEC in changing geopolitical situations

- **New trade agreements:** Emerging trade regimes like **Comprehensive and Progressive Agreement for Trans-Pacific Partnership** or **Regional Comprehensive Economic Partnership (RCEP)** are throwing challenges to the dominance and existence of APEC.
- **Changing view of Asia-Pacific:** View of Asia-Pacific as a geographical entity has changed over time and integrated with Indian Ocean Region to **develop a single entity of Indo-Pacific.**
- **China's assertiveness:** In recent times China has adopted an aggressive posture in Asia Pacific region (South China Sea) and even violated international norms and laws (UNCLOS).
- **Changed US policy:** **Trump administration has adopted inward looking policies** e.g. it pulled out from Trans-Pacific Partnership (TPP) and **focuses more on transactional relationships.**
- **Change in regional power dynamics:** USA's economic leverage in Asia has receded at the time China's trade and investment links Belt and Road Initiative have increased.

- **Strengthening Economic Integration:** Emerging trade regimes could create gaps between the standards and policies adopted by their members and those pursued by non-members. By including a key economy such as India, APEC can play a constructive role by helping bridge such gaps.
- **Alternative to China: For APEC members, greater integration with India could offer an alternative source for manufacturing goods.** Also India's large labor market (largest in the world by 2030), will help offset the impact of aging populations and shrinking work forces in APEC economies and offers advantages for sourcing services — in IT, financial services, etc.
- **Strategic angle:**
  - **Strategic Balance:** Inclusion of India could bring a **strategic balance and ease the tension within the grouping. India's record of Non Alignment** could bring confidence among the smaller members of APEC amid the impasse between USA and China. Especially, joint efforts of Japan, India and Australia could reduce tension between US and China.
  - **Political counter weight to China:** As a major power in the Indian Ocean, India could provide a balancing counterweight to China for smaller Asian countries that may be wary of the alternative hard stand provided by the US.
  - **New Indo-Pacific policy of USA:** USA under Trump regime has changed the view of Asia Pacific to Indo-Pacific. **Inclusion of India in APEC is in coherence with the new approach of US in the region.**

### Benefits to India

- **Act East Policy:** For further strengthening of economic ties of India East and Southeast Asia through higher trade volumes and greater physical connectivity, APEC membership streamlines the process by standardizing the trade related negotiations.
- **Creating Synergy:** Through its processes and guidelines, APEC will facilitate India's implementation of the economic reforms, boost competitiveness and the ease of doing business. APEC membership would also help India prepare for potential inclusion in emerging trade agreements such as TPP (**now CPTPP**), if India considers joining these in the future.
- **Economic Growth:** India's current economic program relies on greater access to foreign markets, investment sources, and value chains to bolster manufacturing and create jobs at home.
- **India-US Relations:** Supporting India's APEC bid would demonstrate an American commitment to help strategic partner India gain the greater role in institutions of global governance.

### Way forward

- **Diplomatic investment:** To gain support of its candidacy of APEC, India needs to work diplomatically with key members like United States and Japan. Also, India could ask China, Korea, Australia, and Vietnam to provide vocal support and diplomatic resources to India's cause.
- **Extensive Study before inclusion:** APEC could commission studies assessing the benefits and costs of Indian accession which will help its members to develop consensus on the question of Indian membership.
- **Transitional membership:** Before providing full membership of APEC a transitional membership could be provided. Transitional memberships could gradually integrate India in ways that satisfy current members and allow India to benefit from APEC's processes and technical support.

## 2.8. EAST ASIA SUMMIT

### Why in news?

Recently, India participated in the 13<sup>th</sup> East Asia Summit, held in Singapore.

### About East Asia Summit (EAS)

- It is an annual meeting of regional countries which was started in 2005. It is an **ASEAN-centred forum** which can **only be chaired by an ASEAN member**.
- The members include 10 **Association of South East Asian Nations (ASEAN)** nations plus 8 other nations such as Australia, China, India, Japan, New Zealand, South Korea, Russia and the US.
- The EAS membership represents around 54% of the world's population and accounts for 58% of global GDP.
- There are six priority areas of regional cooperation within the framework of the EAS. These are –

- Environment and Energy,
- Education, Finance,
- Global Health Issues and Pandemic Diseases,
- Natural Disaster Management,
- ASEAN Connectivity.

### East Asia Summit acts as a bridge for Indo-Pacific region

- **Reaffirms India's diplomatic engagement:** East Asia Summit has provided a relatively bigger platform (due to participation of 18 countries) to India for better endorsement of **Act East Policy**, and historical, cultural and economic linkages with East Asian Communities.
- **Balancing the role of China:** Majority of EAS participant countries like Singapore, Vietnam and Indonesia are embracing India's role of balancing China on the front of Indian Ocean region and collaboration with other stakeholders' countries on South China Sea.
- **Thrust to Regional Comprehensive Economic Partnership:** It provides a platform to India for rebalancing the **Asia strategy** and an acknowledgement of linkage between the Indian and Pacific Oceans.

**Quadrilateral Security Dialogue (QUAD) Summit:** It was held in Singapore on the sidelines of 13<sup>th</sup> EAS in Singapore.

- **About QUAD:** It is an informal mechanism between India, the US, Australia and Japan, and interpreted as a joint effort to counter China's influence in the Indo-Pacific region.
- **Key Takeaway:** It covered a range of security and economic issues under the rubric of supporting a free, open and inclusive rules-based order.

## 2.9. BREXIT

### Why in news?

After months of negotiation, the UK and EU agreed a Brexit deal at Brussels summit paving the way for an orderly withdrawal of UK from EU.

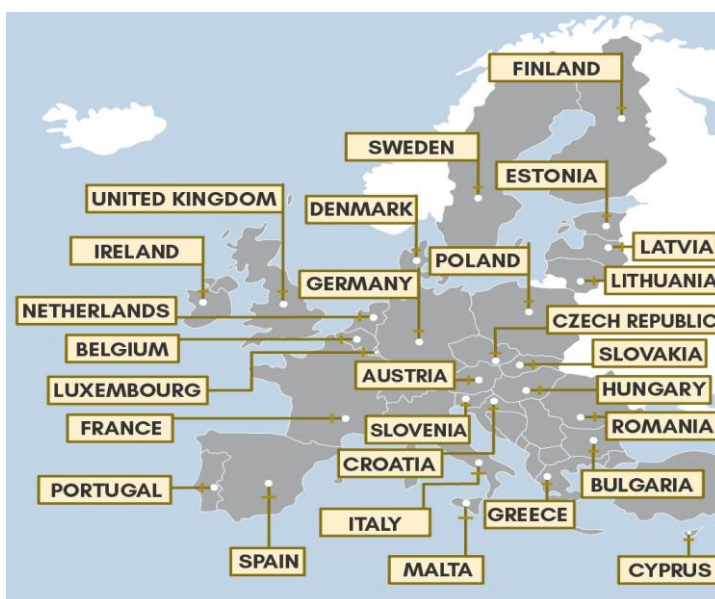
### What is Brexit?

#### Arguments in favor of Brexit

- **Trade benefits-** UK feels that it can secure better trade deals with important countries like US, China, India.
- **Arresting reckless spending-** Britain can stop sending £350 million (equivalent to half England's school budget), to Brussels every week. This money could be spent on scientific research and new Industries.
- **New Immigration laws-** Some believe that leaving EU could help Britain reform its immigration policies which currently is expensive and ungovernable hence can offer an open door to EU and non EU immigrants, who could contribute to Britain's economy.
- **Reasserting National sovereignty-** Those in favor of Brexit argue that leaving EU would allow Britain to recapture its lost position in international bodies hitherto captured by EU.

### EU

- The European Union - often known as the EU - is an economic and political partnership involving 28 European countries.
- It began after World War Two to foster economic co-operation, with the idea that countries which trade together were more likely to avoid going to war with each other.
- It has since grown to become a "single market" allowing goods and people to move around, basically as if the member states were one country.
- It has its own currency, the euro, which is used by 19 of the member countries, its own parliament and it now sets rules in a wide range of areas - including on the environment, transport, consumer rights and even things such as mobile phone charges.



### Terms of agreement of the deal

A draft 585-page agreement on Britain's withdrawal from the European Union is a legally-binding text that sets out the terms of the UK's departure. It includes:

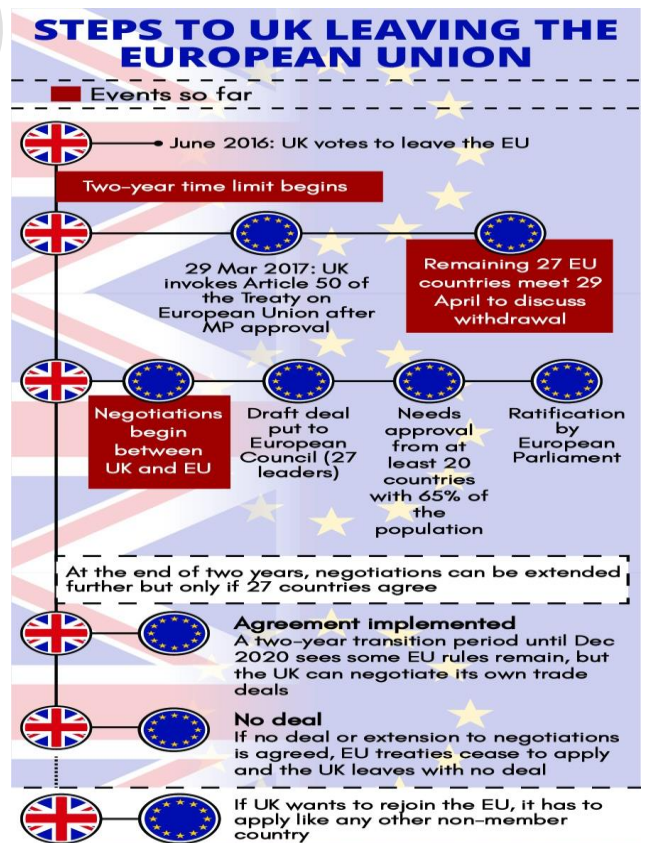
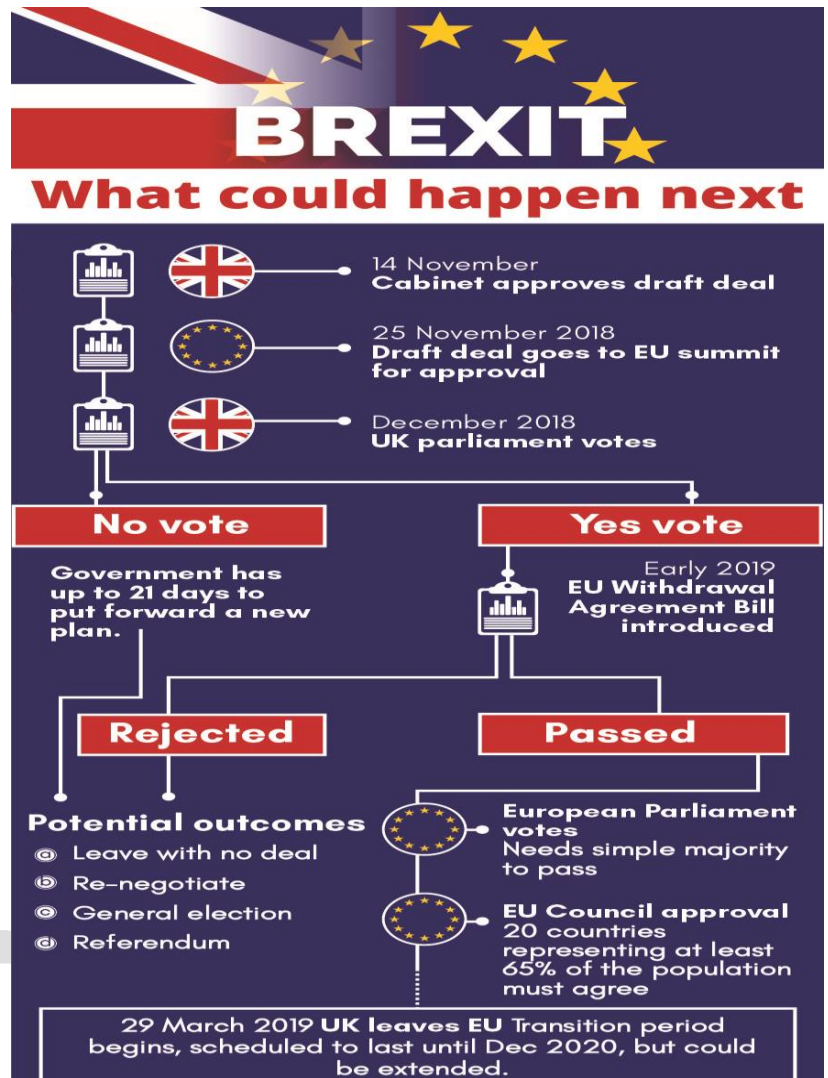
- Commitments over citizens' rights after Brexit - people will be able to work and study where they currently live, and to be joined by family members
- A 21-month transition period after the UK's departure, to allow time for trade talks
- The UK would continue to follow all EU rules during this period in order to give governments and businesses more time to prepare for long term changes
- A "fair financial settlement" from the UK - also known as the £39bn "divorce bill"
- A "backstop" arrangement to keep the Irish border unmanned if trade talks don't come up with a way of avoiding that happening.

### Arguments against Brexit

- **Trade Imbalance:** Britain avoids exporter tariffs and red-tape, which is important because nearly 45% of its trade goes to EU. Another benefit is that being a member, Britain can obtain better trade terms, because of the EU's size. Brexit would damage Britain's export competitiveness.
- **EU Budget:** The benefits outweigh the costs. According to the Confederation of British Industries UK's annual contribution to the EU is equivalent to £340 for each household but trade, investment, jobs etc leads to £3,000 per year benefit to each household because of EU membership.
- **Immigration:** Leaving EU will not stop immigration to the UK. Migration crisis especially refugee crises is a global issue requiring global efforts it's not a country specific problem.

### Brexit consequences on EU:

- **Trade buoyancy-** Disintegration of largest single market and labor market will hugely impact trade patterns and global value chains.
  - The EU's share in global exports of goods and services at current prices and exchange rate will fall from 33.9% to 30.3 percent. In terms of world GDP, in purchasing power parity, the EU share will decrease from 17.0% to 14.6%, and in current international dollars from 23.8 to 20.0 percent.





- **Geopolitical standing** -EU will become smaller and weaker both in economic and geopolitical terms. It will become less united and may lead to further exit referendums e.g. GREXIT. Further it may be less vocal and influential in dealing with global issues and loose the bargaining power. Economic crisis may get deep with far reaching effects on EU as a regional organization.
- **Globalization**- Restricting the free movement of people, goods and services may lead to increased xenophobia and de-globalization.

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The GS Prelims Course is designed to help aspirants prepare for and increase their score in General Studies Paper I. This will be an interactive course so that students can be equal partners in the learning process. It will not only include discussion of the entire GS Paper I Prelims syllabus but also that of previous years' UPSC papers along with practice and discussion of Vision IAS classroom tests and the Prelims All India Test Series.



#### INCLUDES:

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Total no of  
Classes: **60**

# 3. ECONOMY

## 3.1. EASE OF DOING BUSINESS

### Why in News?

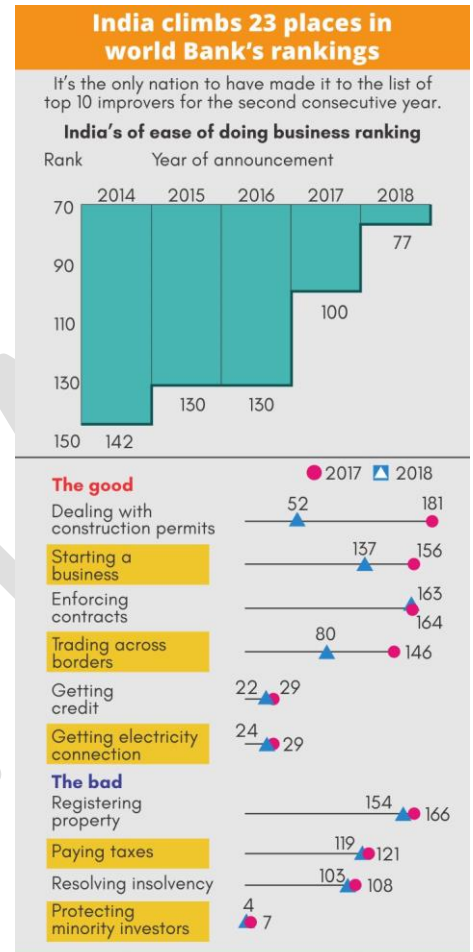
India jumped 23 ranks in the **World Bank's Ease of Doing Business (EoDB) Index 2018 to 77** from 100 in 2017 among 190 nations.

### More about the report

- The Doing Business report ranks countries on the basis of **distance to frontier (DTF)**, a score that shows the gap of an economy to the global best practice.
- The World Bank has recognised **India as one of the top improvers for the year**. This year, India features among the report's list of top 10 improvers for the second year in a row and **only one in BRICS** to feature in this list.
- India is seeking to reach the **30th position by 2020**, according to an output-outcome framework document prepared by the government.
- It will help India maintain its goal of **strong and sustained economic growth, attract more FDI, achieve sound living standards and moderate inflation**.
- The Doing Business 2019 report bases the rankings **on field surveys and interviews with corporate lawyers and company executives in Delhi and Mumbai**.

### Reasons for Improvement

- **Improving MSME sector:** India's strong reform agenda to improve the business climate for small and medium enterprises is bearing fruit.
- **Faster registration process:** Starting a business was made easier through consolidation of multiple application forms and introduction of a goods and services tax (GST), while getting electricity was made faster and cheaper.
- **Infrastructural Development and fiscal reforms:** Government focus on logistics and supply chain centred initiatives and fiscal reforms like Insolvency and Bankruptcy Code has helped in promoting trade and business.
- **Reduction in Corruption:** Many initiatives such as Aadhaar, making registration online, acceptance of electronic signatures etc. has been taken. In fact, there has been a considerable year-on-year fall in the number of companies that viewed 'corruption' as a major barrier – from 51% in 2015 to 25% in 2017.
- **Improvement in construction permits:** It was improved by implementing the single-window clearance system in Delhi and the online building permit approval system in Mumbai.
- **Improvement in trading across borders:** It was achieved by reducing the time and cost to export and import through various initiatives, including the implementation of electronic sealing of containers, upgrading of port infrastructure and allowing



### Main amendments in Companies Amendment (Ordinance), 2018

- **Shifting of jurisdiction** of 16 types of corporate offences from the special courts to in-house adjudication, which is expected to **reduce the case load of Special Courts** by over 60%, thereby enabling them to concentrate on serious corporate offences.
- The **penalty** for small companies and one person companies has been **reduced to half** of that applicable to normal companies.
- Instituting a **transparent and technology driven in-house adjudication mechanism** on an online platform and publication of the orders on the website.
- **Strengthening in-house adjudication mechanism** by necessitating a concomitant order for making good the default at the time of levying penalty, to achieve the ultimate aim of achieving better compliance.
- **Declogging the NCLT** by vesting the Central Government the power to approve cases of conversion of public companies into private companies.

electronic submission of supporting documents with digital signatures under its **National Trade Facilitation Action Plan 2017-2020**.

### Recent Government Initiatives for Promotion of Ease of Doing Business

- **Ease of Doing Business Grand Challenge:** The objective of this challenge is to invite innovative ideas based on Artificial Intelligence, Internet of Things, Big Data Analytics, Blockchain and other cutting edge technology to reform Government processes. The platform for the Grand Challenge is the Startup India Portal.
- **Companies Amendment (Ordinance), 2018:** The Ordinance, which has been promulgated is based on the recommendations of the Committee appointed by the Government to review offences under the Companies Act, 2013.
- **Industrial Park Rating System:** Under this Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce & Industry has undertaken the exercise to rate the industrial parks on parameter such as: internal infrastructure, external infrastructure, business services and facilities, environment, safety management and connectivity.
- **Relaxation in Building Norms:**
  - The Ministry of Environment, Forest and Climate Change (MoEFCC) issued a notification easing the green norms for the building and construction sector, wherein residential projects up to **1.5 lakh square metres (built-up area) will not require 'prior environmental clearance'**.
  - Urban local bodies such as **municipalities will now have the power to grant building permission**, directly benefiting the EoDB ranking for the **housing and construction sector**.

### Challenges

- Challenges like **fluctuating commodity prices and exchange rates, and lack of basic infrastructure continue to persist**.
- Doing business in a country like ours, with its **cultural, geographical, demographical diversity** is not an easy endeavor.
- There remain significant complaints about around **the lack of transparency around business approvals**, particularly in the case of statutory approvals for investments.
- The **extent of digitalisation**, however, varies markedly across sectors, as does **corruption**, with those engaging in infrastructure projects still reporting significant issues relating to corruption.
- The key issue for those outside India is increasingly market demand for their products and services relative to **government and bureaucracy-related barriers**.
- Those currently doing business in India cite '**taxation issues**' as a consistent barrier, whilst those looking to enter the Indian market understandably rate '**identifying a suitable partner**' as their most salient issue after a considerable decline in 'legal and regulatory impediments' from 2017 to 2018.
- Relaxing Building norms for EoDB has sent ripples of fear and anticipation among **environmentalists and green activists** across the nation considering **the extent of corruption** in municipalities across the nation.

### Way Forward

- **Cooperation:** As highlighted by the Economic Survey, addressing deep-rooted problems will only be possible through extensive cooperation between the organs of the government—"cooperative separation of powers".
- **Need for Strong Contract Enforcement:**
  - A sound contract enforcement mechanism is essential for maintaining business confidence, reducing uncertainty and promoting fair play in the economy.
  - The Economic Survey 2017-18 tried to highlight the impact of this problem by drawing attention to the costs of stalled projects and legal fees.
- **Ease of Taxation & Improvements in GST:** Further simplification of returns processes, addressing concerns for India's huge MSME/SME sectors etc. are necessary steps that need to be taken to reap the kind of benefits envisioned during GST inception.
- **Simplified Infrastructure and Government frameworks:** Better roads and transportation facilities speed up the transportation of goods and brings up the efficiency of the business. Introduction of E-Way bills and changing regulatory frameworks around inter/intra state bill movements for instance is a good example of unified policies that will help in further building the right frameworks.

- **Enhanced Cross Border Functionalities across the varied business segments:** For example, we can further integrate registration processes into a single form by converging GST with PAN/TAN registration.
- **Further Technology Enhancement:** Interlinking of existing technologies to boost up business in different industries like healthcare, tourism, education etc.
- **Registering Property:** Digitization of land records and maps and transparency on encumbrances will ease the process of registering property.
- **Resolving Insolvency:** Increased usage will lead to recognition; the indicator will improve as more insolvent companies opt for reorganization plans instead of liquidation.

## 3.2. WORLD DEVELOPMENT REPORT

### Why In news?

Recently, World Bank released World Development Report with a theme **The Changing Nature of Work**.

### Background

- Since, **Industrialization (18<sup>th</sup> century)** there is concern of joblessness among individual as machine can replace human from many routine task and ought to eliminate many low-skill jobs. However, they have created more prosperity than they have destroyed.
- Technology through innovation, generates new sectors and new tasks, which provides opportunities to create new jobs, increase productivity, and deliver effective public services

### Finding of the report

- **Technology is blurring the boundaries of the firm:** Using digital technologies, entrepreneurs are creating global platform-based businesses that differ from the traditional production process in which inputs are provided at one end and output delivered at the other.
- **Technology reshaping the skills:** There is an increasing demand for three types of skills i.e **advanced cognitive skills** such as complex problem-solving, **socio-behavioral skills** such as teamwork, and **skill combinations** that are predictive of adaptability such as reasoning and self-efficacy.
- **Change in Nature of Employment:** There is a shift in employment from manufacturing to services in high income countries while in some developing countries, it's increasing in manufacturing sector.
- **High Informality in developing countries:** A large number of workers remain in low-productivity jobs, often in informal sector firms whose access to technology is poor.
- **Societal Crisis:** Inequality of opportunity or a mismatch between available jobs and skills, can lead to migration or societal fragmentation. eg: Europe Refugee Crisis etc.
- **Inefficient Social Security Structure of Developing Countries:** It found that systems that depend on contributions from employers and employees, to finance old-age security, are not a good fit for developing countries.
- **Tax Evasion:** Digital economy is making it easier for corporations to avoid taxation, as it's easier to shift profits to low-tax jurisdictions.

### Suggestion in report to Improve Human Capital

- **Improving Social Investment:** Investing in human capital, particularly early childhood education, to develop high-order cognitive and socio-behavioral skills in addition to foundational skills.
- **Enhancing social protection:** A guaranteed social minimum (Universal basic income) and strengthened social insurance, complemented by reforms in labor market rules in some emerging economies is must for developing a just and equitable society.
- **Creating fiscal space** for public financing of human capital development and social protection by imposing property taxes in large cities, excise taxes on sugar or tobacco, carbon taxes etc to increase a government's revenue.
- **Optimizing taxation policy** and improving tax administration to increase revenue by eliminating the tax avoidance techniques used by firms to increase their profits.
- **Developing countries:** They will need to take rapid action to ensure they can compete in the economy of the future and harness the benefits of technological disruptions.

### 3.2.1. HUMAN CAPITAL INDEX

#### Why in News?

Recently, first **Human Capital Index (HCI)** was released by **World Bank**.

#### About HCI

- The HCI measures the amount of human capital that a child born today can expect to attain by age 18. It **conveys the productivity of the next generation** of workers compared to a benchmark of complete education and full health.
- HCI is part of the **World Development Report (WDR)**. As part of this report, the World Bank has launched a **Human Capital Project (HCP)**.
- **Human Capital Project (HCP)**: A program of advocacy, measurement, and analytical work to raise awareness and increase demand for interventions to build human capital. The HCP has three components:
  - Cross-country metric—the Human Capital Index (HCI).
  - Program of measurement and research to inform policy action.
  - Program of support for country strategies to accelerate investment in human capital.

#### Finding

- **Global Performance**: Singapore topped the list while, India was placed at **115<sup>th</sup> position out of 157 countries**, lower than neighboring Nepal, Sri Lanka, Myanmar and Bangladesh.
- **State Of Human Capital In India**
  - **Human Capital Index**: A child born in India today will be **44 % as productive** when she grows up as she could be if she enjoyed complete education and full health.
  - **Probability of Survival to Age 5**: 96 out of 100 children born in India survive to age 5.
  - **Expected Years of School**: In India, a child who starts school at age 4 can expect to complete 10.2 years of school by her 18th birthday.
  - **Harmonized Test Scores**: Students in India score 355 on a scale where 625 represents **advanced attainment** and 300 represents minimum attainment.
  - **Learning-adjusted Years of School**: Factoring in what children actually learn, expected years of school is only 5.8 years.
  - **Adult Survival Rate**: Across India, 83 % of 15-year olds will survive until age 60. This statistic is a proxy for the range of fatal and non-fatal health outcomes that a child born today would experience as an adult under current conditions.
  - **Healthy Growth (Not Stunted Rate)**: 62 out of 100 children are not stunted. 38 out of 100 children are stunted, and so at risk of cognitive and physical limitations that can last a lifetime.

### 3.3. NON-BANKING FINANCIAL COMPANIES (NBFCs)

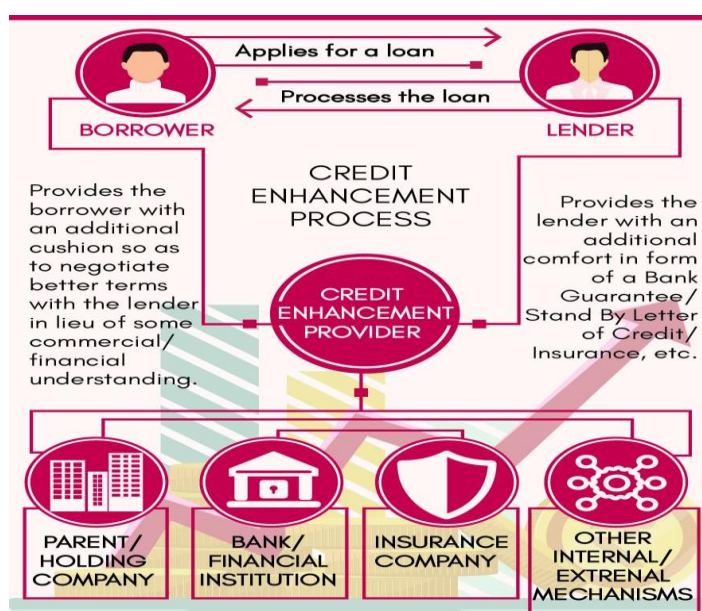
#### Why in News?

The RBI recently allowed banks to provide partial credit enhancement (PCE) to bonds issued by systemically important non-deposit taking NBFCs registered with the RBI and Housing Finance Companies (HFCs) registered with the National Housing Bank.

#### More About News

- Credit enhancement means **improving the credit rating of a corporate bond**. For example, if a bond is rated BBB, credit enhancement, which is basically an assurance of repayment by another entity, can improve the rating to AA.

This is done to provide an additional source of assurance or guarantee to service the bond.



- The move comes at a time when NBFCs and HFCs have requested the government and regulators to ensure that **confidence returns to the market.**

#### Current problems with NBFCs

- **Multiple regulatory bodies:** RBI doesn't regulate all the NBFC. Other institutions such as NHB (National Housing Bank), SEBI, Insurance Regulatory and Development Authority (IRDAI), etc. are also involved depending on the type of NBFC.
- **Difficulties in access to credit**
  - There is a reversal of interest rate cycle as **interest rates are now going up** both domestically and also in the international market. The RBI has steadily hiked interest rates in the recent months.
  - Another fundamental issue is the **asset-liability mismatch** in the operations of NBFCs as these firms borrow funds from the market — say for 3 or 5 years — and lend for longer tenures — 10 to 15 years. It has led to a situation where the NBFCs are facing a severe liquidity crunch in the short term.
  - The mutual fund is among the biggest fund provider to NBFCs via commercial papers and debentures. These **investors are getting reluctant to lend post the IL&FS crisis.**
- **Riskier Lending Pattern:**
  - Unlike banks, NBFCs are less cautious while lending. For example NBFCs have grown their portfolio of small and micro loans in a big way where there are risks of lack of credit history, scale and historically high NPAs.
  - The unsecured loan segment is also on the rise in the NBFC segment.
- **Cascading effect of Infrastructure Leasing and Financial Services (IL&FS) default:** Default followed by downgrade of IL&FS recently has created a liquidity squeeze for the entire non-banking financial company (NBFC) sector.
- **Delayed Projects:** Many infrastructural projects financed by NBFCs are stalled due to various reasons like delayed statutory approvals, problems of land acquisition, environmental clearance, etc. which has impacted their financial health.

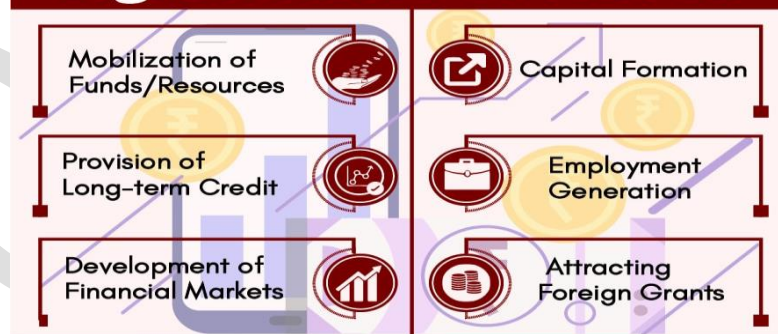
#### Way Forward for NBFC sector

- **Better Regulatory Regime:** The **Financial Sector Legislative Reform Commission (FSLRC)** recommendation of creating a body with powers to monitor risk-cutting across sectors should be implemented.
- **Timely Project clearances:** Ensuring timely clearances, especially to infrastructural projects is a must to minimise cost inflation of these projects. Expanding the "Plug and Play" approach to other sectors can be a possible solution.

#### About NBFCs

- **Definition:** A Non-Banking Financial Company (NBFC) is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/stocks/bonds/debentures/securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business.
- It **does not include** any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.
- **Systemically important NBFCs:** NBFCs whose asset size is of ₹ 500 cr or more are considered as systemically important NBFCs. **Example.** Power Finance Corporation Limited (PFCL), Rural Electrification Corporation Limited (RECL), IL&FS, etc.
- **Difference between banks & NBFCs:**
  - NBFCs **cannot accept demand deposits** (but some can accept Time deposit and such NBFCs are called Deposit taking NBFC).
  - Unlike banks, **CRR does not apply** on any NBFCs while a **lower SLR** of 15% applies only to Deposit taking NBFC.
  - NBFC do **not form part of the payment and settlement** system and **cannot issue cheques** drawn on itself.
  - NBFCs get license under **Companies Act, 1956** and Banks under Banking regulation Act.
  - **Deposit insurance facility is not available** to depositors of NBFCs

### Significance of NBFCs



- **Suggestions for RBI:**

- RBI must encourage non-banking financial companies to **securitise their assets that can be purchased by banks.**
- RBI must **revisit lending restrictions placed on banks** under Prompt Corrective Action and consider allowing them lending to NHB.
- RBI may also **open special window for mutual funds** to get refinance against collateral.
- A **coordinated and consultative approach** at this point of time to address the various problems of the sector is critical to national economic health and stability.

#### Recent Steps Taken

- **For IL&FS crisis:**

- **Change in Management:** The board of IL&FS was superseded with six new directors after the government moved a petition in the NCLT (National Company Law Tribunal) to remove the previous board of directors.
- **Investigation:** Government has also ordered Serious Fraud Investigation Office (SFIO) to investigate into the crisis.

- **For enhancing Liquidity**

- **Relaxation of the Liquidity Coverage Ratio by 2%:** It means that banks now have an additional 2% of their deposit base freed up for lending
- **Open Market Operations:** The RBI later also enhanced liquidity into the system by purchasing government bonds from the market.
- **Relaxing Asset Securitisation Norms:** The RBI has allowed NBFCs to sell or securitise their loan of more than five-year maturity after holding those for six months (Earlier they had to hold these assets for at least one year to do so).

### 3.4. CAPITAL CONSERVATION BUFFER (CCB)

#### Why in news?

Reserve Bank of India (RBI) decided to extend the deadline for implementing last tranche of an additional 0.625% to be set aside as capital conservation buffer, required under the Basel III norms, by a year (upto March 31, 2020).

#### What is Capital Conservation Buffer (CCB)?

- It is the **mandatory capital** that financial institutions are required to hold above minimum regulatory requirement.
- According to CCB norms, banks will be required to hold a buffer of 2.5% Risk Weighted Assets (RWAs) in the form of Common Equity, over and above **Capital Adequacy Ratio** of 9%.
- CCB currently stands at 1.875% and remaining 0.625% was to be met by March 2019.

#### Significance of CCB

- It is designed to **ensure that banks build up capital buffers outside periods of stress** which can be drawn down, as losses are incurred.
- Regulations targeting the creation of adequate capital buffers are **designed to reduce the procyclical nature of lending** by promoting the creation of **countercyclical buffers** as suggested Basel III norms. During credit expansion, banks have to set aside additional capital, while during the credit contraction, capital requirements can be loosened. Systematically important banks are subject to higher capital requirements.
- The capital buffers increase the **resilience of banks to losses, reduce excessive or underestimated exposures and restrict the distribution of capital.** These macro-prudential instruments **limit systemic risks in the financial system.**

#### Types of Bank Capital

- **Tier I capital (Core Capital):** It consists of money kept as Statutory Liquidity Ratio (SLR), in physical cash form & as share capital and secured loans. At least 6% of CAR must come from Tier 1 capital. This capital can absorb losses without bank ceasing its trading operations.
- **Tier II capital (supplementary capital):** It includes after tax income, retail earnings of the bank, capital in the form of bonds/hybrid instruments & unsecured loans (getting serviced).
- **Tier III capital:** Includes Non-Performing Assets (NPAs), subordinated loans (not getting serviced) & undisclosed reserves from the balance sheet.

#### Why banks are unable to adhere to CCB norms?

- Mounting pile of stressed assets has resulted into low credit growth, deterioration in asset quality, low profitability of Indian banks & over-reliance on capital infusion from the Government. In order to protect their

margins & first meet the basic capital ratios i.e. CRAR of 9%, banks have slowed down the adoption of CCB Basel III norms.

### Way Forward

While relaxation of the buffer norms and capital infusion by the government are welcome steps in the time of exigency, it must be ensured that good money is not thrown after bad money. Improving credit discipline and risk management systems are the need of the hour for public sector banks. The governance issues of the banks and their over-enthusiastic lending in the past needs to be addressed.

The government should initiate long-pending reforms (recommended by the **P.J. Nayak Committee**):

- Cede control of nationalized banks and cut its stake below 51%.
- Form an independent Banking Investment Company (BIC) for corporatized governance of PSBs.
- Performance related pay structure and incentives for upper management functionaries.

### Capital Adequacy Ratio (CAR)

- **CAR = (Tier I + Tier II Capital)/Risk Weighted Assets**
- Expressed as a percentage of a bank's risk weighted credit exposures.
- Measure of **bank's financial strength** to ensure that banks have enough **cushions to absorb losses before becoming insolvent and losing depositors' funds.**
- **CAR is required to be 9%** by RBI (based on BASEL III norms), where 7% has to be met by Tier 1 capital while the remaining 2% by Tier 2 capital.

### Provisioning requirement

- Setting aside a portion of profits, in proportion of risk weighed loans given, to compensate a probable loss due to incomplete loan recovery is called provisioning.
- Like CCB & CAR requirements, provisioning is one of the contingency measures to contain risk.
- Different types of assets have different risk profiles e.g. Government debt has 0% risk weight
- A high-risk weight discourages lending by increasing the capital requirement for lenders.

### About BASEL norms

- **Basel Committee on Banking Supervision** is an international committee **formed in 1974** to develop standards for banking regulation.
- It consists of central bankers from **27 countries and the European Union**. It is **headquartered in the office of Bank for International Settlements (BIS) in Basel, Switzerland.**
- It developed a **series of policy recommendations known as Basel Accords**, which suggested minimum capital requirements to keep bank solvent during the times of financial stress.

## 3.5. CREDIT RATING AGENCIES

### Why in News?

SEBI has **tightened disclosure** norms for credit rating agencies (CRAs) after they failed to warn investors on time about the deteriorating credit profile of Infrastructure Leasing and Financial Services Ltd (IL&FS) which underwent a crisis recently.

### More About News?

- The rating agencies will now **need to disclose the liquidity position of the company** being rated and also check for **asset-liability mismatch**. This would **lead to timely availability of information about the company**. This would include parameters such as: Liquid investments or cash balances, Liquidity coverage ratio, Access to unutilized credit lines and adequacy of cash flows for servicing debt obligation.
- CRAs would also need to **disclose the source and rationale if the company is expecting additional funds** to deal with its debt.
- In order to **promote transparency** and to enable the market to best judge the performance of the ratings, the CRA **should publish information about the historical average rating transition rates** across various rating categories, so that investors can understand the historical performance of the ratings assigned by the CRAs. The transition rate indicates the number of instances when credit ratings have changed over a specified period.

### Issues with Credit Rating Agencies

- **Conflict of interest:** The CRA Regulations in India currently recognise only the issuer-pays model, under which, the rating agencies charge issuers of bond and debt instruments a fee for providing a ratings opinion. Thus, this model has an **inbuilt conflict of interest**.
  - Another example of conflict of interest is non-rating services such as risk consulting, funds research and advisory services given to issuers for which ratings have been provided.



- **Rating shopping:** It is the practice of an issuer choosing the rating agency that will either assign the highest rating or that has the most lax criteria for achieving a desired rating. Hence, the system does not permit publishing a rating without the issuer's consent.
- **Less competition:** Credit-rating market in India is oligopolistic, with high barriers to entry. Lack of competition in the market enables CRAs to have longer, well-established relationships with the issuers which can hamper their independence.
- **Poor Rating Quality:** Often ratings are provided on limited information. For e.g. If the issuer decides not to answer some determinant questions, the rating may be principally based on public information. Many rating agencies don't have enough manpower which often leads to poor quality.
- **Independence of the ratings committee:** Over the years, the membership of the ratings committee has shifted from external experts to employees of the ratings agency which has raised concerns about their independence.

#### Suggestions for addressing these challenges

- **Removal of conflict of interest:** Moving back to the earlier "subscriber pays" model in which investors pay for the ratings can be a possible approach.
- **More Players:** Rules should be **made easier for new players to enter** the credit rating space and compete against them.
- **Improve Quality of Ratings:**
  - SEBI must also assess the predictive ability of the current rating models followed by the agencies. There is a need to invest in **high-tech predictive modelling** techniques.
  - Increased remuneration for manpower to attract the best talent must be ensured.
- **Cursory disclosure of all ratings:** CRAs can be asked to provide briefly in their press release to the **ratings given by other CRAs to the same borrower**. This can help in discouraging "rating shopping".
- **Legal protection for CRAs:** There are instances of Indian CRAs being sued by the company it rates, in a bid to prevent the rating downgrade. The regulator should consider framing laws that allow CRAs to express their rating opinion without fear of being sued.
- **Awareness among Investors:** Investors should be made aware about the rating process and be asked to conduct a review by themselves too and stop relying solely on the ratings.
- **Rotation of rating agencies:** SEBI can also explore the possibility of a mandatory rotation of rating agencies by the debt issuers (like corporations are required to change their auditors periodically under the Companies Act, 2013).

#### Credit rating agencies in India:

- The Securities and Exchange Board of India (Credit Rating Agencies) Regulations, 1999 empower **SEBI** to regulate CRAs operating in India.
- All the credit agencies need to be registered with SEBI in order to operate in India.
- There are seven Credit Rating Agencies registered with SEBI, viz. CRISIL, ICRA, CARE, India Ratings and Research, SMERA, Infomeric and Brickworks.

#### Importance of CRAs

- They provide retail and institutional investors with **information** that assists them in determining if debtor will be able to meet their obligations.
- They help investors, customers etc. to get an overall idea of the **strength and stability of an organization** and enable them to make informed decisions.
- These agencies also help build **trust between the investors and the governments** by quantifying the level of risk associated with investing in a particular country. For example-Sovereign credit ratings are given to the national governments which highlight a country's economic and political environment.
- CRAs help **strengthening of secondary market** by increasing borrower pool.
- Credit ratings ensure a discipline amongst corporate borrowers due to because of this desire to have a good image.

### 3.6. NATIONAL FINANCIAL REPORTING AUTHORITY

#### Why in news?

Recently, government notified the rules determining the jurisdiction, powers, and functions of the **National Financial Reporting Authority (NFRA)**.

#### Why the need arises for NFRA?

- The recent failure of **ICAI (Institute of Chartered Accountants of India)** to spot corporates fraud, raised the demand for setting up of an independent regulator NFRA.

- NFRA was one of the key changes brought by the **Companies Act 2013** but its provisions were not notified for the last five years.

#### About the NFRA Rule 2018

- It will oversee the **auditors of banks, insurers, electricity firms** and other entities referred to it by the government.
- NFRA can investigate the auditors of:
  - Listed entities, unlisted entities with paid-up capital of not less than ₹500 crore or annual turnover of over ₹1,000 crore.
  - Those having aggregate loans, debentures or deposits of not less than ₹500 crore.
- It enables the NFRA to debar erring auditors or audit firms and it can also refer service of an auditors to **Quality Review Board** under **Chartered Accountants Act**.

#### Significance of NFRA

- With the constitution of NFRA, India is now eligible to become a member of the **International Forum of Independent Audit Regulators (IFIAR)**.
- This shows a distinct shift from self-regulation to an independent oversight of auditors which is line with international best practices.
- NFRA will strengthen the working mechanism of ICAI because it will provide greater assurance that improper conduct will be punished which would further **strengthen the functional credibility** of ICAI.
- The rising challenges of technology require single-minded **attention to skill development**, now, ICAI will be able to pay more attention to educating and training current and future members.
- Apart from this, NFRA will have a positive impact on current **corporate governance regime** in the country.

#### What is NFRA?

- It is established as an independent regulator to oversee the **auditing profession and accounting standards**.
- It consists of a Chairperson, three full time members and nine part-time members.
- Chairperson and full-time members would be selected through a **search-cum-selection committee** headed by Cabinet Secretary.

#### ICAI (Institute of Chartered Accountants of India)

- It is a statutory body established by an Act of Parliament, viz. The Chartered Accountants Act, 1949.
- It functions under the administrative control of the **Ministry of Corporate Affairs**.
- It conducts CA exams, registers qualified CAs, issues certificates of practice etc.
- It investigates the auditors (Chartered Accountants) of small listed companies (**other than entities notified under NFRA rule 2018**)
- It will provide recommendation to NFRA.

#### International Forum of Independent Audit Regulators (IFIAR)

- It is an **independent audit regulator from 52 jurisdictions** representing Africa, North America, South America, Asia, Oceania, and Europe.
- Its aim is to serve the public interest and to **enhance investor protection by improving audit quality globally**.
- It **shares knowledge of the evolving audit environment** and the practical experience of independent audit regulatory activity.

## 3.7. ECB NORMS

#### Why in news?

Recently RBI eased the minimum average maturity requirement for External Commercial Borrowings (ECBs) in the infrastructure space.

#### About External Commercial Borrowings

- It refers to commercial loans raised by eligible Indian resident entities from non-resident lenders with a minimum **average maturity of 3 years**.
- It can be in the form of bank loans, buyers' credit, suppliers' credit or securitized instruments. If the foreign money is used to finance the Equity Capital, it is termed as Foreign Direct Investment
- ECBs are governed under the **FEMA** guidelines. They can be assessed under two routes i.e. Automatic route and approval route. Generally, companies in businesses (such as hotel, hospitals and software) can access the automatic route.
- **Advantages of ECBs**
  - Cost of raising ECBs is lower than domestic borrowings if borrowed from economies with a lower rate of interest. It also improves profitability of company

- The borrower can diversify the investor base as it provides access to international markets for the borrowers.
- The government can direct inflows into specific sectors by allowing higher ECBs in them, thus promoting development.
- **Issues with ECBs**
  - It increases the external debt of the country
  - The borrower lends in trouble if the borrowings are not hedged properly and the currency depreciates sharply.
  - There is also concern that dependence on ECB is rising to fund the current account deficit which can have negative consequences.

### 3.8. LEGAL ENTITY IDENTIFIER

#### Why in news?

Reserve Bank of India has made **Legal Entity Identifier (LEI)** code mandatory for all market participants, other than individuals.

#### What is LEI?

- It is a **20 character global reference number** conceived by G20 that uniquely identifies every legal entity or structure that is party to a financial transaction, in any jurisdiction.
- Internationally LEI is implemented and maintained by **Global Legal Entity Identifier Foundation** through Local Operation Units (LOU) established by each country independently and voluntarily.
- LEI information is publicly available free of charge and It is reviewed, updated and validated annually by LOUs.
- In India entities can obtain LEI from Legal Entity Identifier India Ltd (LEIL) (only LOU of India), subsidiary of The Clearing Corporation of India Ltd, recognized by RBI under Payment and Settlement Systems Act, 2007.

#### Global Legal Entity Identifier Foundation:

- It is a not-for-profit organization established by the **Financial Stability Board** in June 2014.
- It is overseen by the LEI Regulatory Oversight Committee, representing public authorities from around the globe.
- It publishes Global LEI Index.

#### Need and benefits of LEI in India:

- **Monitoring debt:** Banks are now required to acquire LEI number from the borrower and report it to Central Repository of Information on Large Credit. A consolidated data under LEI mechanism will help banks to monitor debt exposure of corporate borrowers and also prevent multiple loans against the same collateral, thus helping reduce NPAs
- **Money Laundering:** Global financial transactions are difficult to track. However, LEI being a unique global identifier, making it mandatory for all transactions regulated by RBI will help identifying the entity party to the transaction easily and accurately.
- **Tool for RBI:** To gain better insight into corporate actions (particularly M&A activity).
- **Other benefits:** LEI will improve internal data flow and risk monitoring processes and allow the industry to meet regulatory reporting requirements while minimizing costs.

### 3.9. BLUE ECONOMY

#### Why in news?

Recently Sustainable Blue Economy conference was organized in Nairobi, Kenya.

#### About Blue Economy

- As per the World Bank, Blue Economy is the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem.
- It covers several sectors linked directly or indirectly to the oceans such as fishing, minerals, shipping and port infrastructure, marine biotechnology, marine renewable energy, marine tourism, ocean governance and education.

#### Sustainable Blue Economy Conference

- It's the first global conference on the sustainable blue economy.
- It was convened by Kenya and co-hosted Canada and Japan.

## Importance of Blue economy

- **Economic:**
  - Oceans provide 30 percent of oil and gas resources.
  - 90% of goods trade takes place through Oceans Sea of Line Communication.
  - Ocean contributes \$2.5 trillion to world economy with around 60 million people are employed in fisheries and aquaculture.
  - Seabed Mining of polymetallic nodules and polymetallic sulphides to extract nickel, cobalt, manganese and rare earth metals.
- **Environmental:**
  - Mangroves and other vegetated ocean habitats sequester 25 percent of the extra CO<sub>2</sub> from fossil fuels, i.e., Blue Carbon.
  - Protection of coastal communities from disasters like floods and storms.
  - A Sustainable Blue Economy can help to achieve commitments under UN's Sustainable Development Goals 2030, Paris climate agreement 2015 and the UN Ocean Conference 2017.

## Challenges to Blue Economy

- **Unsustainable development near marine areas:** Physical alterations and destruction of marine and coastal habitats & landscapes largely due to coastal development, deforestation, & mining.
  - FAO estimates that approximately 57 percent of fish stocks are fully exploited and another 30 percent are over-exploited, depleted, or recovering.
- **Marine pollution:** It is in the form of excess nutrients from untreated sewerage, agricultural runoff, and marine debris such as plastics. Deep sea mining can cause long term irreversible ecological damage to marine ecosystem.
- **Impacts of climate change:** Threats of both slow-onset events like sea-level rise and more intense and frequent weather events like cyclones. Long-term climate change impacts on ocean systems like changes in sea temperature, acidity, and major oceanic currents.
- **Geopolitical issues:** Geopolitical tussle between in various regions like South China Sea, Indian Ocean Region etc. and undermining International Laws like UNCLOS limits the countries from achieving the full potential of Blue Economy.
- **Unfair trade practices:** Many times fishing agreements allow access to an EEZ of country to foreign operators. These operators restrict transfer of specific fishing knowledge to national stakeholders leading to low appropriation of fisheries export revenues by national operators. So the potential for national exploitation of those resources is reduced in the long run.

## India as a Blue Economy

India is trying to achieve the potential of Blue Economy by promoting the spirit of '**SAGAR-Security and Growth for All in the Region**' in Indian Ocean Region. Some initiatives by India are:

- **Sagarmala Project:** Sagarmala initiative focus on three pillars of development
  - Supporting and enabling Port-led Development through appropriate policy and institutional interventions.
  - Port Infrastructure Enhancement, including modernization and setting up of new ports.
  - Efficient Evacuation to and from hinterland by developing new lines/linkages for transport (including roads, rail, inland waterways and coastal routes).
- **Coastal Economic Zones:** 14 CEZs are being developed under Sagarmala initiative covering all the Maritime States.
  - CEZs are spatial economic regions comprising of a group of coastal districts or districts with a strong linkage to the ports in that region.
  - CEZ will help to tap synergies of planned economic corridors.
- **Resource exploration:** India in recent times has shifted its focus towards Indian Ocean resource exploration. E.g. India has explored 75000 sq km of Indian Ocean Seabed and is developing technologies (like remotely operated vehicles) for mining the resources
- **International relations and security:** India is cooperating with Indian Ocean littoral countries and projecting itself as 'net security provider' to ensure a safe, secure and stable Indian Ocean Region (IOR). India is also cooperating with extra regional powers like US, Japan in IOR. E.g. Asia-Africa growth corridor, QUAD etc.

## ESTIMATED GLOBAL BLUE GROWTH UNTIL 2030



Marine sectors are expected to expand dramatically in the coming years, with most doubling or quadrupling in size by 2030, and others growing to ten times their current size or larger.

- **Other non-conventional threats:** Defense and security related threats like piracy and terrorism combined with natural disasters (Small Island Developing States are particularly vulnerable).

### Way Forward

- National investments must be complemented by regional and global cooperation around shared priorities and objectives. Instruments like blue bonds, insurance etc. can be explored.
- Use of science, data, and technology for governance reforms to ensure long-term change.
- Capacity development of coastal communities in form of training and skill development in sustainable use of ocean resources, modern fishing techniques and coastal tourism
- Anticipating and adapting to the impacts of climate change is an essential component of a blue economy approach.
- The effective implementation of the UNCLOS is a necessary aspect of promoting the blue economy concept worldwide. That convention sets out the legal framework within which all activities in the oceans and seas must be carried out, including the conservation and sustainable use of the oceans and their resources.

## 3.10. ENDING APMC MONOPOLY

### Why in news?

**Maharashtra became 2<sup>nd</sup> state after Bihar** to end the monopoly of Agricultural Produce Market Committee (APMC) and allow trade in farm commodities including livestock outside the wholesale markets (mandis).

### Why do APMCs need reform?

- **Market Segmentation:** The **monopoly of APMCs** in agriculture market **reduces buyer competition** in comparison to integrated markets, as it limits the geographical range of the mandis, number of buyers and sector specialization of buyers. Thus, it limits the income accrued to the farmers
- **High Spatial Price Dispersion:** In India, the ratio of the highest price of a commodity to its lowest price - a measure of price dispersion (Economic Survey 2015-16) - is almost thrice that observed in the US. This indicates that markets are not well integrated and logistics cost is high
- **Cartelization:** Cartelization by traders prevents price discovery mechanisms from functioning in mandis.
- **High Degree of Intermediation:** According to Ashok Dalwai Committee, farmers' share in consumer prices range from 15% to 40% (Ashok Dalwai Committee).

Missing credit markets (farmers borrow from intermediaries, conditional to sale of harvest), lack of storage, high transportation & processing costs add to the retail-farmgate wedge. This prevents farmers from realizing higher prices and consumers from buying food at lower prices, lowering overall welfare

- **High License fees + APMC Cess and Taxes:** High commission levied on both farmers and buyers create artificial inflation. Final price to consumer high but benefit does not reach the farmer.
- **Wastage (poor storage and transportation):** APMCs do no value addition in terms of storage and transport facilities leading to high wastage. Tax money is not utilized properly in creating infrastructure (electronic weighing machines, drying yards, grading & assaying facilities, cold storage etc.) in the mandis

### Changes Proposed

- The amendment of the Maharashtra Agricultural Produce Marketing (Development and Regulation) Act, 1963 has **deregulated the sale of agri-produce**. Thus, first point of sale needn't be an APMC-regulated mandi
- **No cess or market fee** can be charged **on the trades outside** the purview of the mandi
- It has also **done away with the requirement of separate licenses** to trade in different mandis, creating single market in the entire state. This would enable farmers and traders to buy and sell at any mandi without the requirement of the mandatory license.

### About APMCs

- Presently, the marketing of agricultural commodities is governed by Agricultural Produce Market Committee (APMC) Act enacted by respective State Governments
- The notifies agricultural commodities as well as livestock covered under its ambit
- First sale of crops by farmers - after harvesting - can only take place in APMC authorized mandis (not at the farm gates) through auctions
- Around 6700 principal regulated primary agriculture markets function across the country, each one located at the gap of 462 sq km
- To remove discrepancies in agricultural markets, Central Government proposed Model APMC Act, 2003 and Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017.

## Way Forward

- **Creating Market Infrastructure:**
  - Physical integration: Railroad expansion changed the landscape of agricultural markets in US
  - Digital integration: e-NAM (National Agricultural Market). Instead of treating state as single market area, the entire country must be treated as unified market
- **Changing the target market:** Like Maharashtra & Bihar, other states must also modify laws that constrain farmers to sell in local mandis only, especially for perishables. Some complementary measures such as provision of land & financial incentives for private sector-promoted market yards is needed. Farmers can also realize maximum profits by selling the produce directly to food processing units (less rotting & regular supply)
- **Transport and storage infrastructure for perishables:** Currently, only 7000-8000 refrigerated trucks are plying in India, mostly transporting pharmaceuticals & dairy products. Transport of perishable commodities in Reefer trucks & freight subsidy would help in better supply and availability of the produce. At present, India's cold storage capacity is nearly 3.5 cr tonnes, short by 30-40 lakh tonnes, and it needs to be increased
- **Establishing Markets of National Importance (MNI):** At present, Asia's largest agricultural market at Azadpur, Delhi is the only Market of National Importance (MNI) in the country. More such markets need to be established to boost inter-state trade
- **Setting up Farmer Producer Organizations and Cooperatives:** It would provide better avenues at collective bargaining to small & marginal farmers. It could also act as a direct marketing channel to supply produce from 'surplus' regions to high demand states
- **Restructure Essential Commodities Act:** To incentivize corporate companies to invest in trading of agricultural commodities. The exemptions from stockholding limits must be given to exporters, food processors, multiple outlet retailers, large departmental retailers etc.
- **Alternative marketing options:** such as contract farming, direct marketing through FPOs/cooperatives etc, commodity trading through National Commodity and Derivatives Exchange, e-RaKAM (digital spot trading market), NSEL (where warehouse receipts of commodities are traded) etc.
- **Nation-wide Price Dissemination Mechanism:** Forward Market Commission (FMC) has set up **e-portal AGMARKNET** that displays real time wholesale price of agricultural commodities on e-portal connected with APMC markets, Kisan mandis, Kisan Vikas Kendras (KVKs), State Agricultural Boards etc.

## 3.11. GUIDELINES FOR OPERATIONS GREENS

### Why in News?

Ministry of Food Processing Industries (MoFPI) has approved the operationalisation strategy for **Operation Greens (Central Sector Scheme)**.

### More on news

- Operation Greens was announced in the Budget speech of 2018-19 with an outlay of Rs 500 crores **to stabilize the supply of Tomato, Onion and Potato (TOP) crops** and to ensure availability of TOP crops throughout the country round the year without price volatility.
- The Centre has identified **17 top producing clusters across 8 states** (Maharashtra, Bihar, Gujarat, Andhra Pradesh, Uttar Pradesh, Karnataka, Odisha and West Bengal) for the first phases of this initiative.

### Major objectives of "Operation Greens"

- Enhancing value realisation of TOP farmers by targeted interventions to strengthen TOP production clusters and their Farmer Producers Organizations (FPOs), and linking/connecting them with the market.
- Price stabilisation for producers and consumers by proper production planning in the TOP clusters and introduction of dual use varieties.
- Reduction in post-harvest losses by creation of farm gate infrastructure, development of suitable agro-logistics, creation of appropriate storage capacity linking consumption centres to increase shelf life.
- Increase in food processing capacities and value addition in TOP value chain with firm linkages with production clusters.
- Setting up of a market intelligence network to collect and collate real time data on demand and supply and price of TOP crops.

### Need for Operation Greens

- **Price Stabilisation** of essential vegetables like tomatoes, onions and potatoes which is critical for both farmers and consumers.
- **Remunerative prices** for farmers for their produce which may lead to achievement of vision to **double the income of farmers** by the end of 2022.
- **Achieving fair price for consumers** as Tomatoes, onions and potatoes are consumed throughout the year across the entire country.
- **Reducing losses** due to a lack of storage and transport facilities.

- The government also intends to utilize the 28 centres of excellence **under Indo-Israel Cooperation** for the demonstration of new technologies in production and the supply of quality planting material and capacity building to farmers under the scheme.
- Government has laid down special **strategy and grants-in-aid** under the scheme to ensure enhanced production of TOP crops and to augment value chain.

#### Strategy for Operation Greens

- **Short term Price Stabilisation Measures: National Agricultural Cooperative Marketing Federation of India Ltd (NAFED)** will be the Nodal Agency to implement price stabilisation measures. MoFPI will provide 50% of the subsidy on the following two components:
  - Transportation of Tomato Onion Potato(TOP) Crops from production to storage;
  - Hiring of appropriate storage facilities for TOP Crops;
- **Long Term Integrated value chain development projects** such as Capacity Building of FPOs & their consortium, Quality production, Post-harvest processing facilities, Agri-Logistics, Marketing / Consumption Points, and Creation and Management of e-platform for demand and supply management of TOP Crops.

#### Grants-in-Aid

- The pattern of assistance will comprise of grants-in-aid at the rate of 50% of the eligible project cost in all areas, subject to maximum Rs. 50 crores per project (For FPOs the grant-in-aid will be at rate of 70%).
- Eligible Organisation would include State Agriculture and other Marketing Federations, Farmer Producer Organizations (FPO), cooperatives, companies, Self-help groups, food processors, logistic operators, service providers, supply chain operators, retail and wholesale chains and central and state governments and their entities/ organizations which will be eligible to participate in the programme and to avail financial assistance.

## 3.12. REVIVAL OF STRESSED THERMAL POWER PLANTS

#### Why in News?

An empowered committee headed by cabinet secretary has suggested strong policy measures to revive stressed thermal power plants.

#### Background

- Following the Electricity Act which came into force in 2003 there were various developments that encouraged investment in the power sector, out of which 45.48% was installed in private sector. This aggressive capacity addition has led to a widening gap in the overall demand and supply situation.
- However, an upsurge in demand has been observed, which is growing at more than 6 per cent per year. This is further expected to rise because of various government interventions like Saubhagya, Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Power for All, etc.
- Coal is the single largest source of energy for electricity production since 2, 21,803 MW is installed in thermal (including Coal + Lignite). There are various reasons that have been responsible for stress in some coal-based power plants to serve their debt.

#### Steps taken by Government to tackle stress in Power Sector

- Fuel linkages under **SHAKTI** (Scheme for harnessing & allocating koyla transparently in India).
- Pilot **scheme for procurement** of 2500 MW power to address the problem of lack of Power Purchase Agreements (PPAs) in the country on competitive basis.
- **Rationalization of Coal Escalation Index** which will largely take care of the issues of under recovery of the generator's dues.
- **Additional cost implication to meet the new environment norms** shall be considered for being made pass through in tariff.
- Allowing pass-through of any change in domestic duties, levies, cess, and taxes imposed by the government.
- A new App **PRAAPTI** (Payment Ratification and Analysis in Power Procurement for Bringing Transparency in Invoicing of generators) has been launched to bring more transparency in the payment system by DISCOMs.
- Other steps include **DISCOM reforms**, Coal linkage rationalization, etc.

#### Reasons for stress in Power Sector

The Committee identified following reasons for stress in the power sector-

- **Issues related to coal supply-** After the cancellation of 204 coal mines by the Supreme Court in 2014, many of the power projects became stranded without arrangements of adequate fuel supply. In addition, many projects were setup without firm coal linkages from Coal India Limited (CIL) leading to high cost of generation.
- **Slow growth in power demand-** Lower than anticipated growth in power demand coupled with a scenario of surplus supply has resulted in under-utilization of thermal power capacity. In addition to this low off-take/difficulty in selling costlier power are also causing stress in thermal power projects.
- **Delayed payments by DISCOM's-** Delay in realization of receivables from DISCOMs impairs the ability of project developers to service debt in a timely manner and leads to exhaustion of working capital. In some cases, the DISCOM's have pressed for renegotiating terms of Power Purchase Agreement (PPA). This, coupled with non-payment of penalties / Late Payment Surcharges (LPS) is causing financial stress for such projects.
- **Inability of the promoter to infuse equity and service debt-** Many projects got delayed due to financial reasons and slow implementation by developers leading to project cost overruns.
- **Other Issues** include delay in disbursement / non-agreement amongst FIs, Delays in approval of working capital by lenders, Regulatory and contractual disputes, etc.

#### Recommendations of the Committee

- **Recommendations for Coal Allocation/Supply**
  - **Coal linkage for short term PPA:** Linkage coal may be allowed to be used against short term PPAs and power be sold through Discovery of Efficient Energy Price (DEEP) portal following a transparent bidding process.
  - **Termination of PPAs:** A generator should be able to terminate PPA in case of default in payment from the DISCOM with the facility to use linkage coal for short term PPAs for a period of maximum of 2 years or until they and another buyer of power under long/medium term PPA, whichever is earlier.
  - **Procurement by nodal agency:** A nodal agency may be designated which may invite bids for procurement of bulk power for medium term for 3 to 5 years in appropriate tranches, against pre-declared linkage by Coal India Limited (CIL).
  - **PSU as an aggregator of power:** National Thermal Power Corporation (NTPC) can act as an aggregator of power, i.e., procure power through transparent competitive bidding process from such stressed power plants and offer that power to the DISCOMs against PPAs of NTPC till such time as NTPC's own concerned plants/units are commissioned.
  - **E-auction of coal:** Ministry of Coal may earmark for power, at least 60 per cent of the e-auction coal, and this should be in addition to the regular coal requirement of the power sector.
  - **Linkages to be provided at notified prices without bidding:** The generator should be required to bid only once, for the procurement of PPA and linkage should be granted at notified price without any further bidding, to the extent of incremental coal production.
- **Recommendations to facilitate sale of power of the stressed power plants-** Old and high heat rate plants not complying with new environment norms may be considered for retirement in a phased and timebound manner at the same time avoiding any demand/supply mismatch.
- **Recommendations on Regulatory & DISCOM payment issues-**
  - Late Payment Surcharge be mandatorily paid in the event of delay in payment by the DISCOM.
  - PFIs providing the Bill Discounting facility may also be covered by TPA i.e. in case of default by the DISCOM, the RBI may recover the dues from the account of States and make payment to the PFIs.
- **Other recommendations:** PPAs, Fuel Supply Agreement and Long Term Open Access for transmission of power, EC/FC clearances, and all other approvals including water, be kept alive and not cancelled by the respective agencies even if the project is referred to NCLT or is acquired by any other entity.

### 3.13. 12-POINT ACTION PLAN FOR MSMES

#### Why in news?

The Government of India launched a support and outreach initiative for greater synergy to the Micro, Small and Medium Enterprises (MSME) sector.

#### More on News

- **MSME Outreach Programme** will run for 100 days covering 100 Districts throughout the country.



- Various Central Ministers are likely to visit these districts in order to apprise the entrepreneurs about various facilities being extended to MSME Sector by the Government and financial institutions and to come forward and make best use of these facilities including access to credit and market, etc.

### Key challenges being faced by MSMEs

A non-level playing field for MSME Sector, facing the odds has pushed them towards the edge. Their threshold tolerance level to alterations of markets and vagaries of banking system is so small that any adverse environment can have serious consequences leading to sickness or even closure. The list of the problems that are faced by existing/new companies in SME sector are as under:

- **Limited capital:** Absence of adequate and timely **banking finance**, as per Economic Survey 2017-18, the MSME received only 17.4 per cent of the total credit outstanding as of November 2017.
- **Lack of technology:** Non-availability of **suitable technology**, creating public perception of products with low quality standards.
- **Low production:** due to reasons such as Ineffective marketing strategy, constraints on modernisation & expansions etc.
- **Lack of skilled labour:** Non-availability of **skilled labour** at affordable cost

### 12-Point Action Plan for MSMEs

- **Access to Credit**
  - **59 minute loan portal to enable easy access to credit for MSMEs:** Loans upto Rs. 1 crore can be granted in-principle approval through this portal, in just 59 minutes. A link to this portal will be made available through the GST portal.
  - **Interest Subvention:** A 2 percent interest subvention will be provided for all GST registered MSMEs, on fresh or incremental loans. For exporters who receive loans in the pre-shipment and post-shipment period, there will be an increase in interest rebate from 3 percent to 5 percent.
  - **Cash flow certainty:** All companies with a turnover more than Rs. 500 crore, must now compulsorily be brought on the Trade Receivables e-Discounting System (TReDS). Joining this portal will enable entrepreneurs to access credit from banks, based on their upcoming receivables. This will resolve their problems of cash cycle.
- **Access to Markets**
  - **Mandatory public procurement:** Public sector companies have been mandated to compulsorily procure 25 percent, instead of 20 percent of their total purchases, from MSMEs.
  - **Women entrepreneurs:** Out of the 25 percent procurement mandated from MSMEs, 3 percent now be reserved for women entrepreneurs.
  - **GeM Portal:** All public sector undertakings of the Union Government must now compulsorily be a part of GeM. They should also get all their vendors registered on GeM.
- **Technology Upgradation**
  - **Technology Centres:** Tool rooms across the country are a vital part of product design. Considering this, 20 hubs will be formed across the country, and 100 spokes in the form of tool rooms will be established.
- **Ease of Doing Business**
  - **Support to pharma companies:** Clusters will be formed of pharma MSMEs and 70 percent cost of establishing these clusters will be borne by the Union Government.

### Importance of MSME sector in India:

MSMEs contribute around 6.11% of the manufacturing GDP and 24.63% of the GDP from service activities as well as 33.4% of India's manufacturing output and around 40 per cent to total exports.

### Key Results of NSS 73rd Round Survey (2015-16) on Micro, Small and Medium Enterprises

The sector comprises of 633.88 lakh units (51.25% MSMEs were in rural area and 48.75% were in the urban areas). The Micro sector accounts for more than 99% of total estimated number of MSMEs. Small sector and Medium sector accounts for 0.52% and 0.01% of total estimated MSMEs, respectively.

Uttar Pradesh had the largest number of estimated MSMEs with a share of 14.20% of MSMEs in the country followed by West Bengal with a share of 14% again. The top 10 States together accounted for a share of 74.05% of the total estimated number of MSMEs in the country.

31% MSMEs were found to be engaged in Manufacturing activities, while 36% were in Trade and 33% in Other Services.

Male owned 79.63% of enterprises as compared to 20.37% owned by female.

The socially backward groups owned almost 66.27% of MSMEs, though bulk of that can be attributed to OBCs owning in 49.72%. The representation of SC and ST owners in MSME sector was low at 12.45% and 4.10% respectively.

It has created 11.10 crore jobs out of which 76% are male employees and remaining 24% are females.

- **One annual return:** The return under 8 labour laws & 10 Union regulations now to be filed only once a year.
- **No more inspector raj:** Now the establishments to be visited by an Inspector will be decided through a computerised random allotment and inspectors must upload reports on portal within 48 hours.
- **Relaxation in environmental clearances:** As part of establishing a unit, an entrepreneur needs two clearances namely, environmental clearance and consent to establish. Under air pollution and water pollution laws, now both these have been merged as a single consent. Moreover, the return will be accepted through self-certification.
- **Ordinance and companies Act:** An Ordinance has been brought, under which, for minor violations under the Companies Act, the entrepreneur will no longer have to approach the Courts, but can correct them through simple procedures.

Apart from the above 12-Point Action Plan, the Prime Minister also stressed on the need of **social security for the MSME sector employees**. He said that a mission will be launched to ensure that they have Jan Dhan Accounts, provident fund and insurance.

#### Significance of the Action Plan

- MSMEs were hit hard by the twin **shocks of demonetisation and the implementation of the Goods and Services Tax** over the last couple of years.
- Further, in the aftermath of the IL&FS crisis, which has affected the amount of lending

**Other Government schemes to help MSMEs:** The primary responsibility of promotion and development of MSMEs is of the State Governments. However, the Government of India, supplements efforts of the State Governments through various initiatives.

#### Credit and Financial Assurances to MSMEs

- **Prime Minister's Employment Generation Programme (PMEGP)** is aimed at generating self-employment opportunities through establishment of micro-enterprises in the non-farm sector by helping traditional artisans and unemployed youth.
- **Credit Guarantee Scheme for Micro and Small Enterprises** covers collateral free credit facility (term loan and/or working capital) extended by eligible lending institutions including Non-Banking Financial Company (NBFC) to new and existing micro and small enterprises up to 2 crore per borrowing unit.
- **Credit Linked Capital Subsidy Scheme (CLCSS)** aims at facilitating technology upgradation of the MSME sector.
- The Government has also initiated the **Pradhan Mantri Mudra Yojana** for development and refinancing activities relating to micro industrial units.

#### Skill Development and Training

- **A Scheme for Promotion of Innovation, Rural Industry & Entrepreneurship (ASPIRE)** to create a framework for start-up promotion through Network of Technology Centres and Incubation and commercialisation of Business Idea Programme.

#### Infrastructure

- Scheme of Fund for Regeneration of Traditional Industries (SFURTI)
- Scheme for Micro & Small Enterprises Cluster Development Programme (MSE-CDP)

#### Marketing Assistance

- Scheme for providing financial assistance to Khadi institutions under **MPDA (Market Promotion Development Assistance)**.
- MSME Delayed Payment Portal – **MSME Samadhaan**
- Public Procurement Portal for MSEs – **MSME Sambandh**

#### Technology Upgradation and Competiveness

- **Financial Support to MSMEs in ZED (Zero Defect and Zero Effect) certification** to encourage MSMEs to upgrade their quality standards in products and processes with adoption of Zero Defect production processes and without impacting the environment, etc.

#### Other services

- **National Scheduled Caste and Scheduled Tribe Hub** to provide professional support to SC/ST entrepreneurs.

#### Concerns

- The biggest risk of a credit stimulus is the **misallocation of productive economic resources**. Pumping extra credit into MSMEs now may well lead to a temporary boom, but it can lead to a painful bust when the stimulus ends some day.
- Another unintended consequence is the **likely deterioration in credit standards** as financial institutions are pushed to lend aggressively to MSMEs. Efforts to expedite business loan approvals may be welcome from the point of view of growth and job creation, but they rarely end well when motivated by political reasons.
- Conceptually, latest credit scheme is **no different from the MUDRA loan scheme**, which has been troubled by soaring bad loans. Care needs to be taken to see that the new MSME loan scheme does not pose a similar risk in the future.

done by non-banking financial companies to the MSME sector, this scheme would act as a tool **to improve credit flow and the pace of job creation** in the economy.

- The scheme aims to ensure a **coordination of all the ministries** as it inculcate various dimensions ranging from finance, technology and skilling and women entrepreneurs to environmental, legal and social aspects. This will ensure holistic development of MSME sector.
- Given the **leading stature of India in the pharma sector**, the scheme would further boost the quality and quantity upgradation in drugs with reduced dependence on imports for APIs (Active Pharma Ingredients).
- Most importantly, these schemes would act as a bridge to bring large portion of unorganised MSMEs under the formal and organised banner through GST/TreDS and simplified procedures and institutional lending.

### 3.14. SEZ POLICY REPORT

#### Why in news?

The **Baba Kalyani committee** constituted by the Ministry of Commerce & Industry to study the existing **SEZ policy** of India submitted its report to the government.

#### Performance of SEZ

- As on 31st March, 2018, there were a total of **223 Operational SEZs** against 355 notified SEZs in the country.
- **Total Investment** in SEZs (as on 31st March, 2018) amounted 4.75 lakh crore and it has generated close to **20 lakh jobs**.
- **Exports from SEZs** amounted nearly 5.81 lakh crore in 2017-18, which is higher from 5.23 lakh crore in 2016-17 and 4.67 lakh crore in 2015-16.

#### Major Challenges and Solutions

- **Unutilised land** (more than 25,000 hectares) in SEZs which is due to lack of flexibility to utilise land in SEZs for different sectors. The **solution to this challenge** is “Optimal utilisation of vacant land in SEZ by allowing flexibility of land use and removing sector-specific constraints.”
- **Existence of multiple models of economic zones** such as SEZ, coastal economic zone, Delhi-Mumbai Industrial Corridor, National Investment and Manufacturing Zone, food park and textile park.
  - **Solution:** The group of secretaries of various central government’s departments have recommended “**rationalisation**” of these models. Moreover, the Department of Industrial Policy and Promotion (DIPP) and the Niti Aayog is going to “develop and master plan for industrial clusters” in order to deal with this challenge.
- **Under-utilisation of existing capacity.** Currently, SEZ units are not allowed to do “job work” for domestic tariff area (DTA) units. Any area that lies outside of SEZ or any other custom bonded zone in India is known as the DTA. Goods and services going into the SEZ from DTA is treated as exports and goods coming from the SEZ into DTA is treated as imports. **It is recommended that** “optimal utilisation of existing capacity in SEZ units” should be done by “allowing job work for DTA”.

**Special Economic Zone (SEZ)** is a specifically delineated duty-free enclave and deemed to be foreign territory for the purposes of trade operations and duties and tariffs.

India’s SEZ Policy was implemented from 1 April, 2000. Subsequently the Special Economic Zones Act, 2005 supported by SEZ Rules 2006.

#### The main objectives of the SEZ Act are:

- Generation of additional economic activity
- Promotion of exports of goods and services
- Promotion of investment from domestic and foreign sources
- Creation of employment opportunities
- Development of infrastructure facilities

#### The SEZ Rules provide for:

- Simplified procedures for development, operation, and maintenance of the Special Economic Zones and for setting up units and conducting business in SEZs;
- Single window clearance for setting up of an SEZ or a unit within it;
- Single Window clearance on matters relating to Central as well as State Governments;
- Simplified compliance procedures and documentation with an emphasis on self certification.

**Approval mechanism and Administrative set up of SEZs:** The developer submits the proposal for establishment of SEZ to the **concerned State Government**. The State Government has to forward the proposal with its recommendation within 45 days from the date of receipt of such proposal to the Board of Approval. The **applicant also has the option to submit the proposal directly to the Board of Approval.**

- **The Board of Approval chaired by the Secretary, Department of Commerce** has been constituted by the Central Government in exercise of the powers conferred under the SEZ Act.
- All the decisions are taken in the Board of Approval by consensus.

- **Domestic sales of SEZs face a disadvantage** as “they have to pay full customs duty”, as compared to the lower rates with the Association of Southeast Asian Nations (ASEAN) countries due to free-trade agreement (FTA). It is suggested that the “best FTA rates” should be allowed for domestic sales, too.
- **Imposition of Minimum Alternate Tax (MAT)** on SEZs from April 1, 2012, as well as **imposition of income tax on new SEZs and new units** from April 1, 2017 and April 1, 2020, respectively. The experts advocated restoration of income tax benefit as well as MAT exemption.
  - Also, there is a need to **align changed taxation regime under GST to the SEZ Rules**.
- Another challenge has been the “**requirement of payment in foreign exchange for services provided by SEZ units to DTA area**”. To deal with this problem, it has been suggested an amendment in the definition of “services” in the SEZ Act, 2005.
- **Lack of support from the state government** when it comes to developing effective single-window system for clearances.
- **Other issues:** There are other demands of the business and industrial community. These include- grant infrastructure status to buildings of SEZs and industrial parks, permit external commercial borrowing (ECB) for entire SEZ infrastructure, allow a refinancing option through ECB; relax the “risk weightage norms” for the real estate sector.
  - Moreover, simplification of the process of granting environment clearance by the Union environment ministry and repeal of certain sections of the Urban Land Ceiling Act, 2007 is also demanded.
  - The Commerce ministry has been consistently lobbying with the finance ministry to exempt units in the SEZs from the minimum alternate tax, or MAT, imposed on them in 2011.
- Some of the incentives offered under the SEZ policy have been **challenged at the WTO by the US** and may need to be replaced by other sops.

#### Why China succeeded but India’s SEZ had limited success?

**There are eight distinguishing features which have contributed to the success of SEZs in China:** Unique location, large size, investment friendly attitudes towards non-resident Chinese, attractive incentive packages, liberal Custom procedures, flexible labour laws, a strong domestic market and decentralisation of power in favour of provinces and local authorities for administering the zones.

- Chinese SEZs had a **geographic advantage** with most of the SEZs located near the ports unlike the Indian SEZ’s that are more in the mainland. Of the five SEZs, Shenzhen, Shantou and Zhuhai are in the Guangdong province, adjacent to Hong Kong — the gateway to China.
- **Size** is another important factor for SEZ success in China. Each SEZ is well over 1,000 hectares, the minimum recommended area. In India, the EPZs converted into SEZs are not even a third of this.
- **Strong domestic market** is another important aspect for SEZ success unlike India where Policy impediments to sales in the domestic market hamper large domestic market potential.
- While in China the thrust of SEZs has been to attract **foreign investments and modern technology**, in India the emphasis has been on exports.
- **Decentralisation of power** was also a major reason for SEZ success in China. Provincial and local authorities were made partners and stakeholders, by delegating to them powers to approve foreign investment.
- The **hire-and-fire policy in SEZs** has been one of the biggest attractions for foreign investors in China. All jobs are on labour contract basis, which stand terminated upon the expiry of the terms, which can be fixed/flexible or for a specific job. In contrast, the labour policy in India is worker, rather than investment, oriented.

#### Recommendations of the Committee

- **Reincarnation of SEZs as employment and Economic Enclaves (3Es):** The main focus of the recommendations of the SEZ committee is on migration from export focus to economic and employment growth focus. For this to be achieved, incentives for the manufacturing SEZs have to be based on specific parameters including demand, investment, employment and technology, value addition and inclusivity.
- **Other supports for SEZ(3Es)**
  - Flexibility to enable 3E units to seamlessly support business outside the zone.
  - Supply of power directly to units from independent power producer (IPPs) at competitive rates to ensure uninterrupted power supply.
  - Fast tracking various approvals through online application process
  - Integrating MSMEs with the 3Es and giving additional incentives to zones focusing on priority industries
  - **Infrastructure status to 3E projects** to make cheaper finance available to them

- **Connectivity to remote SEZs:** Development of last mile and first mile connectivity infrastructure by government should be provided for land parcels which are far from highways and urban agglomerations.
- **Replicate Success of ITes:** The success seen by services sector like IT and ITES has to be promoted in other services sector like health care, financial services, legal, repair and design services.
- **Tax benefits:** For services SEZs, **tax benefits must be retained** including extension of sunset clause, lowering taxes (such as a MAT of 9 per cent and exemption from DDT) for identified strategic services and allowing supplies to domestic market in Indian currency to bring parity between goods and services.
- **Ease of doing business:** The committee has advocated simpler entry and exit processes using time-bound online approval and dispute resolution through robust arbitration and commercial courts.
- **In line with WTO norms and the GST,** the Committee recommended to **prepare a sunrise list** for “focused diversification” such as engineering and design, biotech and healthcare services.
- **Align the policy framework to avoid competition among similar schemes** of industrial parks, export oriented units, SEZ, national investment and manufacturing zones and sectoral parks and provide ease of doing business to developers and tenants.

### 3.15. FIRST MULTI-MODAL TERMINAL ON INLAND WATERWAYS

#### Why in news?

- India's first multi-modal terminal on inland waterways was inaugurated on by Prime Minister in Varanasi.
- PepsiCo India became the first company to use the country's inland waterways for container movement by transporting products from its plant in Kolkata to Varanasi in the IWAI vessel, **MV RABINDRANATH TAGORE**.

#### More on news

- This is the first of the multi-modal terminals being constructed on the National Waterway-1 as part of the World Bank-aided **Jal Marg Vikas project** of the Inland Waterways Authority of India.
- The project of multi-modal terminal and proposed Freight Village at Varanasi are expected to **generate 500 direct employment and more than 2000 indirect employment** opportunities.

**Multimodal transport** is carried out using different modes of transport such as roadways, railway, waterway, and airway.

#### Key benefits of multimodal transport are:

- **Minimizes time loss at trans-shipment points:** Multimodal transport operator maintains its communication links and coordinates that interchange onward carriage smoothly at transshipment points.
- **Provides faster transit of goods:** The markets are psychically reduced by faster transit of goods; the distance between origin or source materials and customers is getting insignificant.
- **Reduces the burden of documentation and formalities:** The burden of issuing multiple documentation and other formalities connected with each segment of the transport chain is reduced to a minimum.
- **Saves cost:** The savings in money from costs resulting from these advantages are usually reflected in the through freight rates charged by the Multimodal transport operator (MTO) and also in cargo insurance cost.
- **Establishes only one agency to deal with:** The consignor/ consignee needs to deal with only the Multimodal transport operator in all matters relating to goods, or delay in delivery of goods at destination.
- **Reduces cost of exports:** The inherent advantages will help to reduce the cost of exports and improve their competitive position with pricing in the international market segment.
- **Less Congestion:** It helps to avoid over- burdening of any particular mode of transport and thus saves space and cost associated with congestion. Moreover, this would save fuel and lessen the pollution.

#### India has witnessed growth in Multimodal transport in the recent times and the sector is still evolving.

- The advent of containerization along with initiatives from the Government such as passing **Multimodal Transport Act, 1993** to the recent implementation of Goods and Services Tax have helped the country to progress towards an integrated transport system.
- Government is planning a Policy on Multi modal transportation.
- Economic Survey 2017-18 estimates that Indian Logistics sector which is worth around USD 160 billion is likely to touch USD 215 billion in the next two years with the implementation of GST. In order to realize this potential, the country will need to make effective use of its strengths in IT and look out for collaborations with experts in this field.

**What primarily constitute inland waterways in India?** Rivers, lakes, canals, backwaters and reservoirs primarily constitute the source for inland waterways in India.

**Potential of inland water transport (IWT) in the country:** As per National Transport Policy Committee (NTPC) Report of 1980, the approximate length of navigable waterways in the country was 14,500 km.

- The National Waterways Act, 2016 declares a total of **111 National Waterways with a total navigable length of over 20200 kms**. Out of this, 17,980 km of the river and 2,256 km of canals can be used by mechanized crafts.
- The **estimated cargo movement** on these waterways by the year 2022 is estimated to be **159 million tonnes** according to the report on Integrated National Waterways Transportation Grid submitted by RITES in 2014.

**How does India compare with world in IWT?**

- China, USA, European Union maintained and upgraded their river system on core routes that can support large modern vessel fleets up to 40,000 tons of cargo in single voyage.
- IWT in India has only 0.5% modal share; compared to 42% in Netherlands, China 8.7%; USA 8.3% and Europe 7%.
- China invested USD 15 billion in 2005-2010; Germany invested over 12 billion Euros in 2012 alone.

**Challenges in developing National Waterways**

- **Very low level of investment:** Lack of convergence between IWT and other modes of transport and more emphasis on development of rail and road networks resulted in low level of expenditure on IWT.
  - Between 1986 and 2010 (25 years) investment in IWT development was just Rs. 1117 crore, i.e., US\$ 200 million. Compared to this, the Bharatmala Pariyojana- an umbrella programme for the highway development has a budget of over 5 lakh crore. Similarly the Railways used to have their own separate Budget till last year.
- **High cost of development of Ancillary facilities:** Multi-modal and inter- modal terminals are part of the fairway development of an inland waterway. Development of modern day multimodal terminals, jetties, ferry points and river information systems is **highly capital intensive**.
- **Perception of IWT investment as high-risk investment:** This was a disincentive for the banks to advance loans to private players. It discouraged private participation also even through PPP mode.
- **Technical Challenges:** such as Development and maintenance of **Fairway width** of 2.5 m to 3.0 m depth, irregular **siltation**, **Speed Control regulations** to avert bank erosion and safety of other users, Safety against cross ferries, **Connectivity to Terminal Locations**, Clearance at **Cross Structures/bridges**, Identification of **navigational channel** in a wide river, **Discharge control** by regulations, and Difficulty in **land acquisition** for development of terminals.

**Benefits of inland waterways**

- **Capital Savings:** The capacity augmentation of navigation on NW-1 through the Jal Marg Vikas Project estimated to entail a capital expenditure of Rs. 2.53 crore per km only. Compared to this road and rail each cost over 5 crore per km.
- **Savings in transportation costs:** IWT would have positive impact on the overall logistics cost.
  - 1 Horse Power energy moves 150 kg on road, 500 kg on rail and 4000 kg on water.
  - 1 litre of fuel moves 24 ton-km on road, 85 ton-km on rail & 105 ton-km on Inland Waterways.
  - As per **RITES Report of 2014 on “Integrated National Waterways Transportation Grid (INWTG)”** the cost comparison between Inland Water Transport (IWT) mode and other mode of surface transport like rail and road is as below:

Mode	Freight ( Rs/TKm )	Taxes	Total Rs / TKm
Railways	1.36	3.71%	1.41
Highways	2.50	3.09%	2.58
IWT	1.06	Nil	1.06

- **Environment friendly:** Use of modern inland water vessels, with natural gas (LNG/CNG) as fuel will reduce emission of SOx, NOx (70%), particulate matter (95%) and CO2 (25%). Hence will have negligible impact on ambient air quality. Other factors include-
  - It's a **non-water consumptive** transportation project with minimal resource depletion.

- **Least fuel consumption per ton-km**, burden on road and rail transportation will come down resulting in less fuel consumption and consequent environmental pollution
- **Negligible land requirement:** Due to minimum requirement of land acquisition (except in few places where terminals are likely to be constructed), there will be insignificant impact on ecology & biodiversity, agricultural activities as well as on the livelihood of the people.
- Safe mode for hazardous and over-dimensional cargo
- LNG/CNG engines have **lower noise level** than diesel engines, hence less impact on ambient noise level.
- **Improved river flow** due to improvement / augmentation of navigation facilities will in turn benefit aquatic flora and fauna.
- **Supplementary mode:**
  - **Increase in economic opportunities** in the form of employment and business opportunities (both in relation to cargo movement and peripheral petty business activities).
  - **Access to local communities** in the form of a mode of transport to conduct activities on both sides of the river.
  - Better water flow through maintenance of minimum water levels will provide for **better fish production and catch**, which in turn will directly enable enhanced income for the fishing communities along the river stretch.
  - **Improved access to trading centres** and ancillary infrastructure (cargo handling, etc.) along the rivers and navigation will benefit local, regional and international business.

#### Initiatives to Develop Inland Waterways

- A total of 111 waterways have been declared as National Waterways under the **National Waterways Act, 2016**.
- The '**Jal Marg Vikas Project**' on National Waterways-I (NW-I) in river Ganga, a large integrated IWT project, has been launched between Varanasi and Haldia covering a distance of 1380 kms at an estimated cost of `5369 crore.
- On NW-2 (River Brahmaputra), **Ro-Ro services** have commenced between Dhubri and Hatsingimari in July 2017 on an Inland Waterways Authority of India (IWAI) vessel.
- Based on techno economic studies, **eight new NWs have been taken up for development in 2017-18**. These include, NW-16 (Barak river); three in Goa viz. NW 27 - Cumberjua, NW 68 – Mandovi , NW 111 – Zuari; NW-86 ( River Rupnarayan ) ; NW 97 (Sunderbans); NW-9 (Alappuzha–Kottayam– Athirampuzha Canal) and NW-37 (River Gandak).
- In order to reduce the logistics cost of cargo and facilitate passenger movement between North East and mainland, **MOUs have been signed with Bangladesh**.
- Construction of Slipway at Pandu in Assam is on, with December, 2018 as the target date of completion. This will be the **first dry dock repair facility in the NE Region**.
- **On NW-4**, Phase-I development of the stretch between Muktyala to Vijayawada (82 kms) has commenced. This will provide an efficient logistics solution to boost the economic growth of the region and facilitate the development of Amravati, the new capital city of Andhra Pradesh as substantial construction material is expected to be transported on this stretch of NW-4.
- To provide **institutional funding**, the Government has proposed to allocate 2.5 per cent of the proceeds of Central Road Fund for development and maintenance of National Waterways. In 2017- 18, IWAI raised Rs. 660 crore from the market by issuing 'GOI fully serviced Bonds' to meet capital expenditure on development of National Waterways.
- To **promote ship building industry** under the "Make in India" initiative, the Government provides financial assistance of up to 20 percent for ships build in the country.
- IWAI is planning to start the transportation of fertilizers from IFFCO Paradip to various destinations on NW1 by integrating coastal movement with IWT.
- **Integrated National Transportation Waterway Grid Study:** It was undertaken by IWAI through RITES with an aim to link first 6 National Waterways to National/ State Highways, Railways (wherever feasible) and Sea Ports (wherever feasible).

## 3.16. CITY GAS DISTRIBUTION PROJECTS

### Why in news?

The Prime Minister laid the foundation stone to mark the commencement of work for 9th round of **City Gas Distribution (CGD)** spanning 129 districts.

### More on news

- This has expanded the **potential coverage of CGDs to about 50% of country's population** spreading over 35% of India's area.
- In addition, **PNGRB** has also initiated the process of 10th CGD bidding round for additional 50 new GAs covering 124 districts in 14 States to increase the potential coverage to about 53% of the country's area covering 70% of country's population.

### National Gas Grid

- At present, about 16000 Km long gas pipeline network is under operation and it has formed a **partial gas grid** by inter-connecting western, northern and south-eastern gas markets in the country.
- To have a **gas-based economy** and enhance the share of gas in the energy basket to 15% from currently 6.5%, the Government has envisaged developing additional 15,000 km of gas pipeline network.
- To provide the clean energy in the Eastern part of the country, the Government is running **Pradhan Mantri Urja Ganga Project**. These gas pipeline will pass through 50 districts in the State of Uttar Pradesh, Bihar, Jharkhand, Odisha & West Bengal.
- A pipeline of about 750 Km long from Barauni (Bihar) to Guwahati (Assam) will be the gateway to connect North-eastern States with existing gas grid. **A Mini Gas Grid in North East** covering 1,500 km and connecting all state capitals, is also being developed by a Joint Venture (JV) of 5 companies. This will also facilitate the completion and creation of a National Gas Grid.

**City Gas Distribution (CGD) Network:** It is the interconnected network of pipelines to make supply of natural gas to domestic, industrial or commercial premises and CNG stations situated in a specified **Geographical Area (GA)**. CGD networks are being developed based on the availability of trunk gas pipeline connectivity or gas sources and techno-commercial feasibility in a GA.

**Progress made so far:** As per Ministry of Petroleum and Natural Gas (MoPNG) Annual Report, 2017-18

- 31 CGD companies are developing CGD networks in 81 GAs in 21 States/Union Territories.
- The CGD networks have also connected about 32,500 Industrial & Commercial Units to supply environment friendly fuel i.e. natural gas for energy purpose.
- 1282 CNG stations have been established to cater the CNG demand of transport sector in the country.

Till September 2018, 96 cities/Districts in different parts of the country were covered for development of CGD networks. About 46.5 lakh households and 32 lakh CNG vehicles are availing the benefit of clean fuel through existing CGD networks.

**The Petroleum and Natural Gas Regulatory Board (PNGRB)** was constituted under The Petroleum and Natural Gas Regulatory Board Act, 2006 with a mandate-

- To protect the interests of consumers and entities engaged in specified activities relating to petroleum, petroleum products and natural gas and to promote competitive markets and for matters connected therewith or incidental thereto.
- To regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas so as and to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the country.

### Aims and objectives of National Gas Grid

- To **remove regional imbalance** within the country with regard to access of natural gas and provide clean and green fuel throughout the country.
- To **connect gas sources to major demand centres** and ensure availability of gas to consumers in various sectors.
- **Development of City Gas Distribution Networks** in various cities for supply of CNG and PNG.



**Benefits of CGD Network:** Natural gas is a superior fuel as compared with coal and other liquid fuels being an environment friendly, safer and cheaper fuel.

- **Tension free household:** Natural Gas is supplied through pipelines without any need to store cylinders in the kitchen and thus saves space. It also ensures uninterrupted supply of cooking fuel and thus lessens the stress on the household of keeping an eye on LPG cylinder and its prior booking.
- **Combating Industrial Pollution:** Large number of industries also consume polluting fuels like pet coke and furnace oil which emit polluting CO<sub>2</sub>. Some of the courts recently ordered for banning use of pet coke in states within their jurisdiction.
- **Saving on cost:** Natural Gas (as CNG) is cheaper by 60% as compared with petrol and 45 % w.r.t. Diesel. Similarly, Natural Gas (as PNG) is cheaper by 40 % as compared with market price LPG.
- **Help in Achieving Environmental Commitment:** India made a commitment in COP21 Paris Convention to reduce carbon emission by 33-35% of 2005 levels by 2030. Natural gas, supplied through CGD network, as domestic kitchen fuel, as fuel for transport sector as well as a fuel for industries and commercial units, can play a significant role in reducing carbon emission.
- **Moving towards gas based economy:** Share of Natural Gas in India's energy basket is 6.2% as against 23.4% globally. In India - in the state of Gujarat itself, it is 25%. This can be replicated throughout India. In addition, oil-to-gas switching will allow to reduce oil dependency.
- **Employment:** Gas networks in cities create a new ecosystem, one that enables gas based industries, generates employment to youth and provides ease of living to citizens.

#### India's natural gas market

- Share of natural gas in the country's primary energy mix declined from 10% in 2009 to 7% in 2014 compared with the global average of 24%, mainly due to a sharp drop in domestic supplies.
- India's 39 cubic meters (cm) per capita of natural gas consumption in 2015 lags far behind the world average of 469 cm per capita.
- **Sector-wise Gas consumption in India in 2017-18:** fertilizer (28%), electric power (23%), refinery (12%), city gas distribution, including transport (16%), and petrochemical industries (8%).
- **India's natural gas demand has been mainly affected by** lower availability and price affordability; inadequate transmission and distribution infrastructure; and limited gas import facilities.

#### Initiatives taken by the government

- MoPNG has accorded **priority to PNG (Domestic) and CNG (Transport) segments of CGD sector** in domestic gas allocation. At present, domestic gas is being supplied to meet entire requirement of CNG (transport) and domestic PNG segments based on last six-month consumption data by the respective CGD networks.
- **State Governments have been advised**
  - To standardize the Road Restoration/permission charges along with time bound permission for development of CGD networks.
  - To earmark land plot for development of CNG Stations in their Master Plan.
  - Relevant modification in building by-laws for providing gas pipeline infrastructure in residential & commercial buildings at architectural design stage.
- CGD networks have been provided the **status of "Public Utility"** under the Industrial Dispute Act, 1947.
- Efforts are underway to develop an **online portal** in consultation with State Government to streamline the process of permissions to develop CGD network.
- Government has envisaged to **connect One crore households with PNG supplies for cooking purpose by 2020**. It has also been envisaged to expand the coverage of CGD networks in additional 146 GAs in coming years.

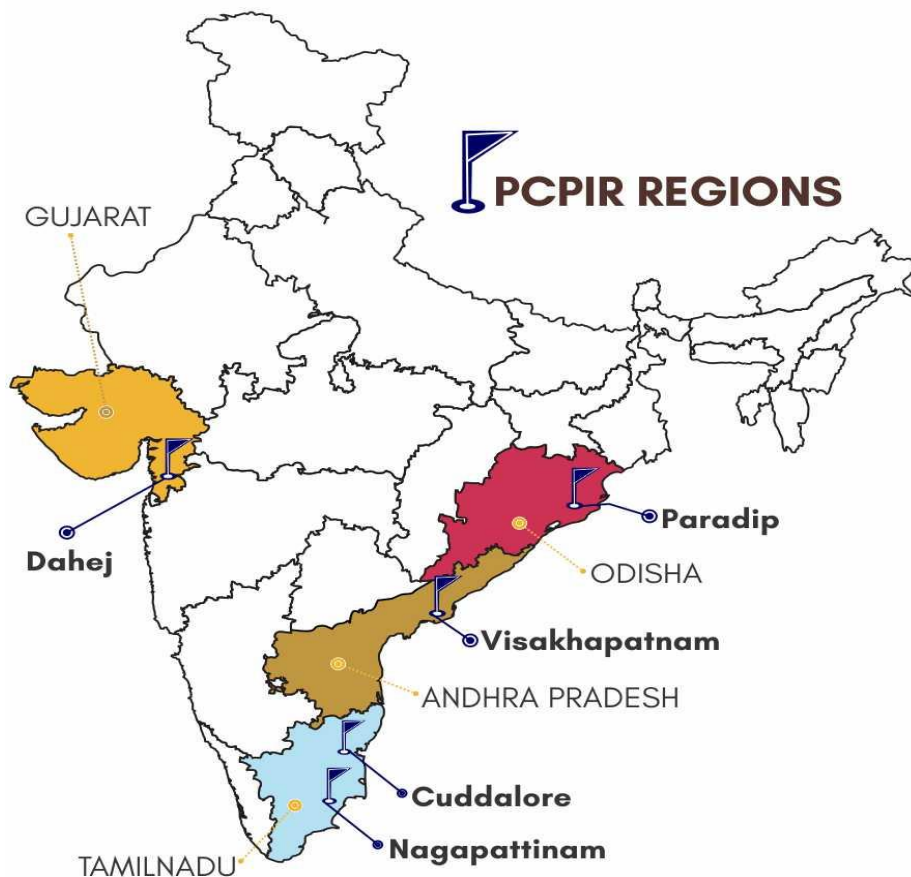
### 3.17. PETROLEUM, CHEMICALS AND PETROCHEMICAL INVESTMENT REGION

#### Why in news?

Recently Minister of State for Chemicals & Fertilizers informed that **Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs)** in India has registered good progress in attracting Investments for Industrial Development and generating employment

### About PCPIRs

- PCPIR is based on cluster-based development model for setting up manufacturing facilities for both domestic consumption and exports in Petroleum, Chemicals and Petrochemicals.
- The cluster is combination of production units, logistics handling, environmental protection mechanism and social infrastructure.
- It includes Special Economic Zones, Free Trade Zones Warehousing Zones etc.
- Connectivity to the region is provided by state and central governments through Rail, Road, Ports, Airports and Telecom. The state government will also be responsible for providing facilities of water, road connectivity (state roads), Waste Treatments linkages etc
- PCPIRs will ensure developing economy of scale in petrochemical sector due to the use of common infrastructure, support services and R&D facilities.
- Chemical and Petrochemical industries generate concerns over environmental degradation. However, PCPIRs follow a robust Environmental Impact Assessment (EIA) mechanism.



## 3.18. ADVANCED MOTOR FUELS TECHNOLOGY COLLABORATION PROGRAMME (AMF-TCP)

### Why in news?

Recently, Cabinet was apprised that India is joining **Advanced Motor Fuels Technology Collaboration Programme** as a member.

### About AMF TCP

- It is one of the **International Energy Agency's (IEA)** transportation related Technology Collaboration Programme.
- Its vision is to establish a **sustainable transportation system** that uses advanced, alternative, and renewable

### About IEA

- It is an autonomous body within the **Organization for Economic Co-operation and Development (OECD)** framework established in the wake of 1973 oil crisis.
- It works to ensure reliable, affordable & clean energy for its member countries and beyond.
- Its four main areas of focus are **energy security, economic development, environmental awareness, and engagement worldwide.**
- An IEA Member country must be a member country of the OECD, but not all OECD members are members of the IEA.
- Apart from 30 members, it has **8 association members including India.**
- **Requirement for membership:**
  - Crude oil reserves equivalent to 90 days of the previous year's net imports.
  - A demand restraint program to reduce national oil consumption by up to 10%.
  - A national plan for Coordinated Emergency Response Measures.
  - Ensure all oil companies under its jurisdiction report information upon request.
  - Capability of contributing its share of an IEA collective action.

fuels, has reduced emissions and meets needs for personal and goods mobility on a local and global scale.

- It will help **Ministry of Petroleum & Natural Gas** to get sound scientific information and technology assessments to make informed decision making about using advanced fuels.
- Under this, the R&D work is carried out within individual projects called "**Annex**" which enable members to cooperate in groups that share common interests.
- Other member countries of AMF TCP are USA, China, Japan, Canada, Chile, Israel, Thailand, Republic of Korea etc.

**Starts 19 Nov 5:00 PM**

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**हिंदी माध्यम भी उपलब्ध**

## 4. SECURITY

### 4.1. 26/11 MUMBAI ATTACKS: AFTER 10 YEARS

#### Why in news?

Recently, India commemorated 10 years of Mumbai attacks.

#### Failures that led to the attack & subsequent consequences

One of the deadliest terror attacks to be staged on Indian soil, it exposed several lacunae in Indian security infrastructure, making it a **'watershed' moment in India's internal security paradigm**:

- The perpetrators came by the sea-route and used a combination of tools (gun-fire, bombs and grenades) to unleash terror. It exposed **India's maritime security vulnerabilities**, including absence of deep sea surveillance and malfunctioning coastal policing.
- Highly sophisticated state of the art **communications** were used including **Voice-Over-Internet-Protocol (VoIP)**, which Indian intelligence agencies were **unable to intercept**.
- There was a complete **failure of intelligence coordination**. The tip-offs related to the visits of American-born Pakistani terrorist David Richard Headley to India by CIA were not adequately heeded to.
- The **response to the attack was also slow**, despite fishermen reporting activities of armed strangers. **Well-trained and better equipped terrorists** took local police by surprise. Trained NSG & marine commandos took long to arrive, as there was no NSG hub near Mumbai.
- In **absence of defined crisis reportage protocols**, live coverage by media channels and on social media helped terrorist handlers to communicate about presence of foreign national in the hotel as well as the impending security operations.
- The **attack of 26/11 was a case of 'war by other means'**, where one state's resources (Pakistan), were employed and authorities (Inter-Services Intelligence Directorate, Pakistani armed forces etc) were directly involved to carry out terror attacks in a major Indian city. **India's lack of resolve to follow through & respond in an appropriate, adequate and timely manner against grave provocations** (such as cross-border terror) **failed to act as a strategic deterrent**.

#### Improvements in security mechanism since 26/11

- **Coastal Security Preparedness:**
  - **3-layered protection** of Indian coastal areas has been strengthened and responsibilities have been clearly delineated.
    - **Indian Navy:** Beyond 200 Nautical Miles (NM)
    - **Indian Coast Guard:** 12 to 200 NM
    - **Marine Police:** Up to 12NM from shore
  - **Coastal Surveillance Network**, comprising of static sensors along coasts, automatic identification systems (AIS), long range tracking, day-night cameras and communication devices has been put in place. **Vessel Traffic Management System (VTMS)** radars are installed on all major & minor ports to facilitate surveillance.
  - Commissioning of **Information Management & Analysis Centre** in Gurugram for easy collection and dissemination of shipping data for increased awareness.
  - **Activities in maritime zones are now more regulated:** (i) Multi-purpose ID issued to all fishermen, sea-ferrying services and coastal villages (ii) Uniform licensing of fishing boats (iii) GPS and transponders for tracking.
  - **Central Industrial Security Force (CISF)** now guards ports. Moreover, **Sagar Prahari Bal** was constituted as a special force from navy for protection of naval bases.
  - **Operation Sagar Kavach** was put in operation post 26/11 to improve coordination between security agencies including Indian Navy, Coast Guard and the local police.
- **Intelligence Overhaul:**

- **National Intelligence Grid (NATGRID)** was constituted to link all governmental databases into create single source of comprehensive intelligence to be accessible to all agencies. It would allow agencies to scan & assess voluminous amount of collected information strategically and identify valuable intelligence leads.
- **Multi Agency Centres (MACs)** under Intelligence Bureau were strengthened to act as intelligence “fusion-centres” and provide real time 24X7 actionable intelligence.
- Indian Navy constituted **Joint Operations Centre** to keep vigil over India’s extended coastline.
- **Investigation Reforms:**
  - **National Investigation Agency** was setup in **2008** as a **specialized statutory agency** to deal with terrorist offences, without requiring specific consent of the states to take up the cases. Special NIA courts were setup for fast-tracking cases related to terrorism.
  - The **amended Unlawful Activities Prevention Act (UAPA)** has given new powers to the security agencies, including the ability to hold terror suspects for 6 months without charges.
- **Response preparedness:**
  - The **deployment** of the **National Security Guard (NSG)** has also been **decentralized** with **4 new operational hubs** for the NSG to ensure rapid response to terror attacks.
  - **Elite commando force called ‘Force One’** was instituted by Maharashtra government with specialized training in line with the National Security Guards (NSG), as per the **recommendations of Ram Pradhan Committee**.

### Challenges remaining

- **Functional Challenges:** According to CAG audit reports, **under-utilization** of acquired equipment, **delays** in creation of shore-based infrastructure, human resources **shortages**, unspent funds and **red-tapism** continue to plague the state of coastal policing along India’s shoreline.
- **Absence of an over-arching counter terror organisation:** The government intention to create a **National Counter-Terrorism Centre (NCTC)**, as an umbrella organization with control over agencies like National Investigation Agency (NIA), National Technical Research Organisation (NTRO), Joint Intelligence Committee (JIC), National Crime Records Bureau (NCRB) and National Security Guard (NSG), **failed due to political opposition** on grounds that it violates federal principle (law & order being state subjects)
- **Absence of Apex Maritime Authority:** The National Committee for Strengthening Maritime and Coastal Security (NCSMCS) is at best an ad-hoc arrangement, lacking a statutory backing. The Coastal Security Bill to form a National Maritime Authority (NMA) is mired in red tape since 2013. Marine Police Stations, under state governments, are still not fully integrated in the coastal security chain.
- **Non-functional Integrated Intelligence Network:** **NATGRID is not in a functional stage**, though some of its functionalities are being replicated by the Crime and Criminal Tracking Networks & System (CCTNS), meant to seamlessly link India’s 15,000-plus police stations to allow for better information sharing (according to NCRB 14,749/15,655 police stations already connected)
- **Financial Constraints:** **CCTNS received no financial allocation for two consecutive budgets for 2014-15 and 2015-16**, hampering the progress of the project. While CCTNS was designed to be **used in conjunction with the e-prisons system**, the integration has not been successful.
- **Lack of coordination between centre & states:** **National Investigation Agency (NIA)** has also faced **backlash** from the states, which resist giving up their jurisdiction over policing
- **Challenges in traditional policing:** The **Mumbai attacks of 2008** and **Pathankot airbase attack of 2016** indicate that the traditional style of policing is **inadequate to deal with modern asymmetric threats** from terrorism (lone wolf or remote controlled attacks) /cyber crimes. India’s **low police-to-population ratio** of about 180/100,000 is much lower than United Nations (UN) recommendations for peacetime policing (~250/100000). The police force being over-worked has huge bearing on their professional responsibilities, including counterterrorism duties.
- **Politicization of Terrorism:** Partisan politics has led to religious polarization, which has made it difficult for the country to nurture a strong and coherent response to terrorism.

### Way forward

- To deal with such internal-security threats, the **first responders, i.e. the police, need to have modern equipment and training**. **Basic training** in the police forces must be improved. There is a need to post

experienced and competent faculty members in these academies, as well as improve their infrastructure (library, classrooms, fields etc.)

- **Refresher courses** must be introduced and implemented at all ranks, particularly constabulary, whose immediate response is consequential while dealing with terror attacks. Currently, <7% of police force has received in-service training in last 5 years (BPRD 2017)
- Dealing with phenomena such as terrorism, insurgency, organized and cyber crime needs **coordinated responses**. Therefore, requisite institutional structure (e.g. NCTC) must be created.
- There is an **acute shortage of cyber specialists** in state police and central paramilitary forces. Retaining domain expertise is not given priority while making appointments. This must be addressed.
- The government must consider setting up a separate Ministry of Internal Security (MoIS).

The attacks of 26/11 not only **provoked large-scale public outrage** but also **pushed the government to finally begin to address the deep-seated, systemic shortcomings in the country's security apparatus**. Post 26/11, it was accepted that the ability of terror groups to hit India in the hinterland will depend largely on whether Pakistan perceives us as a hard or soft state. There is a growing realization in Pakistan that public pressure in India will force any government to respond with force against a terror strike, irrespective of the consequences, **as evident from surgical strikes after Uri attacks in 2017**.

## 4.2. SUBMARINE COMPLETES NUCLEAR TRIAD

### Why in news?

The indigenous INS Arihant, India's first nuclear-powered submarine successfully completed its first deterrence patrol, meaning that the submarine is fully ready for its role as a strategic deterrent.

**Deterrence patrol** refers to a submarine disappearing into the depths of the ocean, carrying its deadly cargo of nuclear-tipped missiles.

### Significance of this event

- With the completion of the patrol, **India have finally achieved the longstanding ambition to have a nuclear triad**, giving the country multiple options if it comes to a nuclear confrontation.

### Nuclear Triad

- A nuclear triad refers to the **three components of atomic weapons delivery**: strategic bombers, intercontinental ballistic missiles (ICBMs) and submarine launched ballistic missiles (SLBMs).
- Of the three elements of the triad, the **SLBMs are considered the most important** because the nuclear-powered ballistic missile submarine is the hardest to detect, track and destroy.
- A nuclear triad gives a country the ability to launch nukes from land, air and sea. This is important, because if a

## INDIA'S NUCLEAR TRIAD

### LAND VECTOR | Operational since mid-2000s

- ✧ **Prithvi-II (350-km),**
- ✧ **Agni-I (700-km),**
- ✧ **Agni-II (2,000-km) &**
- ✧ **Agni-III (3,000-km) inducted**
- ✧ **Agni-V (over 5,000-km) in the process of induction.**
- ✧ **Agni-IV Prime (4,000-km) being developed**

### AIR VECTOR | Operational since mid-2000s

- ✧ **Sukhoi-30MKI, Mirage-2000 & Jaguar fighters** modified to deliver nuclear bombs

### SEA VECTOR | Now operational

- ✧ **6000-tonne INS Arihant THE INS ARIHANT STORY (codenamed S-2),** armed with four 750-km range K-15 nuclear missiles, is now operational
- ✧ **6,000-tonne INS Arighat (S-3)** launched in 2017. Will be operational by 2020
- ✧ **7,000-tonne S-4 & S-4\*** subs, each armed with six longer range nuclear missiles, under construction. Will be launched by 2020-2022
- ✧ **13,500-tonne S-5 submarines,** each armed with 12 longer-range nuclear missiles, at planning stage
- ✧ **K-4 missiles (3,500-km range)** undergoing trials. K-5 & K-6 missiles (5,000-6,000-km) being developed

country initiates a nuclear attack, it cannot destroy all three components of the triad at once, and thus, the component which is intact can launch a retaliatory strike.

- **Uniqueness of each leg of Triad:** According to Undersea Warfare, the Official Magazine of the US submarine force, each leg of the triad contributes unique attributes that enhance deterrence and reduce risk.
  - **ICBMs** provide a prompt response, the potential to launch under attack, and a hardened, geographically-dispersed target base.
  - **Strategic bombers** provide great flexibility in force posturing, signalling intentions, route planning, and recall-ability.
  - **Missile submarines** provide survivable, assured response and the mobility to adapt missile over-flight to targets.

#### Why India needs a Nuclear Triad?

- **India's 'No first use' nuclear policy (NFU) talks of minimum credible deterrence.** Minimum credible deterrence capability would, however, require India to possess the critical capabilities to ensure the survivability of its nuclear weapons even after a first strike against it. NFU, therefore, casts a responsibility on the nation **to achieve a second strike capability.** A second strike capability can only be imparted by a Triad.
- India has **two nuclear-armed countries (China and Pakistan)** on both its eastern and western fronts which makes it particularly imperative for the country to possess adequate deterrence.
- The **absence of INS Arihant came to attention during the Doka La standoff** with China, when Beijing had flexed muscle in the Indian Ocean. The Indian Ocean Region, crucial for India's strategic interests, has in general been witnessing an increasing presence of Chinese ships and submarines.
- Chinese **String of Pearls** and **Maritime Silk Road** are attempting to create a Chinese monopoly in the Indian Ocean Region while encircling India from Myanmar to West Asia and Eastern Africa.
- **Pakistan** last year tested its submarine-launched Babur missile, and in the process **completed its nuclear triad**, since it already possesses land-based ballistic missiles as well as tactical nuclear bombs that it can drop from its fighter aircraft.
- **India now joins the elite squad of countries** like Russia, China, France, the US and the UK that possess nuclear-powered submarines. It is the first **SSBN (Ship Submersible Ballistic Nuclear)** to have been built by a country other than one of the five permanent members of the United Nations Security Council.

#### What Next?

- **More requirement of SSBN:** According to the US Navy Institute, a **continuous patrol requires a minimum of four SSBNs.** This assumes one submarine is on patrol for, say, two to three months; another is in port on standby; while the third and fourth may be undergoing repairs or refits. In this context India needs to speed up its Advanced Technology Vessel (ATV) project to ensure timely delivery of SSBNs.
- **Complementary fleet to SSBN:** India will require a complementary fleet of **ship submersible nuclear (SSN) submarines** - these are fast, hunter killer subs that will be required to detect and track Chinese and Pakistani undersea activity and warships. The Indian Navy plans to acquire as many as six SSNs, and discussions are on with shipbuilders from France and the US for participating in the project.

**About INS Arihant:** In the late 1970s, the then prime minister Indira Gandhi sanctioned the submarine after the country's first nuclear test in 1974. Work on the submarine began in 1998, and its complete construction took nearly 11 years.

- INS Arihant is a **part of Indian Navy's secretive Advanced Technology Vessel (ATV) project** operated under the supervision of the Prime Minister's Office and closely monitored by agencies such as the Department of Atomic Energy and the Submarine Design Group of the Directorate of Naval Design.
- The INS Arihant was **built at the Ship Building Centre at Visakhapatnam.** Launched on 26 July, 2009, the submarine was commissioned in August 2016 after a series of extensive sea trials.

#### Composition of INS Arihant

- INS Arihant is a 6,000-tonne submarine powered by a 83 MW pressurised light water nuclear reactor.
- INS Arihant is **capable of carrying nuclear-tipped ballistic missiles**, the class referred to as Ship Submersible Ballistic Nuclear (SSBN).
- The vessel will be able to carry 12 Sagarika K 15 submarine launched ballistic missiles that have a range of 750 km. It can also be armed with four K-4 submarine launched ballistic missile with a range of 3,500 km.
- There is **also provision to launch non-nuclear tipped BrahMos** supersonic cruise missile as well as the 1,000-km sub-sonic cruise missile **Nirbhay**, which can be configured for both nuclear and non-nuclear warheads.

- **Nuclear Submarine Base:** The Indian Navy has commenced **Project Varsha** - the construction of a massive nuclear submarine base south of Visakhapatnam. The base will house India's SSBN fleet. The first phase of the project will be completed by 2022. Its **timely completion is crucial** for India's Oceanic leg of Nuclear Triad.
- **Enhance the range of Missiles:** The Arihant is equipped to carry twelve K-15 ballistic nuclear missiles with an abysmally short range of 750 km. This means before launching its missiles, the sub will have to venture close to enemy waters, endangering its own security. A 3,500 km range missile named the K-4 is currently in development. Apart from this, DRDO is also developing 5,000-km range K-5 and 6,000-km range K-6 which would add more teeth to the arsenal.



# मासिक समसामयिकी रिवीजन 2019

## सामान्य अध्ययन (प्रारंभिक + मुख्य परीक्षा)

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- इन कक्षाओं का उद्देश्य जटिल समसामयिकी मुद्दों, जिन्हें कवर करने की अपेक्षा उम्मीदवारों से की जाती है, की एक विस्तृत विषय-वार समझ विकसित करना है।
- तमाम समसामयिक मुद्दों की सर्वाधिक अद्यतित प्रासंगिक समझ, जिसमें भारतीय राजव्यवस्था और संविधान, शासन (गवर्नेंस), अर्थव्यवस्था, समाज, अंतर्राष्ट्रीय संबंध, संस्कृति, पारिस्थितिकी और पर्यावरण, सुरक्षा, विज्ञान एवं प्रौद्योगिकी तथा विविध विषयों के अतिरिक्त और भी बहुत कुछ सम्मिलित हैं।
- इस कोर्स (35-40 कक्षाएं) में विभिन्न मानक स्रोतों, जैसे- द हिंदू, इंडियन एक्सप्रेस, बिजनेस स्टैंडर्ड, PIB, PRS, AIR, राज्य सभा/लोक सभा टीवी, योजना आदि से महत्वपूर्ण सामयिक मुद्दों को शामिल किया जाएगा।
- प्रत्येक टॉपिक के बाद MCQ तथा मुख्य परीक्षा के लिए संभावित प्रश्नों के माध्यम से आपकी समझ का आकलन।
- "टॉक टू एक्सपर्ट" के माध्यम से और कक्षा में ऑफलाइन व्याख्यान के दौरान चर्चा और विचार-विमर्श हेतु अवसर।
- प्रत्येक पखवाड़े में दो से तीन कक्षाएं आयोजित की जाएंगी। समय-समय पर मेल के माध्यम से शेड्यूल साझा किया जाएगा।



# 5. ENVIRONMENT

## 5.1. TALANOA DIALOGUE SYNTHESIS REPORT AND YEARBOOK OF GLOBAL CLIMATE ACTION 2018

### Why in news?

UNFCCC released two key publications, Talanoa Dialogue Synthesis Report and Yearbook of Global Climate Action 2018.

### Highlights of the Report

- Both the reports are based on various studies and climate reports such as IPCC report, Emission Gap Report, WMO Greenhouse Gas Bulletin and other inputs received from across the globe.
- It highlights that success in tackling the global climate crisis can be achieved, but only if public and private sector actions are urgently stepped up.

### The reports aim to respond to the three Talanoa Dialogue questions in regards to the progress on Climate actions

- **Where are we?**
  - As of 18 November 2018, 184 Parties to the UNFCCC (over 90 per cent) had ratified the Paris Agreement; 180 had formally recorded their NDC in the registry; 10 had communicated a long-term, low-emission development strategy; and 91 were working on a national adaptation plan.
  - National governments have taken steps to strengthen national policy, regulatory and institutional frameworks to address climate change.
- **Climate-related laws come to a total of 1,500.**
  - Action under the UNFCCC and the Kyoto Protocol up to 2020 is under way; however, much more of global effort is still required to deliver the expected level of action and support.
  - Perceived trade-offs of the changes towards transition to low-emission development with competing national priorities (e.g. poverty alleviation, job security) or competitiveness, misalignments between national and sectoral policies, insufficient leadership as well as cultural and psychological barriers are the major challenges.

Overall, climate action is on the rise, generating momentum throughout the planet and providing opportunities and experiences that can be replicated. However, **global greenhouse gas (GHG) emissions are still increasing, as is the concentration of GHGs in the atmosphere (See Box- WMO Greenhouse Gas Bulletin).**

- **Where do we want to go?** It is imperative to keep global warming to below 1.5 °C, as a matter of life and death for small islands and other vulnerable communities.

### Related Information

#### WMO Greenhouse Gas Bulletin

- Published annually, the Greenhouse Gas Bulletin reports on atmospheric concentrations of greenhouse gases.
- It is **based on observations from the WMO Global Atmosphere Watch Programme (GAW)**, which tracks the changing levels of greenhouse gases as a result of industrialization, energy use from fossil fuel sources, intensified agricultural practices, increases in land use and deforestation.

#### Key Findings of the Greenhouse Gas Bulletin-2018

- **Carbon dioxide** is the main long-lived greenhouse gas in the atmosphere. Concentrations reached 405.5 ppm in 2017, 146% of the pre-industrial era (before 1750).
- **Methane (CH<sub>4</sub>)** is the second most important long-lived greenhouse gas and is now 257% of the pre-industrial level.
- Atmospheric concentration of **Nitrous oxide (N<sub>2</sub>O)** in 2017 was 329.9 parts per billion. This is 122% of pre-industrial levels.
- **CFC-11 (trichlorofluoromethane):** Since 2012 its rate of decline has slowed to roughly two thirds of its rate of decline during the preceding decade.

#### Emissions Gap Report 2018: This is the 9th edition of the UN Environment Emissions Gap Report.

- It focuses on the “gap” between the emissions reductions necessary to achieve the agreed targets at lowest cost and the likely emission reductions from full implementation of the Nationally Determined Contributions (NDCs), which form the foundation of the Paris Agreement.
- It is prepared by United Nations Environment Programme (UNEP).

#### Major Findings

- Pathways reflecting current NDCs imply global warming of about 3°C by 2100, with warming continuing afterwards.
- Global greenhouse gas emissions show no signs of peaking. Global CO<sub>2</sub> emissions from energy and industry increased in 2017, following a three year period of stabilization.

- CO2 emission reductions that limit global warming to 1.5 °C involve different portfolios of measures, striking different balances between lowering energy and resource intensity, rate of decarbonization and the reliance on CO2 removal; different portfolios face different challenges and potential synergies and trade-offs with sustainable development.
- **How do we get there?**
  - **Strict adherence to climate goals** as committed in NDCs and various global forums such as Doha Amendment to Kyoto Protocol, Paris Agreement, Sendai Framework and 2030 Agenda for Sustainable Development.
  - **Private sector actors continue, and step-up, initiatives** and concerted action to reduce emissions and enhance resilience in line with the requirements of the Paris Agreement.
  - **Civil society groups strengthen their collective contribution** and active engagement to promote climate action at the regional, national, State and local level.
  - **Finance:** Solutions lie in investments in ex ante climate resilience building, as much as in scaled- up adaptation financing.
  - **Technological Innovations:** This could be achieved by developing a strong and diversified **entrepreneurial ecosystem** that fosters and protects innovation and fair competition, e.g. through incentive programmes and the establishment and strengthening of incubators and accelerators and appropriate schemes for intellectual property rights.
  - **Capacity Building:** According to the IPCC, international cooperation is a critical enabler for developing countries and vulnerable regions. This can be achieved by
    - ✓ Establishing and strengthening national frameworks for the governance and monitoring of climate action, and develop and implement policies and measures relating to mitigation and adaptation action;
    - ✓ Support the establishment and enhancement of South–South cooperation initiatives, in particular those with the potential to facilitate research and development and large- scale deployment of low-emission and climate-resilient technologies;

**Virtual Climate Summit:** Also called as the 2018 CVF Summit is organized as part of the Talanoa Dialogue, which serves as an agreed mechanism for the promotion of enhanced national action by all nations party to the Paris Agreement by 2020.

- It is a **Heads of Government level conference held entirely online as the first Virtual Summit** (#VirtualClimateSummit) of global political leaders, eliminating emissions and promoting inclusive dialogue.
- It was **organised by** the Climate Action Network (CAN) and the Climate Vulnerable Forum (CVF).

**Objectives of the Summit**

- Sustain and amplify support and momentum for the successful conclusion to the 2018 UNFCCC's Talanoa Dialogue;
- Provide a unique internet- and social media-based opportunity to raise awareness on the risks of climate change and the opportunities related to the tackling of climate change;

The **Marrakech Partnership for Global Climate Action**, established at the CoP22 (UNFCCC), aims to mobilize climate actions quickly and to reap the benefits in efficiency and effectiveness through partnerships and coordination between different actors.

It lists out some of the **progressive steps taken and benefits of Climate action** in the Yearbook of Global Climate Action 2018:

- About 60 per cent of the initiatives are producing outputs that put them on a path to achieving their desired environmental or social outcomes.
- The outputs from **cooperative initiatives** are increasingly being delivered in low- or middle-income countries. This reflects increased climate action in developing countries and increased international cooperation.
- Climate action is **re-shaping the financial sector** to help transition to a net-zero carbon and resilient society. Businesses and investors are also reporting on and are managing climate risks and opportunities and implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).
- Increasingly mainstreaming of climate change into financial institutions' operations and investment decisions. E.g. the green bond market. **In 2018, the total value of climate-aligned bonds peaked at USD 1.45 trillion.**

**(Read this article with October CA (IPCC Report) as this is majorly based on findings of the IPCC Report)**

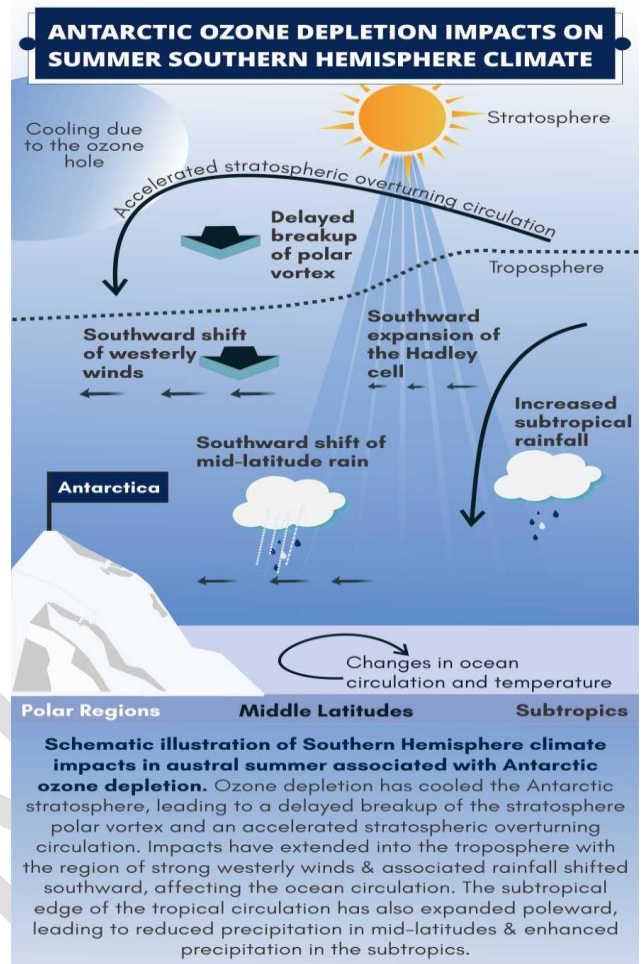
## 5.2. MONTREAL PROTOCOL ASSESSMENT

### Why in news?

The quadrennial (four-yearly) review of the Montreal Protocol reveals a healing ozone layer, global warming reduction potential, and options for more ambitious climate action.

### Key findings of the Scientific Assessment of Ozone Depletion: 2018

- **Actions taken under the Montreal Protocol** have led to **decreases in the atmospheric abundance of controlled ozone-depleting substances (ODSs)** and the start of the recovery of stratospheric ozone.
- The atmospheric abundances of both **total tropospheric chlorine and total tropospheric bromine** from long-lived ODSs controlled under the Montreal Protocol have continued to decline since the 2014 Assessment.
- Outside the Polar Regions, upper stratospheric ozone layer has **recovered at a rate of 1-3% per decade** since 2000.
- The **Antarctic ozone hole is recovering**, while continuing to occur every year. As a result of the Montreal Protocol much more severe ozone depletion in the Polar Regions has been avoided.
- At projected rates, Northern Hemisphere and mid-latitude ozone is scheduled to **heal completely** (i.e. equivalent to 1980 values) by the 2030s followed by the Southern Hemisphere in the 2050s and Polar Regions by 2060.
- The **Kigali Amendment** is projected to reduce future global average warming in 2100 due to hydrofluorocarbons (HFCs) from a baseline of 0.3–0.5 degree Celsius to less than 0.1 degree Celsius.



### Ozone change and its influence on climate

Ozone is important in the climate system and its changes can influence both the troposphere and the stratosphere.

- **Influence on stratospheric climate:** Decreases in stratospheric ozone caused by ODS increases have been an important contributor to observed **stratospheric cooling**.
  - New studies find that ODSs thereby contributed approximately one third of the observed cooling in the upper stratosphere from 1979 to 2005, with two thirds caused by increases in other GHGs.
- **Influence on surface climate and oceans:** Lower stratospheric cooling due to ozone depletion has very likely been the dominant cause of late 20th century changes in Southern Hemisphere climate in summer. These changes include the observed pole ward shift in Southern Hemisphere tropospheric circulation, with associated impacts on surface temperature and precipitation.
  - Changes in tropospheric circulation driven by ozone depletion have contributed to recent trends in Southern Ocean temperature and circulation; the impact on Antarctic sea ice remains unclear.

**Future Global Ozone changes:** The key drivers of future ozone levels continue to be declining ODS concentrations, upper stratospheric cooling because of increased GHGs, and the possible strengthening of the **Brewer-Dobson circulation** (a model which attempts to explain how tropical air has less ozone than polar air, even though the tropical stratosphere is where most atmospheric ozone is produced) from climate change.

- **CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O will be the main drivers** of 60°S–60°N stratospheric ozone changes in the second half of the 21st century. These gases impact both chemical cycles and the stratospheric overturning circulation, with a larger response in stratospheric ozone associated with stronger climate forcing.

- Given that ODS levels are expected to decline slowly in coming years, a large **enhancement of stratospheric sulphate aerosol in the next decades** would result in additional chemical ozone losses. Possible sources of additional stratospheric sulphate aerosol include volcanic eruptions (like Mt. Pinatubo in 1991) and geoengineering.

### Why Montreal Protocol Worked?

The Montreal Protocol is one of the most successful and effective environmental treaties ever negotiated and implemented. No single factor led to its success.

- Approach of Cooperation:** From the start, negotiation relied heavily on leadership and innovative approaches. Much negotiation was held in small, informal groups. This enabled a genuine exchange of views and the opportunity to take some issues on trust, such as the subsequent development of the **Multilateral Fund**. The people negotiating the treaty also included scientists, which lent credibility.
- Principles based:** The “**precautionary principle**”, and the **concept of common, but differentiated, responsibility** took root in the **Montreal Protocol** when developing countries were given longer time to phase-out ODS.
- Flexibility to accommodate newer information:** This flexibility meant the protocol could be amended to include stricter controls: more ozone-depleting substances added to the control list and total phase-out, rather than partial phase-out, called for. Starting out modestly also encouraged a greater confidence in the process.
- Trade Provisions and restrictions:** These limited the signatories to trade only with other signatories. This increasingly limited the supplies of CFCs and other ozone-depleting substances (ODS) to non-signatories countries which forced them to ratify the Protocol.
- Clear List of Targeted Sectors:** The chemicals and sectors (refrigeration, primarily) involved are clearly articulated. This let governments prioritise the main sectors early.
- Incentive to Industry:** The Montreal Protocol also provided a stable framework that allowed industry to plan long-term research and innovation. Transitioning to newer, reasonably priced formulations with lower- or no-ozone depleting potential benefited the environment and industry.
- Institutional Support:** Another feature of the protocol has been the expert, independent **Technology and Economic Assessment Panel** (and its predecessors). These have helped signatories reach solid and timely decisions on often-complex matters. They have given countries confidence to start their transition.
  - The **Multilateral Fund** has been another reason for the protocol’s success.
    - ✓ It provides **incremental funding for developing countries** to help them meet their compliance targets.
    - ✓ Significantly, it has **also provided institutional support**. This helps countries build capacity within their governments to implement phase-out activities and establish regional networks so they can share experiences and learn from each other.
- Compliance Procedure:**
  - This was designed from the outset as a **non-punitive procedure**. It prioritised helping wayward countries back into compliance.

#### Vienna Convention for the Protection of the Ozone Layer [1985]:

- It acts as a framework for the international efforts to protect the ozone layer.
- It paves the way for a legally binding treaty through protocol called Montreal protocol.

#### Montreal Protocol [1987]

- It aims at reducing the production and consumption of ozone depleting substances (ODS).
- It has been ratified by 197 parties making it **universally ratified protocol** in United Nations history.

#### Kigali agreement to amend the Montreal Protocol [2016]

- Its aim is to phase out Hydrofluorocarbons (HFCs), a family of potent greenhouse gases by the late 2040s.
- It will be binding on countries from 2019.

#### Concerns expressed in the Assessment Report

- The decrease of chlorine from controlled substances has partly been offset by increases in the mainly natural CH<sub>3</sub>Cl and mainly anthropogenic very short-lived gases, which are not controlled under the Montreal Protocol.
- Global CFC-11 emissions, increased after 2012.
- Unexpected stable or even increasing emissions of some of the low abundance (less than 20 ppt) CFCs (CFC-13, CFC-113a, CFC-114, CFC-115) between 2012 and 2016.
- Total chlorine from HCFCs has continued to increase in the atmosphere since the last Assessment and reached 309 ppt in 2016.
- Halogenated VSLs substances contribute to stratospheric chlorine and bromine loading and are not controlled by the Montreal Protocol. Chlorinated VSLs are predominantly of anthropogenic origin, while brominated VSLs have mainly natural sources.

- Developing countries work with a UN agency to prepare an action plan to get themselves back into compliance. If necessary, resources from the Multilateral Fund are available for some short-term projects.
- It is telling that all 142 developing countries were able to meet the 100% phase-out mark for CFCs, halons and other ODS in 2010.

**Way Forward:** The Assessment, which is intended to add to the scientific basis for decisions made by the Parties to the Montreal Protocol, also presents updated scenarios for hastening ozone recovery through:

- Complete elimination of controlled and uncontrolled emissions of substances such as carbon tetrachloride and dichloromethane.
- Bank recapture and destruction of chlorofluorocarbons (CFCs), halons, and hydrochlorofluorocarbons (HCFCs).
- Elimination of HCFC and methyl bromide production.
- Mitigation of nitrous oxide emissions.
- Focus on achieving the Kigali Targets.

## 5.3. CONVENTION ON BIOLOGICAL DIVERSITY

### Why in News?

Recently, Conference of the Parties (COP 14) to the Convention on Biological Diversity (CBD) was held, adopting **Sharm El-Sheikh Declaration**.

### Highlight of COP-14

- **Adoption of Sharm El-Sheikh Declaration on Investing in Biodiversity for People and Planet.**
  - Governments commit to mainstream biodiversity through, integrating biodiversity values in legislative and policy frameworks, and development and finance plans.

### Other Important Highlight

- **New Deal for Nature:** It is an agreement on a comprehensive and participatory process to develop post-2020 global biodiversity framework to further achieve the 2050 Vision for Biodiversity.
- **Launch of International Alliance of Nature and Culture** to advance work on biological and cultural diversity in collaboration with the United Nations Educational, Scientific and Cultural Organization (**UNESCO**) and indigenous peoples and local communities.
- It called for UN General Assembly to designate 2021 to 2030 as the **UN Decade of Ecosystem Restoration**.

### Convention on Biological Diversity (CBD)

- Aim: To promote the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.
- It's a near universal convention with a participation of 196 member countries.

### Protocols adopted under the Convention.

- **Cartagena Protocol on Biosafety:** It seeks to protect biological diversity from the potential risks posed by **living modified organisms** resulting from modern biotechnology.
- **Nagoya Protocol on Access and Benefit Sharing:** It aims at sharing the **benefits arising from the utilization of genetic resources** in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies.

## 5.4. EFFECTS OF CLIMATE CHANGE ON THE OCEAN

### Why in News?

According to a recent study, all oceans in the world are heating up **60 per cent faster** than what IPCC had stated in its Fifth Assessment report.

### Background

- According to IPCC Fifth Report, world's oceans have absorbed 90% of the temperature rise caused by man-made carbon emissions, while only 1% in the atmosphere.
- IPCC had recommended a 20 per cent cut in climate emissions by 2030 and then finishing them completely by 2075 to keep global warming from exceeding 2 degrees Celsius above preindustrial levels.

# CLIMATE CHANGE

## EFFECTS ON MARINE BIODIVERSITY AND LOCAL COMMUNITIES

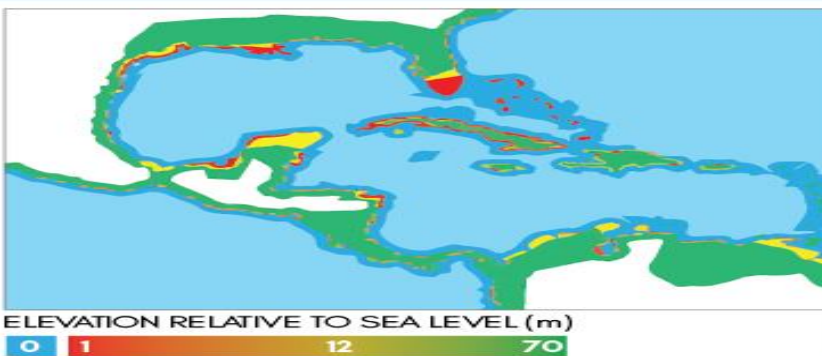
Climate change is affecting the world's oceans modifying their temperature, nutrient supply, water chemistry, wind systems, and ocean currents, dramatically impacting marine biodiversity. The situation is no different in the Mesoamerican Reef, the second largest reef in the world.

Climate change is exacerbating anthropogenic (e.g., water pollution, land run off, overfishing) and natural (e.g., storms, coral disease) threatening the heart of Caribbean culture and economies.



### VULNERABILITY TO SEA LEVEL RISE

Numerous model predictions foresee a sea level rise of 1 additional meter by 2100, which would displace millions of people and would cause billionaire losses in infrastructure.



### Way forward

- **Limiting greenhouse gas emissions:** There is an urgent need to achieve the mitigation targets set by the Paris Agreement on climate change and hold the increase in the global average temperature to well below 2°C above pre-industrial levels. This will help prevent the massive and irreversible impacts of growing temperatures on ocean ecosystems and their services.
- **Protecting marine and coastal ecosystems:** Well-managed protected areas can help conserve and protect ecologically and biologically significant marine habitats. This will regulate human activities in these habitats and prevent environmental degradation.
- **Restoring marine and coastal ecosystems:** This can include building artificial structures such as rock pools that act as surrogate habitats for organisms, or boosting the resilience of species to warmer temperatures through assisted breeding techniques.
- **Improving human adaptation:** for example by setting precautionary catch limits and eliminating subsidies to prevent overfishing. Coastal setback zones which prohibit all or certain types of development along the

shoreline can minimise the damage from coastal flooding and erosion. New monitoring tools can be developed to forecast and control marine disease outbreaks.

- **Strengthening scientific research:** Governments can increase investments in scientific research to measure and monitor ocean warming and its effects. This will provide more precise data on the scale, nature and impacts of ocean warming, making it possible to design and implement adequate and appropriate mitigation and adaptation strategies.

## 5.5. DROUGHT DECLARATION IN INDIA

### Why in news?

Despite persisting drought like conditions, many states did not declare, officially, the drought.

### More on news

- The India Meteorological Department (IMD) declared that 255 districts (31% of the districts in India) of the country recorded deficient (-59 to -20 per cent) or scanty (-99 to -60) rainfall, thus facing drought like conditions.
- More than 50 per cent of the districts in Bihar, Jharkhand, West Bengal, Gujarat, Tamil Nadu, Meghalaya, Karnataka, Arunachal Pradesh and Goa received deficient rainfall.
- Some states, including Maharashtra, Karnataka, Odisha, Andhra Pradesh, Bihar and Jharkhand declared drought.
- However, Gujarat, where 67 per cent of districts received deficient rainfall, is yet to declare a drought. Assam has received -26 per cent of deficit rainfall but not yet declared drought districts.

According to IMD's earlier classification, "when the rainfall deficiency is more than 10% and when 20-40% area of the country is under drought conditions, then the year is termed as an All India Drought Year".

However in 2016, IMD replaced the word "drought" to describe poor rainfall with "deficient year" and "large deficient year" as described below

UPDATED NOMENCLATURE		
New terminology		Old terminology
Normal	Normal	Percentage departure of realized rainfall is within $\pm 10\%$ of the Long Period Average
Below Normal	Below Normal	Percentage departure of realized rainfall is $<10\%$ of the Long Period Average
Above Normal	Above Normal	Percentage departure of realized rainfall is $>10\%$ of the Long Period Average
Deficient Year	All India Drought year	When the rainfall deficiency is more than 10% and 20-40% area of the country is under drought conditions
Large Deficient year	All India Severe Drought Year	When the rainfall deficiency is more than 10% and when the spatial coverage of drought is more than 40%

### Reason behind unwillingness of states to declare drought

- The 2016 manual not only has made the **parameters to declare drought complex and stringent**, but has also **limited Centre's scope to offer financial assistance to states** in the eventuality of a drought. The Centre will only provide funds under National Disaster Response Fund (NDRF) to state governments in case of "Severe" drought.
- Since the yardstick to measure the severity of drought is stricter, the new conditions make it **more difficult for the states to prove "severe" drought** and get relief from the Centre. This is a double whammy for most states as they **lack drought early warning systems**.
- The 2009 norms were supportive of states as they could get the Centre's assistance even if they suffered "moderate" drought. Although the new norms don't prevent states to put a drought-hit region under the "moderate" category, the states, however, will have to pay for the relief from their own budget.
- After protest by various states, however, a 29th May 2018 Amendment to the Drought Manual, 2016 says that a state can ask for assistance for even a moderate category drought provided it is unable to meet drought relief through SDRF.

### Declaration of Drought

The **Manual for Drought Management, released in December 2016** by the Union Ministry of Agriculture and Farmers Welfare, prescribes "new scientific indices and parameters" for a "more accurate assessment of drought" in the country.

The manual lists **five categories of indices**, which include rainfall, agriculture, soil moisture, hydrology, and remote sensing (health of crops).

**Rainfall is considered to be the most important indicator** and therefore related meteorological data should be mandatorily considered in making any assessment of drought. The other indices are to be evaluated in conjunction with the rainfall related data to assess the impact of rainfall deficiency.

#### Matrix for impact indicators to considered for Drought declaration

Mandatory Indicators		Impact Indicators			
Rainfall Indices		Agriculture	Remote Sensing	Soil Moisture	Hydrology
Rainfall Deviation (RFdev) or Standardized Precipitation Index (SPI)	Dry Spell	Crop Area Sown	Vegetation Condition Index (VCI) or Normalized Difference Vegetation Index (NDVI) Deviations	Percent Available Soil Moisture (PASM) / Moisture Adequacy Index (MAI)	Stream-Flow Drought Index (SFDI) / Reservoir Storage Index (RSI) / Groundwater Drought Index (GWDI)

The States may consider any three of the four types of the Impact Indicators (one from each) for assessment of drought, the intensity of the calamity and make a judgement.

The intensity of the drought will be contingent upon the values of at least three out of four Impact Indicators viz, Agriculture, Remote Sensing, Soil Moisture and Hydrology in the following manner:

- **Severe drought:** if at least 2 of the selected 3 impact indicators are in Severe category and one is in Moderate category
- **Moderate drought:** if at least two of the selected 3 impact indicators are in 'Moderate' category.
- **Normal:** for all other cases.

The **State Governments declare drought** through a notification specifying clearly the geographical extent and administrative units such as Gram Panchayats, Blocks, Mandals, Taluks, Subdivision, Districts. Such notification should also indicate the level of severity of the drought (moderate or severe).

- The **State has an option to reduce the drought category by one rank** (i.e. Severe to Moderate) if the irrigation percentage of the administrative region (District/Taluk/Block/Mandal), for which drought is being declared is more than 75%. However, in such a situation of reduction of drought intensity from 'Moderate' to 'Normal', the **State Government will still be required to conduct field verification**.

#### Characteristics of Drought that make it a challenging Hazard

Drought is a complex phenomenon as it involves elements of meteorology like precipitation, evaporation, evapotranspiration, ground water, soil moisture, storage and surface run-off, agricultural practices, particularly the types of crops grown, socio-economic practices and ecological conditions. **Drought differs from other natural hazards** such as cyclones, floods, earthquakes, volcanic eruptions, and tsunamis in that:

- **Lack of Uniform Definition:** There is no universally accepted definition that can encapsulate the complexity of this phenomenon adequately.
- **Forecasting:** It is difficult to determine the beginning and end of a drought episode because of the slow, 'creepy' onset, silent spread and gradual withdrawal. In India, it is generally considered to be coterminous with the monsoons.
- **Temporal and Spatial Extent:** An episode could spill over months or even years with or without any accompanying shift in the geographical arena.
  - Spatial expanse tends to be far greater than in the case of other natural calamities, which when compounded by the difficulties associated with the impact assessment of the disaster, makes effective response highly challenging.
- **Measurement of Severity of Drought:** There is no indicator or index which can precisely forecast the advent and severity of a drought event, nor project its possible impacts.
- **Difficulty in Impact Forecast:** Impacts are generally non-structural and difficult to quantify e.g. the damage to the ecology, the disruption of socio-economic fabric of communities, the long term effects of mal-nutrition on health and morbidity etc.
- The impact tends to get magnified in the event of successive droughts.



**For agriculture**, Climate is not always the immediate reason for drought, though it can aggravate the drought precipitation. **Some of the factors which can decide drought vulnerability and potential crop losses include-**

- Crop MSP (Minimum Support Prices), availability of Credit and Crop Insurance;
- Alternative livelihood, in particular, non-farm employment avenues (e.g. MGNREGA);
- Development of Water Storage Infrastructure, in particular, farm ponds and water harvesting infrastructure;
- Drought forecasting and interventions to deal with water shortages.

In short, drought vulnerability depends on socio- economic factors and status of farmers, and the institutional support extended to them. All of these are now part of National Policy on Sustainable Agriculture.

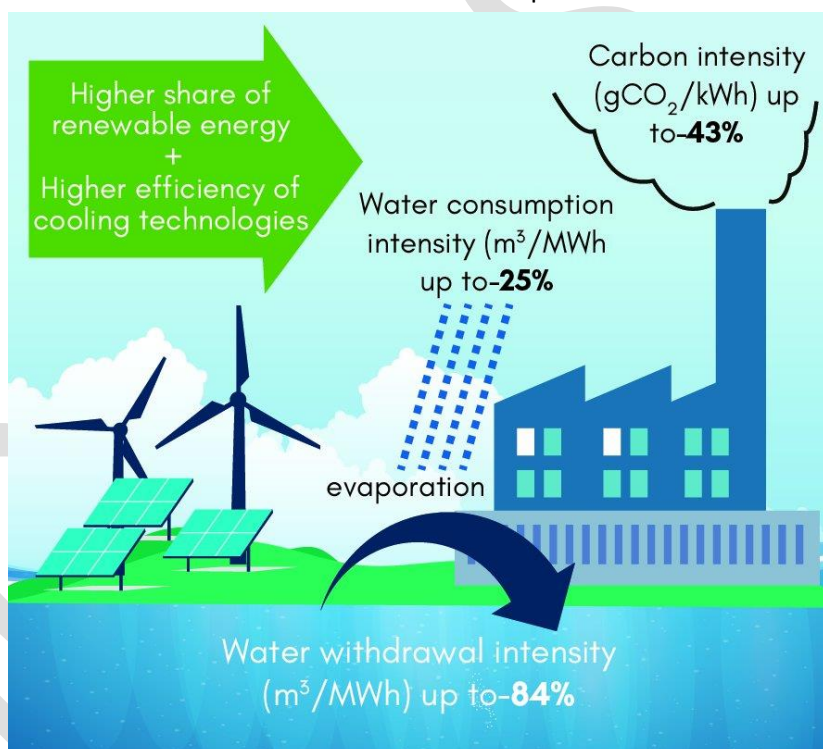
## 5.6. WATER USE IN INDIA'S POWER GENERATION

### Why in news?

IRENA has come up with a study, titled 'Water Use in India's Power Generation: Impact of Renewables and Improved Cooling Technologies to 2030'.

**Summary of the Study:** It examines the impact of changes in cooling technologies mandated for thermal power plants and an increased share of renewable energy, on freshwater use (excluding hydropower) and on carbon emissions to year 2030.

- **The power sector contributes to and is affected by water stress** in the areas where plants are located. Power generation is expected to account for nearly 9% of national water consumption by 2050 (in a business as-usual scenario). Coupled with continuing thermal and renewable capacity development, **total water consumption in 2030 is estimated to increase by up to 4 billion cubic metres.**
- **There is a mismatch between water demand and supply** considering usable surface water capacity and replenishable groundwater levels.
- **The combination of improved power plant cooling technologies and renewable energy technologies**, especially solar PV and wind, could lessen the intensity of freshwater use and carbon intensity of the power sector as shown in infographic.
- Simultaneously, phasing out once-through cooling technologies at existing power plants and restricting their installation at new thermal plants, through enforcement of the announced regulatory water use standards, will substantially reduce water withdrawal.



**Energy and Water Interlinkages:** A major share of India's electricity (85%) is generated from fossil fuel (coal and natural gas) and nuclear plants, which rely significantly on freshwater for cooling purposes.

- **As per the World Resources Institute (WRI) working paper published in January'18,**
  - India's 90% thermal plants rely on freshwater for cooling and 40 per cent of these plants are located in areas of high or extremely high water stress.
  - Freshwater consumption from Indian thermal utilities grew by 43 percent from 2011-2016, from 1.5 to 2.1 billion cubic meters a year.
  - In 2016 alone, water shortages cost India about 14 terawatt-hours of potential thermal power generation, cancelling out more than 20 percent of the growth in the country's total electricity generation from 2015.

### Why it's a concern?

- Natural water supply sources are subject to increased overuse leading to resource depletion. WRI's India Water Tool 2015 shows that 54% of India's groundwater wells face high to extremely high water stress. This is caused by erratic rainfall, irrigation pumps that run on subsidised electricity and unsustainable management of groundwater.
- According to Central Water Commission, 2015 Report, the energy sector's relative water consumption is projected to grow from 1.4% to 9% between 2025 and 2050 (from 15 billion m<sup>3</sup> to 130 billion m<sup>3</sup> annually).
- The mismatch between demand and supply could **affect the availability of water for different end uses**, increasing risk of competition, particularly in water-constrained areas. Furthermore, as demand increases, water will need to be pumped from sources further away or from deeper underground, thus **increasing energy demand**. In India, for example, **energy now comprises about 90% of the cost of groundwater**.

### Government Initiatives

- In response to growing concern over water shortage, the Ministry of Environment, Forest and Climate Change (MoEF& CC) published the rules in 2015 to reduce and standardize the water consumption by all existing as well as future thermal power plants.
- In its **Nationally Determined Contribution (NDC)**, India committed to increasing the share of non-fossil sources in its installed power capacity to 40% by 2030. India has a related target of 175 gigawatts (GW) of renewable capacity by 2022, including 100 GW of solar PV and 60 GW of wind.

If these ambitious policies are enacted and enforced, the WRI estimates that India will save 12.4 billion cubic meters of freshwater from being withdrawn by power plants.

**Way Forward: India's energy demand is expected to double, while electricity demand is expected to almost triple by 2030 compared to 2014** leading to absolute increases in water consumption and carbon dioxide emissions. However, the lower intensity values achieved through improved cooling technologies and higher shares of solar PV and wind will help realise relative savings in both water and carbon.

- The current water withdrawal intensity of India's power sector (excluding hydroelectricity) is largely driven by thermal power plants using once-through cooling systems. Withdrawal intensity could be reduced by **upgrading plant cooling technology** such as dry cooling and by supporting the **development of less water-intensive generation** technologies.
  - For instance, the operational withdrawal intensity of solar PV in India is around 0.08 m<sup>3</sup> /MWh (primarily related to panel cleaning), which is only 0.5% of the thermal average, while for wind, the water withdrawal is zero.
- **Power plant efficiency improvements**, based on India's new draft National Electricity Plan, 2016, also contribute, although less significantly than other factors.
- Power plants should also be located in places where they will rely not on freshwater resources, but instead on saline, brackish, or reclaimed water.
- It is also important to select the **right types of plants** at the planning stage. **Alternative cooling technologies** for power generation, including dry or hybrid cooling, can reduce water consumption (though the use of such technologies currently is constrained by efficiency losses and higher costs).

## 5.7. ATMOSPHERE & CLIMATE RESEARCH-MODELLING OBSERVING SYSTEMS & SERVICES (ACROSS)

### Why in News?

The Cabinet Committee on Economic Affairs (CCEA) has approved continuation of the scheme "**Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)**" during 2017-2020 and establishment of **National Facility Airborne Research** during 2020-21 and beyond.

### 9 Sub-scheme Under ACROSS

- Atmospheric, Climate Science and Services
- Numerical Modeling of Weather & Climate
- Physics and Dynamics of Tropical Clouds
- Agro Meteorology
- Aviation Services
- Center for Atmospheric Technology
- High Impact Severe Weather Warning System
- Metropolitan Air Quality and Weather Service
- Monsoon Mission of India

## What is ACROSS?

- ACROSS scheme pertains to the atmospheric science programs of the Ministry of Earth Sciences (MoES) and addresses different aspects of weather and climate services, which includes warnings for cyclone, storm surges, heat waves, thunderstorms etc. It was started in 2012.
- Each of these aspects is incorporated as nine sub-schemes under the umbrella scheme "**ACROSS**" and is implemented in an integrated manner through the four institutes - India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), National Centre for Medium Range Weather Forecasting (NCMRWF) and Indian National Centre for Ocean Information Service (NCOIS).

## National Facility for Airborne Research (NAFR)

- NAFR comes under Indian Institute of Tropical Management (IITM), Pune. Under this a state of the art research aircraft equipped with instruments will be used for atmospheric research.
- It will take simultaneous measurements of aerosols, trace gases, cloud microphysics and large scale meteorological parameters at high temporal resolution and at different altitudes in different seasons over the Indian sub-continent.
- **Significance of NAFR** lies in the fact that it deals with **airborne measurements** which are extremely important for aerosol sampling, measurement of cloud properties, cloud physics, etc. which in turn is used for assessing air pollution and its associated impacts. Also, Aircraft probing and surveillance enables the **observation of upper air phenomena**, especially cloud aerosol interaction.

## 5.8. MEASURING NATURAL CAPITAL

### Why in news?

**Envistats India 2018** report by the **Ministry of Statistics and Programme Implementation (MOSPI)**, it had revealed that India's economic growth took a toll on its natural assets like forests, food and clean air.

### More on news

- The average growth rate of gross state domestic product (GSDP) during 2005-15 for almost all the states was around 7-8 per cent but **11 states registered a decline in their natural capital**.
- This model of economic growth **may not let the country sustain the rate of development for long**. Monitoring the natural capital is important and should be one of the determiners for sustainable development.
- According to MOSPI, **the assessment of natural assets** is a reminder of how important is sustainable use of natural resources and is likely to propel India on the path of compilation of ecosystem accounts.
- The **natural capital accounting (NCA) method** has been used in this report, to account for income and costs associated with natural resource used, based on a

### Natural Capital

- It includes those elements of the nature that provide valuable goods and services to humans, such as the stock of forests, food, clean air, water, land, minerals, etc.
- It incorporates a broad perspective on the set of services provided by ecosystems assets.
- It is essential for economic growth, employment, and, ultimately, prosperity.

### Natural Capital Accounting, or environmental-economic accounting

- It is a tool that can help to gain an understanding of the interaction between the economy and the environment.
- It can be used to measure the state of ecosystems, flows of ecosystem services as well as changes in stocks and flows of natural resources in relation to economic changes.

### System of Environmental-Economic Accounting (SEEA)

- It is a **statistical system** that brings together economic and environmental information into a common framework to measure the condition of the environment, the contribution of the environment to the economy and the impact of the economy on the environment.
- It **organizes and presents statistics on the environment** and its relationship with the economy.

### Natural Capital Accounting and Valuation of Ecosystem Services

- The United Nations Statistics Division, UNEP, the Secretariat of the Convention on Biological Diversity, and the European Union have launched this project.
- The project is funded by the European Union, aims to assist the five participating partner countries, namely **Brazil, China, India, Mexico and South Africa**, to advance the knowledge agenda on environmental and ecosystem accounting.
- The project review policy demands, data availability and measurement practices in order to advance and mainstream natural capital accounting and initiate pilot ecosystem accounts in each of the five strategic partner countries.

framework approved by the United Nations in 2012 called the **System of Environmental Economic Accounts (SEEA)**.

### Why does natural capital matter for economic growth?

- GDP only looks at one part of economic performance output but tells us nothing about income in the long term, thus is an incomplete assessment of country's economic wellbeing. For example, when a country exploits its minerals, it is actually using up its finite mineral wealth.
- A full picture of a country's wealth obtained through a methodology called '**wealth accounting**' (including **natural capital accounting**) includes all assets that contribute to our economic wellbeing, from buildings and factory machines, to infrastructure, human and social capital, and natural capital.
- Natural capital is **especially important to many developing countries** because it makes up a large share of their total wealth some 36 percent and the livelihoods of many subsistence communities depend directly on healthy ecosystems.
- Currently **GDP ignores natural capital**. In forestry, for example, timber resources are counted, but forest carbon sequestration is not. Other services, like water regulation that benefits crop irrigation, are hidden and the value is (wrongly) attributed to agriculture in a country's GDP.
- Several countries are compiling **natural capital accounts (NCA)** to make economic decision making on natural resources an informed process. They want to use NCA as the basis for compiling indicators to monitor progress of sustainability policies.
- India is participating in the **Natural Capital Accounting and Valuation of Ecosystem Services project**.

### How are natural capital accounts used?

- **Support inclusive development and better economic management:** For example, land and water accounts can help countries interested in hydropower to assess the value of competing land uses and find the optimal solution.
- **For Economic Growth:** Ecosystem accounts can help biodiversity-rich countries manage the tradeoffs between ecotourism, agriculture, subsistence livelihoods, and ecosystem services like flood protection. In this way, ecosystem accounting is a tool for maximizing economic growth while identifying who benefits and who bears the cost of ecosystem changes, helping governments gauge whether their growth is inclusive.

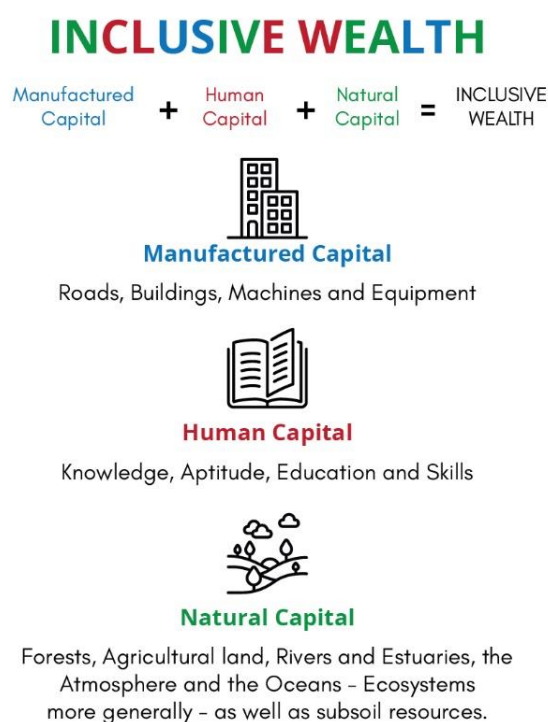
## 5.9. INCLUSIVE WEALTH REPORT

### Why in News?

The inclusive wealth of **one-third of the countries in the world has declined**, but their **gross domestic product (GDP) has increased**, finds the Inclusive Wealth Report 2018 presented by the UN Environment.

### Highlights of the Report

- **About the Index:** The Inclusive Wealth Report is a biennial report that seeks to evaluate and report on a country's wealth and wellbeing through the Inclusive Wealth index (IWI). IWI is intended as a replacement to Gross Domestic Product (GDP) and the Human Development Index (HDI) which assesses a nation's ability to look after its wealth in a way that is sustainable and safeguards its future generations.
- **Methodology:** It does this through tracking **the progress of 140 countries** that make up the lion's share of the global economy and population. The changes in the inclusive wealth of 140 countries are calculated by annual average growth rates over the past 25 years, and 1990 is set as a base year.



- **Inclusive Wealth and SDG:** The report demonstrates that assessing and valuing natural capital and the change in per capita inclusive/comprehensive wealth over time has the potential to keep **track of progress on most Sustainable Development Goals (SDGs)**. It considers the **relationship between inclusive wealth and the SDGs**, arguing that governments need to have a way to check whether or not the economic measures they take to meet the SDGs jeopardize the sustainability of the Goals.

#### United Nations Environment Programme (UN Environment)

- It is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment.
- Its headquarters are in **Nairobi, Kenya**.

measures they take to meet the SDGs jeopardize the sustainability of the Goals.

- **Global Structure of Capital:** As of 2014 has composed of **produced capital (21%), human capital (59% of which 26% education induced human capital and 33% is health induced human capital), and natural capital (20%)**.
- **Growth rate:** The global level growth of each of the three capitals over the study period indicate that produced capital was growing at an average rate of 3.8% per year and health and education induced human capital was growing at 2.1%. Contrary, natural capital was decreasing at a rate of 0.7% per annum.

## 5.10. POLLINATORS

### Why in News?

According to a recent studies, high levels of pollution is having negative effects on plants and insects, resulting into **decline of pollinator species**.

### Importance of pollinators and pollination

- **Regulating ecosystem service in nature:** Globally, nearly 90 per cent of wild flowering plant species depend, at least in part, on the transfer of pollen by animals.
- **Food Security:** Pollinator-dependent crops contribute to 35 per cent of global crop production volume.
- **Health:** Pollinator-dependent food products are important contributors to healthy human diets and nutrition.
- **Cultural Importance:** Pollinators serve as important spiritual symbols in many cultures. Sacred passages about bees in all the worlds' major religions highlight their significance to human societies over millennia.
- **Economic Importance:** According to **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)**, pollinator contributed \$0.831-1.5 billion annually for just six vegetable crops in India.

- **Pollination: It's a process** is based on the ecological principle of species inter-relationship known as **protocooperation**, between plants and pollinators.
- **Pollinators** are external agents which help in the transfer of pollen grains from one flower to another of the same or another plant of the same species. There are two types of crop pollinators found in nature:
  - **Abiotic pollinating agents** are wind, water, and gravity. Many agricultural crops, especially those that produce dry pollen such as rice, wheat, maize, millet, chestnuts, pecan nuts, and walnuts are successfully pollinated by wind.
  - **Biotic pollination agents** include insects, birds, and various mammals. Among insects, bees, flies, beetles etc.

#### IPBES

- Often described as the "IPCC for biodiversity" IPBES is an independent intergovernmental body comprising 129 member Governments.
- It provides policymakers with objective scientific assessments about the state of knowledge regarding the planet's biodiversity, ecosystems and the contributions they make to people, as well as the tools and methods to protect and sustainably use these vital natural assets.

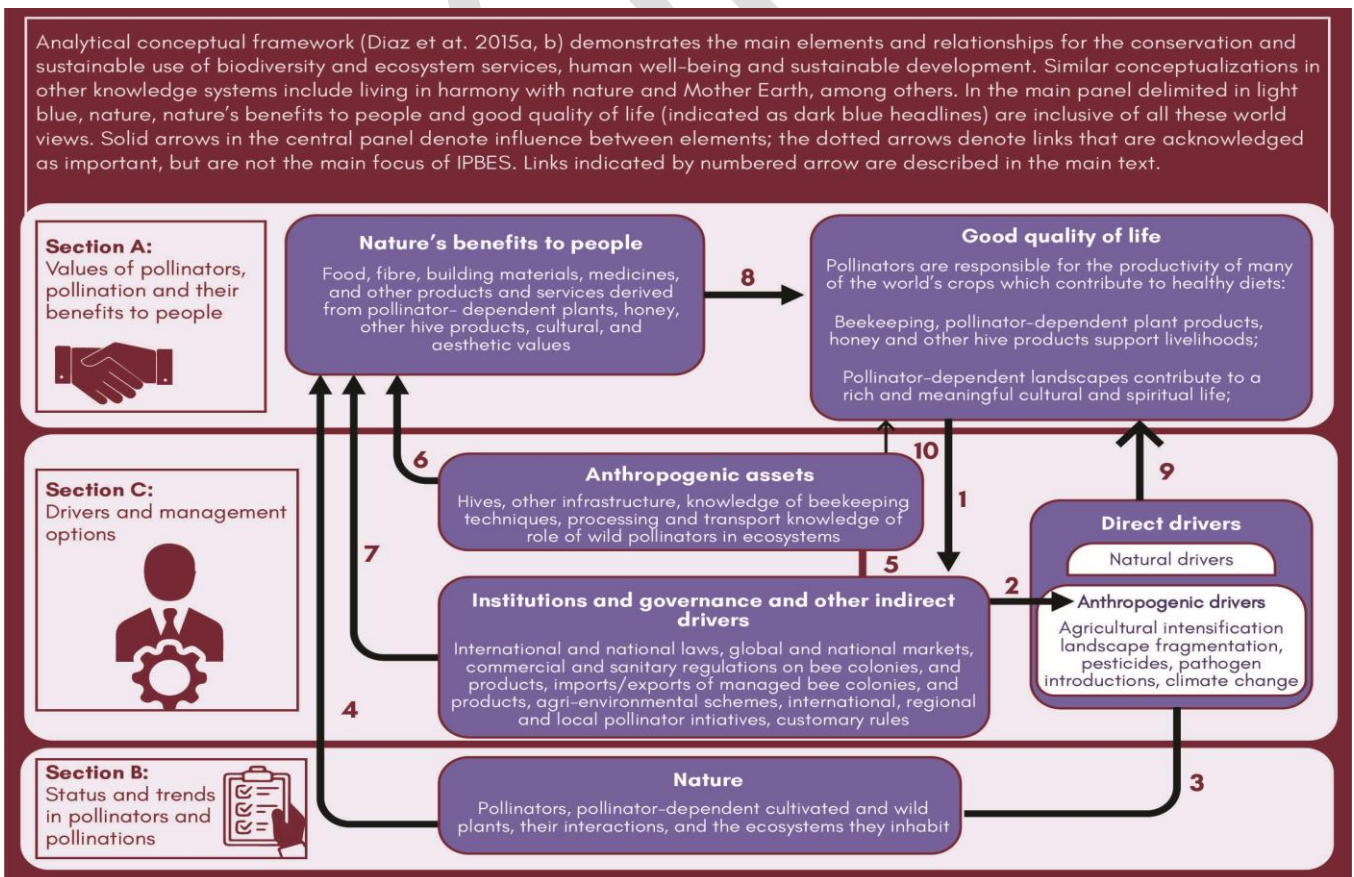
### Sources of Threats to Pollinators

- **Environment pollution:** Pollutants in the air, water and land affect the physiology and behavior of the insects.
- **Anthropogenic factor** like disturbance, degradation, fragmentation, shrinkage, and the loss of habitat
- **Impact of introduced species:** Alien invasive plants may impact negatively on insect biodiversity by changing habitat quality, outcompeting native host plants, and interrupting vital ecological interactions.
- **Increase in mono-cropping:** The transformation of agriculture from traditional mixed crop farming to high value cash crop farming has led to an increase in monocrop agriculture, resulting in reducing the food sources for natural insect pollinators.
- **Forest fires:** It destroy the habitat, food sources and pollinators nesting in the area.
- **Honey hunting:** An increase and ruthless hunting of the nests of wild honeybees is contributing to the decline in the population of indigenous honeybees.

- **Pesticides:** Use of pesticides, including insecticides and herbicides, is detrimental to a healthy community of pollinators.

### Way Forward

- **Enabling policies and strategies:** Develop and implement coherent and comprehensive policies that enable and foster activities to safeguard and promote wild and managed pollinators, to be integrated into the broader policy agendas for sustainable development
- **Protect and promote indigenous and traditional knowledge,** innovations and practices related to pollinators and pollination and support participatory approaches to the identification of diagnostic characteristics for new species and monitoring.
- **Control the trade and movement of managed pollinators:** Monitor the movement and trade of managed pollinator species, sub-species and breeds among countries and within countries to Prevent and minimize the risk of introducing invasive alien species.
- **Promote connectivity, conservation, management and restoration of pollinator habitats** by preserving pollinators and habitats distributed in natural areas, including forests, grasslands and agricultural lands, urban areas and natural corridors, to enhance the availability of floral resources and nesting sites over time and space.
- **Promote sustainable beekeeping and bee health:** By promoting better availability and husbandry of floral resources, therefore improving pollinator nutrition and immunity to pests and diseases.
- **Practicing Sustainable Agriculture Practices:** Exposure of pollinators to pesticides can be decreased by promoting **Integrated Pest Management** supported by educating farmers, organic farming and policies to reduce its overall use.
  - **Ecological Intensification:** Managing nature’s ecological functions to improve agricultural production and livelihoods while minimizing environmental damage.
  - **Strengthening Existing Diversified Farming Systems:** to foster pollinators and pollination through practices validated by science or indigenous and local knowledge (e.g., crop rotation
  - **Investing in ecological infrastructure by protecting,** restoring and connecting patches of natural and semi-natural habitats throughout productive agricultural landscapes.



## 5.11. GREATER FLAMINGOES

### Why in news?

Greater Flamingoes have been spotted on the Coast of Hope Island, a part of the Coringa Wildlife Sanctuary, after a gap of 25 years.

### About Coringa Wildlife Sanctuary (CWLS):

- It is situated in Andhra Pradesh near confluence of Godavari and Bay of Bengal and houses the second largest mangroves forest in India.
- The Hope Island, Kakinada Port and CWLS come within Coastal Circuit theme of Swadesh Darshan Scheme of Ministry of Tourism.
- Historically, Coringa has been a major port city which was used for the export of manpower during the time of British to Malaysia. The successors of those migrants are called Korangis there.

### About Greater Flamingoes

- These come under 'Least Concern' category of IUCN Red List.
- They prefer shallow brackish lakes & use mudflats & saltpans for nesting.
- They are the indicators of healthy coastal environment.
- They are filter feeders (take prey and water together and then filter out water) and get their characteristic pink colour from their diet of brine shrimps and algae available in the coastal wetlands.

“ The Secret To Getting Ahead Is Getting Started ”



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# 6. SCIENCE & TECHNOLOGY

## 6.1. HYPERSPECTRAL IMAGING SATELLITE (HYSIS)

### Why in News?

- ISRO's PSLV C43 launched **India's first Hyperspectral Imaging Satellite (HysIS)** along with 30 foreign satellites from Satish Dhawan Space Centre, Sriharikota.
- HysIS is an earth observation satellite built around ISRO's Mini Satellite-2 (IMS-2) bus.
- **About the Hyperspectral Imaging Technology**
  - It combines the power of **digital imaging and spectroscopy** to attain both spatial and spectral information from an object.
  - This result can be then used to identify, measure and **locate different materials and their chemical and physical properties**. Every pixel in the image contains a continuous spectrum (in radiance or reflectance) and can be used to characterize the objects in the scene with **great precision and detail**.
  - Hyperspectral images provide much more detailed information about the scene by dividing the spectrum into **many more bands than a normal color camera**, which only acquires three different spectral channels corresponding to the visual primary colors red, green and blue.
  - It was first tried by ISRO in an experimental satellite in May 2008 and later on Chandrayaan-1 mission for mapping lunar mineral resources, this is the first time a full-fledged hyperspectral imaging satellite has been launched.
- **Application**
  - **Hyperspectral remote sensing** is used for a range of applications like agriculture,

### Polar Sun-Synchronous orbit

It is a nearly polar orbit around a planet, in which the satellite passes over any given point of the planet's surface at the same local mean solar time.

### Geosynchronous orbit

It is an orbit around Earth of a satellite with an orbital period that matches Earth's rotation on its axis, which takes one sidereal day.

### Geostationary orbit

It is a circular geosynchronous orbit 35,786 km (22,236 mi) above Earth's equator and following the direction of Earth's rotation.

### Related Information

#### Spectral Imaging

It is imaging that uses multiple bands across the electromagnetic spectrum like using infrared, the visible spectrum, the ultraviolet, x-rays, or some combination of the above.

#### Hyperspectral imaging vs multi spectral imaging

- The main difference between multispectral and hyperspectral is **the number of bands and how narrow the bands are**.
- Hyperspectral imaging (HSI) uses **continuous and contiguous ranges of wavelengths** (e.g. 400 - 1100 nm in steps of 0.1 nm) whilst multispectral imaging (MSI) uses a **subset of targeted wavelengths at chosen locations** (e.g. 400 - 1100 nm in steps of 20 nm).
- Hyperspectral imagery consists of much **narrower bands (10-20 nm)**. A hyperspectral image could have hundreds or thousands of bands. In general, it comes from an imaging spectrometer.

**ISRO'S PSLV-C43**  
**LIFTS OFF WITH 31 SATELLITES**

- ▶ PSLV-C43 placed country's earth observation satellite Hyperspectral Imaging Satellite (HysIS) into 636 km-polar sun synchronous orbit
- ▶ Riding along with one micro & 29 nano satellites from eight different countries, including the US, Australia and Canada
- ▶ HysIS can provide imaging capabilities for a variety of purposes, including agriculture and forestry
- ▶ It carries two payloads: one to capture images in the visible near-infrared (VNIR) range of the light spectrum, & another in the shortwave infrared (SWIR) range

**Mission Life: 5 YEARS** | **PSLV-C43 is the 45TH flight of PSLV**



forestry, soil survey, geology, coastal zones, inland water studies, environmental studies, detection of pollution from industries and the military for surveillance or anti-terror operations.

- **Other utilities include** online industrial monitoring/sorting/classification to laboratory measurements, clinical instruments for medical diagnostic and airborne and satellite based remote sensing tools.
- **Challenges:** This technology is accompanied with **high cost and complexity**. There is a need for fast processing of data (fast computers), sensitive detectors and large data storage capacities for hyperspectral data.

## 6.2. GSLV-MK III D2

### Why in news?

Recently, ISRO launched satellite-**GSAT-29** through the launcher **GSLV-Mk III D2**.

### About the Launcher- GSLV-Mk III D2

- It is the **fifth generation, India's heaviest launch vehicle** designed to place satellites of up-to **4,000 kg into Geosynchronous Transfer Orbit (GTO)** or satellites weighing about 10,000 kg to a Low Earth Orbit (LEO).
- It is the **second launch of GSLV-Mk III**, which earlier in 2017 carried GSAT-19 satellite as the first development flight.
- It is a **three-stage heavy-lift rocket** with two solid fuel strap-on engines in the first stage, a **liquid propellant** core as second stage and a **cryogenic engine** for the third stage.
- The **cryogenic propellant system** in upper stage called the C25 engine, is an advanced version of cryogenic technology.
- The indigenous cryogenic C25 engine provides an unprecedented thrust power to GSLV rockets which **keeps fuel loads on the rocket relatively low**.

### Significance of GSLV-Mk III

- Its successful launch will provide a thrust to future space missions such as Chandrayaan 2, ISRO's moon and man missions etc.
- India is among six nations — apart from the US, Russia, France, Japan and China — to possess cryogenic engine technology. This launch will further expand ISRO's space programmes on several fronts such as commercial international space market.

### Significance of GSAT 29

- With a lift-off mass of 3423 kg, GSAT 29 is a multi-beam, multiband communication satellite of India and is the heaviest satellite launched from India.
- It will bridge the digital divide of users including those in Jammu & Kashmir and North Eastern regions of India.

## 6.3. INDIA-BASED NEUTRINO OBSERVATORY

### Why in News?

The National Green Tribunal (NGT) upheld the environmental **clearance granted to the India-based Neutrino Observatory (INO)**, a major research facility proposed in **Theni district of Tamil Nadu**.

### What is INO?

- It is one of the **biggest experimental particle physics projects** undertaken in India.
- The project includes:
  - construction of an **underground laboratory** and associated surface facilities at Pottipuram in Bodi West hills of Theni District of Tamil Nadu,
  - construction of an **Iron Calorimeter (ICAL) detector** for studying neutrinos, which will include the world's largest magnet, and
  - setting up of **National Centre for High Energy Physics at Madurai**, for the operation and maintenance of the underground laboratory, human resource development and detector R&D along with its applications.

### Why delays in clearance?

- NGT had **suspended environmental clearance (EC)** granted to INO and demanded the project to make a fresh application.
- MoEFCC categorized it as a **Category B project** for which Environmental Impact Assessment (EIA) is not necessary. However, **Madhikettan Shola National Park in Idukki district of Kerala** was just about 4.9 km from the proposed project site and the Tamil Nadu-Kerala border was just a km away, making it a Category "A" project
- Being located within 5 km of a wildlife sanctuary, it requires **specific approval by the National Board for Wild Life**
- **Potential ecological concerns**
  - Contamination of ground water due to leaching of chemicals
  - Negative impact on the aquifers and nearby dams due to the vibrations caused by blasting the rocks
  - Tectonic fracturing may make geological structure unstable, increasing vulnerability of already ecologically sensitive Western Ghats
  - If INO moves from studying atmospheric neutrino properties to probing accelerator-produced neutrinos, it would require precision underground facilities to contain radioactivity

### Significance of INO

- It will give a **boost to scientific studies in India** and encourage students to take up Science and Research as profession.
- It has been **gaining urgency** in the recent years with **China** announcing the construction of a similar **neutrino observatory in Jiangmen province**.
- Nicknamed the '**blueprint of nature**' by scientists, neutrinos are an important tool for mankind to learn how matter evolved from simple particles into more complex composites, creating everything around us.

### How neutrino research is useful?

- **Messengers of cosmic information**, as they travel large distances without much interaction. Can revolutionize the existing understanding of astrophysics, astronomy and communication
- **Basic building blocks** of matter, along with quarks and electrons. Enhance understanding of basic physical laws
- **Role in nuclear non-proliferation** through remote monitoring of nuclear reactors, where neutrinos are produced in abundance
- As they change their direction and spin based on the medium, they can be **used to map natural resources inside the earth**
- **Helpful in understanding of dark matter (which constitute 95% of earth)**, as they are one of the few particles that can pass through it
- **Rapid analysis of geo-neutrinos** (produced by radioactive decay of uranium, potassium and thorium in the earth's crust) by the monitoring systems, called **Neutrino Tomography**, could provide vital seismographic information & may help us **detect early defect inside the earth**

### What are Neutrinos?

- The elusive neutrinos are **second most abundant particles in the universe**, yet a lot more is to be understood about them.
- They interact very little with anything and pass through everything that's why it's **hard to detect** them.
- They carry **no electrical charge and nearly massless**.
- It occurs in **3 different types/flavors**, separated based on mass (electron-neutrino, muon-neutrino, tau-neutrino).
- It is **produced in the core of the sun** & millions of them roam around in the solar system.
- They are key to **understanding the evolution of universe** and energy production in the Sun and the stars.

### Misconceptions related to neutrinos

Several misconceptions related to neutrino research led to common opposition to the project

- **Harmful to the human body:** They are least harmful of elementary particles, as they hardly interact with matter. In fact, trillions of solar neutrinos pass through our body every second without doing any harm to us.
- **Effect of the associated radiation:** No radiation is involved as INO only studies atmospheric neutrinos produced by cosmic rays in the atmosphere.
- **Potential uses in weaponization:** They are often confused with neutrons, which can be used to produce nuclear weapons.

### Other neutrino study projects

- LAGUNA (Large Apparatus studying Grand Unification & Neutrino Astrophysics) in Europe
- Hyper Kamiokande Detector at Kamioka Observatory in Hida (Japan)
- DUNE (Deep Underground Neutrino) project in South Dakota (US)

- Neutrinos can **pass right through the earth** and thus, **neutrino-based communication systems** are better than round the earth communication through cables, towers and satellites. **No data transmission loss** as they rarely interact with other particles. If there is any extra-terrestrial life, most effective way to communicate with them

## 6.4. EARTH BIOGENOME PROJECT

### Why in News?

International biologists have launched an ambitious **Earth BioGenome Project** at an estimated cost of \$4.7bn.

### About Earth BioGenome Project

- It aims to **sequence, catalog and characterize the genomes of all of Earth's eukaryotic biodiversity** over a period of ten years.
- It involves projects by various countries:
  - **US-led project** to sequence the genetic code of tens of thousands of vertebrates
  - **Chinese project** to sequence 10,000 plant genomes
  - **The Global Ant Genomes Alliance**, which aims to sequence around 200 ant genomes.
- **UK participants, led by the Wellcome Sanger Institute**, will also sequence the genetic codes of all 66,000 species inhabiting Britain in a national effort called **the Darwin Tree of Life**.
- Currently, fewer than 3,500, or **about 0.2 per cent of all known eukaryotic species** on Earth have had their genome **sequenced**.
- Physical samples would be stored frozen in liquid nitrogen in four or more facilities located in different parts of the world, and repositories of **digitised information** would be created.
- The completed project will generate at least 1 exabyte (that is, 1 billion gigabytes) of data, which is to be **shared online for free**.
- The initiative would produce a **database of biological information** that provides a platform for scientific research and supports environmental and conservation initiatives.
- The participating institutions would **raise their own funding** as far as possible. However, the project has the backing of the World Economic Forum
- The potential benefits of EGP are compared to those from **Human Genome Project**, which has transformed research into human health and disease.

#### Eukaryotes

- These are organisms whose cells have a nucleus enclosed by membranes.
- These are animals, plants, fungi and protozoa, which encompass all of life except simple microbes (bacteria and archaea).

#### Prokaryotes

- These are the organisms with single cell nucleus e.g. bacteria and archaea.

#### Human Genome Project (HGP)

- It was the international, collaborative research program whose goal was the complete mapping and understanding of all the genes of human beings. All our genes together are known as our "genome".
- It helped to develop modern sequencing techniques, which have vastly improved the efficiency while reducing the costs of genomic research.
- It read the genetic code of just one species, *Homo sapiens*, between 1990 and 2003.

### Significance of Project

- **Saving Biodiversity:** Given Climate Change and related worries such as loss of forest cover, about 50% of current biodiversity could be lost by the end of the 21st century in what is being referred to as the Sixth Great Extinction. This Project will help record the genomes of organisms at risk.
- **Discovery of Unknown Species:** It is believed that there are somewhere between 2 million and 3 million eukaryotic species on the planet. Only about half have been identified so far.
- **New Resources:** It should also lead to the discovery of new drugs, new biofuels, and boost agricultural technologies, with obvious commercial benefits.
- **Generate Revenues:** It could help to boost scientific capacity and generate revenues for poor countries with rich biodiversity.
- **Better Understanding:** It will revolutionize the understanding of biology and evolution and thus create new approaches for the conservation of rare and endangered species.

### Challenges in Project

- **High Quality data:** The most difficult part in EBP will be to acquire and process high-quality samples from species that are hard to reach.

- **Lack of Technologies:** New technologies such as specimen-collecting drones may need to be developed.
- **IPR issue:** There are complicated protocols involved in transferring physical samples and genetic data across borders, and there are bound to be disputes about the sharing of the benefits obtained.
- **Legal Frameworks:** While the Nagoya Protocols of 2014 provide a framework for such transfers, the United Nations Convention on Biological Diversity will have to work out new protocols and, ideally, create a new, transparent and equitable legal framework.

## 6.5. HUMAN MICROBIOME

### Why in news?

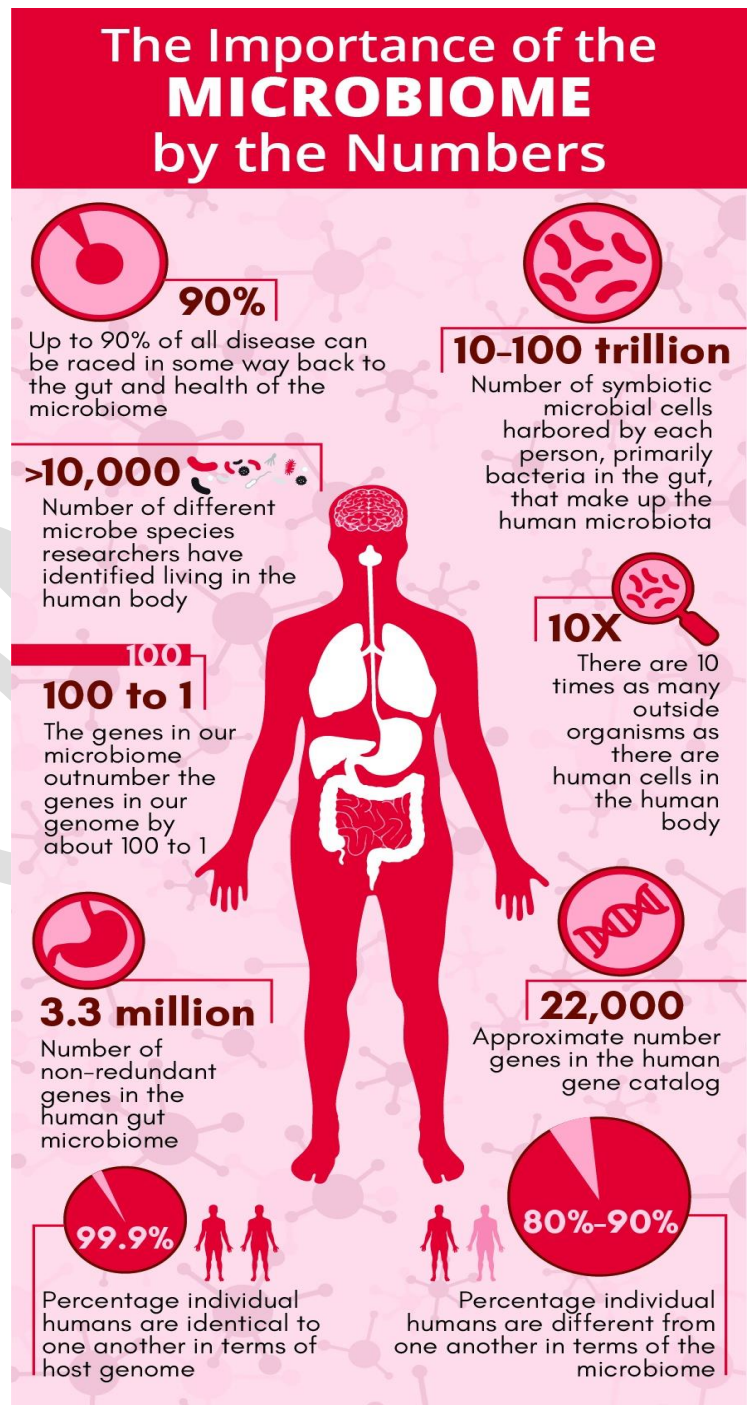
Indian Human Microbiome Initiative, led by The National Centre for Microbial Resource (NCMR) - National Centre for Cell Science (NCCS) has been put up for approval.

### What is Microbiome?

- The **collective genome of all micro-organisms** contained within the human body, residing inside tissues & bio-fluids is called **Human Microbiome**. It includes bacteria, archaea, fungi, protists and viruses.
- Most of them have either *commensal* (co-exist without harming humans) or *mutualistic* (each benefit from the other).
- Different parts of human body including the skin, mammary glands, placenta, uterus, ovarian follicles, lungs, saliva, oral mucosa, conjunctiva, biliary and gastrointestinal tracts, are occupied by characteristic microbial populations.
- The composition of microbiome is shaped by factors such as genetics, dietary habits, age, geographic location and ethnicity. Human microbiome makes up around 2% of the body mass of the adult.

### Importance of the Human Microbiome

- Microbial communities play a key role in many aspects of host physiology:
  - Metabolism of otherwise complex indigestible carbohydrates and fats
  - Production of essential vitamins
  - Maintaining immune systems
  - Acting as a first line of defense against pathogens
  - Influence the susceptibility to certain infectious diseases, as well as contribute to disorders such as obesity and diabetes
  - Determines how one responds to a particular drug treatment
- The diversity of microbes that make up human microbiome could lead to novel therapies e.g. an infection caused by a 'bad' bacterial species can be treated by promoting the growth of 'good' bacteria.



### About Human Microbiome Project (HMP)

- Human Microbiome Project is a research initiative of **US's National Institute of Health** with the mission to generate the resources and expertise needed to characterize the human microbiome and analyze its role in health and disease.
- Launched in 2007, it is focused on identifying and characterizing human microbial fauna and elucidating their roles in health and diseases.
- Some methodologies used in HMP are:
  - Metagenomics** as a culture-independent method of broad microbial community characterization
  - Whole Genome Sequencing (WGS)** to provide a "deep" genetic perspective on aspects of a given microbial community, *i.e.* individual bacterial species

#### Metagenomics

- It is a sequence-based approach that **allows the genetic material from the complete collection of microbes to be analyzed in their natural environment** without needing to cultivate the microorganisms.
- Currently, only a small percentage of the bacteria that comprise the human microbiome have been identified and studied. Majority (>95%) of them are **difficult to isolate and culture**, because the required growth conditions cannot be reproduced in the laboratory.
- However, recent technological advances in DNA sequencing and the development of **meta-genomics** have now made it feasible to analyze the entire human microbiome.

### Human Microbiome Research in India

- India doesn't have a dedicated national human microbiome project.** But, the proposed Indian Human Microbiome Initiative holds a lot of potential.
- The project will include collection of saliva, stool and skin swabs of 20,000 Indians across various ethnic groups from different geographical regions. India provides for a wide range of research with more than 4,500 ethnic groups and presence of two global biodiversity hotspots (Himalayan range and Western Ghats).
- Scientists have found that **Indian population, particularly tribals, have distinct gut microbiota** than individuals from other parts of the world. Such tribal populations **largely unaffected by "modern" diet** and **have lower prevalence of lifestyle diseases** and their study would shed some light on mutualism between gut microbiota and the host.

## 6.6. OVERHAUL OF SI UNITS

### Why in News?

The 26th General Conference on Weights & Measures (CGPM) in a historic decision unanimously redefined World's standard definition of **kilogram, Ampere, Kelvin, and Mole.**

### Impact of Change

- It will result in **uniform and worldwide accessible SI system** for high- technology manufacturing, basic science, etc. For example earlier the scientific definition of the "second" had helped ease communication across the world via technologies like GPS and the Internet.

UNIT	QUANTITY	HOW IT IS/WILL BE DEFINED
Meter*	Distance	Based on speed of light
Kilogram**	Mass	To be based on Planck constant
Second*	Time	Based on hyperfine-transition frequency of caesium-133 atom
Ampere**	Current	To be based on an electron's charge
Kelvin**	Temperature	To be based on Boltzmann constant (Equal to a change in thermal energy of $1.380649 \times 10^{-23}$ joules)
Mole**	Amount of substance	To be based on Avogadro constant ( $6.02214076 \times 10^{23}$ )
Candela*	Luminous intensity	From luminous efficacy of monochromatic light of frequency $540 \times 10^{12}$ Hz

\*Current definition stands \*\*Being redefined

- The units shall be **stable in the long term**, internally self-consistent and practically realisable being based on the present theoretical description of nature at the highest level.
- It will **not be bound by the limitations of objects in our measurement** of the world, but have universality accessible units that can pave the way to even greater accuracy and accelerate scientific advancement.
- It will **not change measurements in our day to day life** like in kitchen, trade & transport etc. Thus for most people, everyday life will carry on as normal despite the redefinitions.

#### General Conference on Weights and Measures (CGPM)

- CGPM is the highest international body of the world for accurate and precise measurements.
- India became a signatory in 1957.
- The CGPM meets usually once every four years
- The International Bureau of Weights and Measures (BIPM), the main executive body of CGPM has the responsibility of defining the International System of Units (SI).

#### International System of Units (SI Units)

- The SI system was adopted in 1960.
- There are seven fundamental units. Every other unit of measurement can be derived from one or more of these seven units: the unit for speed, for instance, factors in the units for distance and time.

## 6.7. INTEGRATED HEALTH INFORMATION PLATFORM (IHIP)

### Why in the News?

**Integrated Health Information Platform (IHIP)** under **Integrated Disease Surveillance Programme (IDSP)** was launched in 7 states.

### What is IHIP?

- It is real time, village wise, case based electronic health information system with GIS tagging which will help in prompt prevention and control of epidemic prone diseases.
- It will provide near-real-time data to policy makers for detecting outbreaks, reducing the morbidity and mortality and lessening disease burden in the populations and better health systems.
- The objective behind setting up IHIP was to enable creation of interoperable **Electronic Health Records (EHRs)** which can be made available and accessible throughout the country.
- Information from other branches like tuberculosis control programme, maternal and child health programme and non-communicable disease programme also will be included in this platform.

#### Integrated Disease Surveillance Programme (IDSP)

- IDSP is a disease surveillance scheme under National Health Mission, under the **Ministry of Health and Family Welfare** in India, assisted by the World Bank.
- The scheme seeks to set up a Central Disease Surveillance Unit and a State Surveillance Unit in each State where data is collected and analyzed.
- The IDSP portal is a one stop portal which has facilities for data entry, view reports, outbreak reporting, data analysis, training modules and resources related to disease surveillance.

### Benefits from IHIP

- **Reducing Medical Errors** – It provides a vehicle for improving quality and safety of patient care by reducing medication and medical errors.
- **Patient Involvement**- It stimulates consumer education and patients' involvement in their own health care.
- **Increases efficiency** – by eliminating unnecessary paperwork and provides caregivers with clinical decision support tools for more effective care and treatment
- **Improves public health reporting and monitoring** – by creating a potential loop for feedback between health-related research and actual practice. Further, it provides a basic level of interoperability among electronic health records (EHRs) maintained by individual physicians and organizations.
- **Technology in Healthcare** – It facilitates efficient deployment of emerging technology and health care services and provides the backbone of technical infrastructure for leverage by national and State level initiatives

### Way forward

- While digitization of health records is a welcome step, there is a need to **enhance research facilities** to deal with new and emerging viral threats like Zika Virus, Nipah Virus etc.
- Further, utilizing such technical advancements would entail a need for **well trained and committed workforce** who would regularly monitor the cases.

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## 7. SOCIAL ISSUES

### 7.1. 'DUBAI DECLARATION' ADOPTED TO MEASURE PROGRESS OF SDGS

#### Why in News?

At the conclusion of the UN World Data forum, 2018, 'Dubai Declaration' was adopted.

#### About the Declaration

- It is hard to measure the actual progress of the SDGs due to lack of data for two-thirds of the indicators. Only 0.3% of aid goes to the development of statistical systems.
- Recognizing this, **Dubai Declaration** was adopted which detailed measures to boost funding for data and statistical analysis for monitoring and speeding up progress towards the 2030 SDGs.
- Aimed towards mobilizing domestic and international funds and activating more effective data partnerships, this Declaration supports the implementation of the **Cape Town Global Action Plan for Sustainable Development Data**.

#### UN World Data Forum

- It was created after recommendation of a report titled '**A World That Counts**' by UN Statistical Commission.
- The first United Nations World Data Forum was hosted from 15 to 18 January 2017 in Cape Town, South Africa.
- The second UN World Data Forum was hosted from 22 to 24 October 2018 in Dubai, UAE.
- It is meant for intensifying cooperation between professional groups (IT Experts, Geospatial Information Managers, Data Scientists etc. as well as civil society stakeholders).

In India the review process is led by NITI Aayog, Research and Information system, a think tank attached with Ministry of External Affairs and the Ministry of Statistics and Programme Implementation. They prepare the Voluntary National Review (VRN) Report.

#### Conclusion

- To fully implement and monitor progress on the SDGs, decision makers need data and statistics that are accurate, timely, sufficiently disaggregated, relevant, accessible and easy to use.
- However, despite the significance there remain several challenges to the process like, the Review mechanism under the 2030 Agenda is **voluntary, non-binding and country driven**. There is apprehension that if at all countries take up the job, they might inflate their achievements of SDG target to project a positive image or gain in internal politics.
- Despite the improvements in data collection, statistical capacity still needs strengthening and data literacy must be enhanced at all levels of decision-making. This will require coordinated efforts on the part of data producers and users from multiple data systems.
- Dubai Declaration may be seen as yet another stepping stone towards the efforts needed in the direction.

#### Cape Town Global Action Plan for Sustainable Development Data

- Informally **launched at the 1<sup>st</sup> UN World Data Forum** and was adopted by the UN Statistical Commission in March 2017
- Intended to provide a **framework for discussion on, and planning and implementation of statistical capacity building** necessary to achieve the 2030 Agenda.
- **Six strategic areas:**
  - Coordination and strategic leadership on data for sustainable development;
  - Innovation and modernization of national statistical systems;
  - Strengthening of basic statistical activities and programmes;
  - Data dissemination and use;
  - Multi-stakeholder partnerships;
  - Resource mobilization and coordination.

### 7.2. GLOBAL WAGE REPORT

#### Why in news?

Recently Global Wage Report for 2018-19 was released by International Labor Organization (ILO).

#### About Global Wage Report

- Global Wage Report (GWR) is an annual publication of ILO which focuses on different aspects of labour wages and its impact on equitable growth and social justice.
- By providing reliable data, GWR assists member countries in drafting wage policies and assessing the impact of those policies.



## Findings of Global Wage Report 2018-19

- Real global wage growth in 2017 (1.8%) fell to its lowest growth rate since 2008, despite recovery in economic growth and the gradual reduction in unemployment.
- Real wage growth has been especially low in developed G20 countries (0.4%). India has the highest average real wage growth (5.5%) in South Asia in 2008-17.
- **Wage Inequality:** High income countries have lower wage inequality than low and mid income countries. E.g. Sweden has the lowest wage inequality.
- **Gender pay gap:**
  - Globally, women are paid 20% less than men.
  - Moreover, gender pay gap is wider at the high end of the pay scale in high-income countries, while in low and middle-income-countries the gender pay gap is higher among lower paid workers.
  - Women and Men also differ in terms of Working Time – part time work is more prevalent among women than among men.
  - On average, education and other labour market attributes explain relatively little of the gender pay gap, leaving the only possible explanation as undervaluation of women’s work.
  - Motherhood brings about a wage penalty. Motherhood pay gap (between women who are mothers and women who are not mothers) ranges from 1% in Canada to 30% in Turkey.

### International Labor Organization

- ILO was founded in 1919 as an agency of League of Nations and is now the labor agency of United Nations.
- It promotes social justice through overseeing international labour standards.
- India has ratified 45 ILO conventions like Minimum Age Convention and Worst Forms of Child Labour Convention.
- ILO also publishes World Employment and Social Outlook Report

### Provisions for Equal Pay

- United Nations SDG-8 aims to achieve “equal pay for work of equal value” by 2030.
- Article 39 of constitution (DPSP) envisages equal pay for equal work.
- Specific laws include Equal Remuneration Act, 1976, Maternity Benefit Act, 1961, Factories Act. 1948.

## Indian scenario

- India and Pakistan had the highest gender pay gap (difference between hourly wages of men and women).
- India has one of the highest Gender Pay Gap of 34%. This pay gap is due
  - Occupational segregation,
  - Cultural barriers (including less education opportunities available to women)
  - Unpaid household work done by women.
- Low levels of wages in India can become an obstacle to sustainable economic growth as consumption demand cannot increase with low wages. The reasons of low wages can be:
  - The low wage growth in absolute terms despite recovering economic growth is attributed to economic growth being led higher investment spending, rather than by private consumption.
  - Slow productivity growth due to lack of skills/education.
  - Intensification of global competition and globalization leading to increased mobility of low skilled labour and the decline in the bargaining power of workers.

## Way Forward

- Gender Pay Gap is more of a social issue, accelerating progress towards eliminating it will require:
  - **Political commitment and social transformation** leading to shifting social norms and eliminating gender stereotypes.
  - A **well designed minimum wage** with broad legal coverage could reduce the gender pay gap at lower wage levels, greater representation of women in senior and highly paid positions could have a positive effect at the top levels.
  - **Reducing occupational segregation of women** (such as nurses) is required. E.g. to attract more women into the areas of science, technology, engineering and mathematics (STEM), which offer better paid employment opportunities.
  - **Promoting equitable sharing of family duties** between women and men and programmes supporting women’s return to work after childbirth, as well as providing childcare and eldercare services will help in reducing Motherhood Pay Gap.

- To improve the Wage growth rate:
  - Although India is among the fastest growing major economy in terms of wage growth, but the average base salary is at much lower levels. India should invest in **social infrastructure** to reap the demographic dividend.
  - **Formalization of informal economy** in India and other developing countries.
  - **Better skill development and vocational trainings** to improve wage growth at lower paying jobs and reduce the gap between high and low paying jobs.

## 7.3. THE GLOBAL NUTRITION REPORT

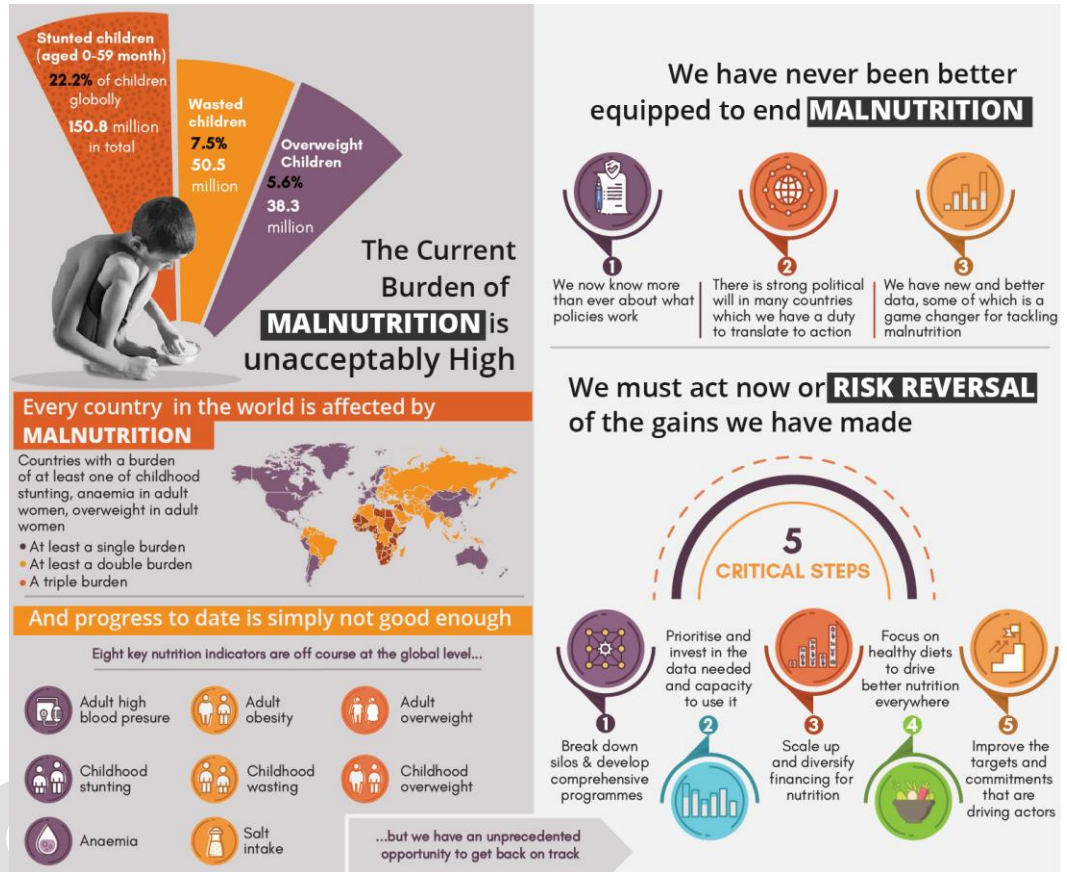
### Why in news?

Recently **The Global Nutrition Report (GNR) 2018**, released in Bangkok, notes that the global burden of malnutrition “remains unacceptably high and progress unacceptably slow”.

### Other Important Highlights

Three main issues that need to be addressed

- **Micronutrient deficiencies** are estimated to impact a significant number of people around the world, but there remains far too little information on micronutrient status and deficiencies.
- **Fragility, conflict and violence** put a heavy toll on populations’ health, livelihoods, food security and nutrition.
- The amount of **attention being paid to adolescents** as a nutritionally vulnerable group with unique nutritional needs in the life cycle is growing, but they are still frequently overlooked.



### Seven priority actions for improving adolescent girl nutrition

- Engage and partner with adolescents in the design and implementation of research, policies, programmes, regulations and guidelines.
- Assess how nutrition policies and regulations shape the food environment and influence adolescent nutrition and diet quality.
- Develop and use standardised indicators for assessing adolescent health.
- Ensuring inclusion of adolescents in national surveys, population sampling and routine programme monitored data.
- Conduct quantitative and qualitative research to understand the underlying determinants of malnutrition and the context-specific factors affecting adolescents’ food choices, diet and eating practices, physical activity and social and emotional well-being.
- Design implementation research to improve programme delivery, use, cost effectiveness and scale.
- Conduct rigorous evaluations of interventions to assess their impact.

### India specific findings

- India is facing a **major malnutrition crisis** as it is the country with the **highest number of 'stunted' children in the world**. Out of the total 150.8 million children in the world who are stunted, India is home to 46.6 million, followed by Nigeria (13.9 million) and Pakistan (10.7 million).
- India is also the country with the **highest number of children who are 'wasted'** (low weight for height, indicating severe weight loss), an even more severe indicator of acute malnutrition.
  - India has **half of the global wasting burden** (25.5 million children — out of the 50.5 million children who are wasted globally) followed by Nigeria, and Indonesia.
- India is also among the countries with **more than a million children who are overweight**.
- As for the nutrition status of children and adolescents aged between five and 19 years, 58.1 per cent of boys were underweight while 50.1 per cent girls were underweight. This difference between the genders can likely be attributed to **India's adverse sex ratio** in the first place.
- As for the **rural-urban divide**, 40.7 per cent of children under five years of age were stunted in rural India while 30.6 per cent of children were stunted in urban India, while 21.1 per cent children aged under five were wasted in rural areas and 19.9 per cent were wasted in urban areas.

### The Global Nutrition Report

- It came into existence "following the first **Nutrition for Growth Initiative Summit (N4G)** in 2013 as a mechanism for tracking the commitments made by 100 stakeholders spanning governments, aid donors, civil society, the UN and businesses.
- It acts as a report card on the world's nutrition—globally, regionally, and country by country—and on efforts to improve it.

## 7.4. UNESCO GLOBAL EDUCATION MONITORING REPORT 2019





### Why in News?

UNESCO has released **Global Education Monitoring Report 2019** titled **Migrations, Displacement and Education** which discusses impact of migration on education.

### Current scenario

- India is home to some of the world's **largest internal population movements** alongside China.
- Children of seasonal workers** are often **denied their right to education**. About 80% of temporary migrant children in seven Indian cities lacked access to education near work sites.
- Among youth aged 15 to 19 who have grown up in a rural household with a seasonal migrant, 28% identified as illiterate or had an incomplete primary education.
- In the period between 2001 and 2011, **inter-state migration rates doubled in India** and an estimated **9 million migrated between States** annually from 2011 to 2016.

### Relationship between education and migration/displacement

	Effects of Migration/Displacement on Education	Effects of Education on Migration/Displacement
 <b>Migrants</b>	<ul style="list-style-type: none"> <li>Migration leads to education provision challenges in slums.</li> <li>Education systems need to adjust to the needs of populations moving in seasonal or circular patterns.</li> </ul>	<ul style="list-style-type: none"> <li>The more educated are more likely to migrate.</li> </ul>
 <b>Left behind</b>	<ul style="list-style-type: none"> <li>Migration depopulates rural areas and challenges education provision</li> <li>Remittances affect education in origin communities.</li> <li>Parent absence affects children left behind.</li> <li>Emigration prospects disincentivize investment in education.</li> <li>New programmes prepare aspiring migrants.</li> </ul>	<ul style="list-style-type: none"> <li>Emigration of the educated has consequences for development of affected areas, e.g. through brain drain.</li> </ul>
 <b>Immigrants and refugees</b>	<ul style="list-style-type: none"> <li>Educational attainment and achievement of immigrants and their children usually lag behind natives.</li> <li>Refugees need to be included in national education systems.</li> <li>Refugees' right to education needs to be ensured.</li> </ul>	<ul style="list-style-type: none"> <li>Migrants tend to be overqualified, their skill not fully recognized or utilized, and their livelihoods altered.</li> <li>Internationalization of tertiary education prompts student mobility.</li> </ul>
 <b>Natives</b>	<ul style="list-style-type: none"> <li>Diversity in classrooms requires better-prepared teachers, targeted programmes to support new arrivals and prevent segregation, and disaggregated data.</li> </ul>	<ul style="list-style-type: none"> <li>Formal and non-formal education can build resilient societies and reduce prejudices and discrimination.</li> </ul>

## Government initiatives for welfare of migrant children

- **The Right to Education Act in 2009** made it mandatory for local authorities to admit migrant children.
- **National-level guidelines** were issued, allowing for flexible admission of children, providing transport and volunteers to support with mobile education, create seasonal hostels and aiming to improve coordination between sending and receiving districts and states.
- **Gujarat** introduced **seasonal boarding schools** to provide migrant children with education and collaborated with non-government organizations (NGOs) to begin online tracking of the children on the move.
- **Tamil Nadu provides textbooks** in other languages to migrant children.
- **Odisha** assumed responsibility of **seasonal hostels** run by NGOs and works with Andhra Pradesh to improve migrant well-being.

## Challenges

- Most interventions are focused on **keeping children in home communities** instead of actively addressing the challenges faced by those who are already on the move.
- The report sees the **growth of slums and informal settlements** where schools are often scarce — due to migration as a challenge.
  - “18% of the students displaced by a riverfront project in Ahmedabad dropped out and an additional 11% had lower attendance.
- There is **only one urban planner for every 1,00,000 people in India**, while there are 38 for every 1, 00,000 in the United Kingdom.
- The degree and evolution of **refugee inclusion in national education** vary across displacement contexts, affected by geography, history, resources and capacity.

## Conclusion

Migration and displacement require education systems to accommodate the needs of those who move and those left behind. Countries need to **recognize migrants’ and refugees’ right to education in law** and fulfil this right in practice. They need to **tailor education for those cramming into slums, living nomadically or awaiting refugee status**. Education systems need to be **inclusive** and fulfil the commitment to equity. **Teachers need to be prepared to deal with diversity** and the traumas associated with migration and, especially, displacement.

## 7.5. INTENSIFIED MISSION INDRADHANUSH

### Why in News?

Intensified Mission Indradhanush (IMI), is one of **12 best practices from around the world** to be featured in a special issue of the British Medical Journal.

### Background

- In India, five lakh children die every year due to vaccine-preventable diseases; 95 lakh are at risk because they are unimmunised or partially immunised. But immunization coverage had slowed down and it increased at the rate of 1% per year between 2009 and 2013.
- To accelerate this coverage **Mission Indradhanush** was envisaged and implemented since 2015 to rapidly **increase the full immunization coverage to 90%**.

### About Intensified Mission Indradhanush (IMI)

- It has been launched by the Government of India to reach **each and every child under two years of age and all those pregnant women** who have been left uncovered under the routine immunisation programme.
- The special drive will focus on improving immunization coverage in select districts and cities to **ensure full immunization to more than 90% by December 2018**.
- It targets to immunize all children against **seven vaccine preventable diseases** namely Diphtheria, Pertussis, Tetanus, Childhood Tuberculosis, Polio, Hepatitis B and Measles. In addition to this, vaccines for Japanese Encephalitis, Haemophilus influenza type B, inactivated polio vaccine, Rotavirus vaccine and Measles Rubella vaccine are also being provided in selected states.

- It will have inter-ministerial and inter-departmental coordination, action-based review mechanism and intensified monitoring and accountability framework for effective implementation of targeted rapid interventions to improve the routine immunization coverage.
- It would be closely monitored at the district, state and central level at regular intervals. Further, it would be **reviewed by the Cabinet Secretary at the National level** and will continue to be **monitored at the highest level under a special initiative 'Proactive Governance and Timely Implementation (PRAGATI)'**.
- The first two phases of Mission Indradhanush contributed to an increase in Full Immunization Coverage by 6.7%. This increase, however, would not be sufficient to achieve full Immunization Coverage of more than 90% of new-borns by 2020 as aimed under Mission Indradhanush which would need a supplemental aggressive action plan to cover all left outs and drop outs in select districts and urban cities with low routine immunization coverage in a specific time-frame.

### Challenges to immunization

- **Limited capacities of staff** (vacant positions and lack of training), particularly in poor-performing states and at the field level, and **gaps in key areas** such as predicting demand, **logistics and cold chain management**, which result in **high wastage rates**.
- India lacks a **robust system to track vaccine-preventable diseases**. Vaccination coverage varies considerably from state to state, with the lowest rates in India's large central states.
- Other challenges includes-
  - Lack of adequate health infrastructure and insufficient government investment;
  - Low demand caused by poor education of the population and presence of **anti-vaccine advocates**.
  - Parents' lack of awareness of the immunisation benefits, schedules and locations.
  - Inconvenient timings of vaccination for many people (during working hours).
  - Poor community participation.

### Way forward

- **Strengthening of health management information systems**, including data recording and registration systems, called Mother and Child Tracking System (MCTS).
- The **linking of already available systems with the unique identification like Aadhaar** can facilitate tracking of the beneficiaries.
- Furthermore, development of **universal health cards and electronic record maintenance** for maternal and child health care is highly desirable. This can facilitate care seeking by the migrant population in urban areas and can be used to decide resource allocations.
- Devoting **greater financial resources towards immunisation coverage** with concerted efforts to **improve social mobilisation** for immunisation is warranted.
- **Strengthening a network of community health workers** in urban and peri-urban areas to contribute towards progress in immunisation coverage by reaching out to both slum as well as non-slum populations is of utmost priority.
- **Facilitating improvement in knowledge and awareness** regarding child immunisation can be intensified with the **use of mass media, interpersonal communication, school and youth networks**.
- Reaching out to communities and areas with poor immunisation coverage with well-articulated strategies for community awareness will be key to success.

## 7.6. PARTICULARLY VULNERABLE TRIBAL GROUPS IN ANDAMAN AND NICOBAR

### Why in news?

The Central government is planning to reimpose **Restricted Area Permit (RAP)** in the North Sentinel island where an American was killed by members of the Sentinelese tribe.

### Particularly Vulnerable Tribal Groups (PVTGs)

- PVTG (earlier Primitive Tribal Groups) was the category with in Scheduled Tribes created on recommendation of **Dhebar commission**.
- Presently there are 75 tribal groups categorized by Ministry of Home Affairs as Particularly Vulnerable Tribal Groups (PVTGs).
- PVTGs reside in 18 States and UT of A&N Islands.

## More on news

- Due to security reasons, certain areas have been declared as **Protected Area/Restricted Areas** where no foreigner can enter or stay without obtaining permit from the competent authorities.
- Under the Foreigners (Restricted) Areas Order, 1963, parts of Sikkim and entire Andaman & Nicobar Islands have been declared as **'Restricted' Areas**.
- Under the Foreigners (Protected Areas) Order, 1958, all areas falling between the 'Inner line' and the International Border of the State have been declared as **'Protected Areas'**.
- Currently Protected Areas are located in- all of Arunachal Pradesh and Sikkim, parts of Himachal Pradesh, Jammu and Kashmir, Manipur, Mizoram, Nagaland, Rajasthan and Uttarakhand.
- The North Sentinel island is one of 29 islands for which government had relaxed the RAP in order to promote tourism and boost employment opportunities.

### Location of Particularly Vulnerable Tribal Groups (PVTGs) in A & N Islands



## Tribes of Andaman & Nicobar

- There are **6 aboriginal tribes** in Andaman & Nicobar islands belonging to **two broad groups of Negrito and Mongoloid**. Except **Nicobarese (Mongoloid)**, the rest 5 are recognized as Particularly Vulnerable Tribal Groups (PVTGs) i.e. Sentinelese (Negrito), Great Andamanese (Negrito), Ongs (Negrito), Jarawas (Negrito) and Shom Pens (Mongoloid).
- **Sentinelese:** They are the only remaining tribe in the Andamans to still maintain their **isolation** from the rest of the world and live like **hunter gatherers**.
  - They are connected to the Jarawa on the basis of physical, as well as linguistic similarities.
  - Both Sentinelese men and women do not wear cloths.
- **Great Andamanese:** The great Andamanese is a **collective term used for 10 different tribes** that lived in most of the large islands in the Andaman.
  - They are also known for their brave History where they fought with bows and arrows with the English men who tried to occupy their land (The Battle of Aberdeen).
  - Today most tribes are extinct and their **cultural and linguistic identities largely been lost**. (e.g. their members now speak mostly Hindi).
- **Jarawa:** Jarawas continue to be hunting and gathering nomadic tribe and are often hostile to outsiders.
  - Men fish with bows and arrows in the coastal waters while women catch fish with basket.
- **Onge:** They are hunting and gathering tribe settled at Dugong Creek and South Bay on Little Andaman Island.
- **Shompen:** The Shompens are primarily hunter-gatherers and also practise a little bit of horticulture and pig rearing.
- **Nicobarese:** They are largest of tribes and are primarily horticulturalists.

## Issues being faced by the tribals

- **Issues with attempt to "civilise them":** These tribes have faced social disintegration among them with cultural erosion in the wake of contacts.
- **Diseases:** Some expeditions to establish contact with these tribes have led to spread contagious diseases among them.
- **Disasters:** The islands inhabited by these tribes are often faced with natural disasters such as **the Tsunami of 2004**. Also, global warming has been putting pressure on these areas.
- **Unsustainable and exploitative tourist** influx in the region has led to serious problems for these tribes and for the region too. Outsiders coming mainly from Tamil Nadu and West Bengal have outnumbered these tribes.
- **Loss of food:** Loss of forests, overfishing, etc. has diminished their food sources.

## Suggestions

- **Protect Cultural Heritage:** Extensive efforts must be made to ensure that their customs, languages, religious practises etc. are not lost as a result of outside influence.
  - The **ANTRI** (Andaman and Nicobar Tribal Research and Training Institute) has been set up with an objective of formulation of policies for tribal integration and protection of PVTGs
- **Prevent Forced contact:** It is important that security apparatus is stepped up and the region is properly policed and protected from any outsiders—fishermen, tourists or evangelicals.
  - **The A&N (Protection of Aboriginal Tribes) Regulation, 1956** provides protection to the aboriginal tribes by declaring their traditional areas as reserves and prohibited entry of all persons except those with authorisation.
  - With regard to Sentinelese tribes, the A&N Administration has adopted an **‘eyes-on and hands-off’** policy to ensure that no poachers enter into the island.
- **Provide Basic Social Services:** Health Services, Basic education, etc. must be provided to the tribes that are being assimilated in the mainstream. Specific issues like natural disasters, endemic diseases such as anaemia, etc. must also be attended to.
  - The Ministry of Tribal Affairs is implementing the **“Development of PVTGs”** scheme which covers the 75 identified PVTGs among Scheduled Tribes in various states/UTs.
- **Promote sustainable Economic activities:**
  - Development of **cottage industries, plantations crops (e.g. coconut), fishing, animal husbandry** etc. are some viable economic options given the fact that there is not much scope for agriculture.
  - **Sustainable tourism activities** like adventure sports, deep sea diving, etc can be promoted without putting the tribes at danger from outsider contact.
  - **Tackling ecological Issues** such afforestation, coral bleaching, sewage discharge, etc should also be of high priority.

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## 8. CULTURE

### 8.1. KARTARPUR CORRIDOR

#### Why in News?

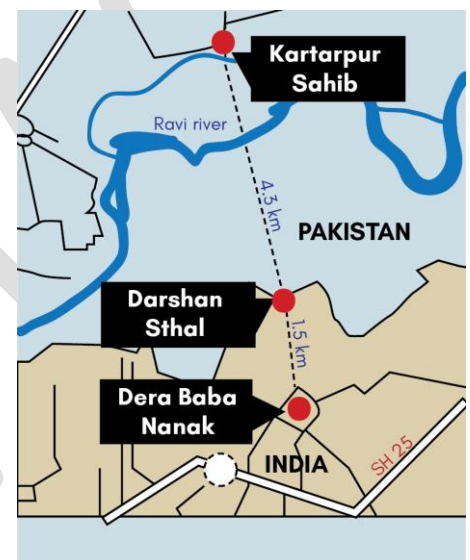
Government of India has decided to commemorate **550th Birth Anniversary of Shri Guru Nanak Dev Ji** from November, 2018 at national as well as international level by building **Kartarpur Corridor**.

#### Kartarpur Corridor

- **About the Project:** The proposed project will connect the Dera Baba Nanak Sahib Gurdwara in India's state of Punjab to the Gurdwara Darbar Sahib Kartarpur shrine in Narowal district of Pakistan's Punjab province which is reportedly to be completed before the 550th anniversary of Guru Nanak Dev in November 2019. The length of the corridor is about 4 km, 2 km on either side of the international border and runs cross over Ravi River.
- **About Gurdwara:** It was ordered by Maharaja of Patiala between 1921-1929 and is believed to be place where Nanak ji spent about last 18 years of his life.
- **Protocol on Visits to Religious Shrines:** Pilgrimages between India and Pakistan are governed by the 1974 Protocol on Visits to Religious Shrines, which includes a list of shrines in Pakistan and India open for visitors from the other country, and for which visas are required. The Kartarpur Corridor, which will provide visa-free access from India to the shrine inside Pakistan may need a separate treaty.
- **Importance of Corridor:** Every year Sikh pilgrims from India travel to Pakistan to offer prayers at the Gurudwara. The Kartarpur corridor will provide smooth and easy passage to pilgrims to visit Gurdwara Darbar Sahib throughout the year. It would act as a bridge between the people of the two countries.

#### About Guru Nanak Dev ji

- He was the founder of Sikhism (the first of the ten Sikh Gurus) and a Bhakti saint.
- He was born in 1469 in Nanakana Sahib, Punjab, Pakistan and died in Kartarpur, Pakistan.
- Guru Nanak and Sikhism were influenced by the nirguni (formless God) tradition of Bhakti movement in medieval India.



### 8.2. MY SON TEMPLE COMPLEX

#### Why in News?

President of India on his recent visit to **Vietnam** went to the My Son temple complex in Kwangnan province.

#### About My Son Temple

- It is a cluster of abandoned and partially ruined Hindu temples in Vietnam, constructed between the 4th and the 14th century AD by the Champa kings of Vietnam.
- It has been recognized by **UNESCO as a world heritage site**.
- Here many temples were built to the Hindu divinities such as Krishna and Vishnu, but **most importantly to Shiva**. (the most important of which is **Bhadreshvara**.)
- The temples have a variety of architectural designs symbolizing the greatness and purity of Mount Meru, the mythical sacred mountain home of Hindu gods at the center of the universe.
- They are constructed in fired brick with stone pillars and decorated with sandstone bas-reliefs depicting scenes from Hindu mythology
- **The Archaeological Survey of India is undertaking the restoration** of three temple groups at My Son.

#### Other conservation efforts by ASI across Asia

- **The Angkor Wat in Cambodia:**
  - It is the largest religious structure ever built.
  - It was built to the Hindu god Vishnu by the Khmer King Suryavarman II in the period 1113–50.
- **Ananda Temple in Myanmar:** It is a Buddhist temple.
- **Bamiyan Buddhas in Afghanistan:** It was destroyed in 2001 by the Taliban.
- **The Ta Prohm Temple in Cambodia**
- **The Vat Phou Temple in Laos**



## 8.3. NONGKREM DANCE FESTIVAL

### Why in news?

Recently, Nongkrem dance festival was celebrated at **Smit village in Khasi Hills of Meghalaya**.

### About the Nongkrem Dance Festival

- It is an annual dance festival celebrated for the **harvest thanksgiving and for peace and prosperity** for all the community people.
- It is one of the most important **festival of Khasi tribe – Hima Khyrim** during which men, women and children dance to the tunes of drums and pipes
- The celebration begins with the sacrifice of a goat. In fact, the the word **Nongkrem means** “goat killing ceremony”.
- A special dance is performed by the men called ‘**Ka Shad Mastieh**’ in which they hold sword in their right hand and a whisks in left hand.



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# 9. ETHICS

## 9.1. EXTRA-JUDICIAL KILLINGS

### Why in news?

Delhi High Court has sentenced 16 members of the Provincial Armed Constabulary (PAC) in Uttar Pradesh for Hashimpura extrajudicial killings.

### What is Extra-judicial killing?

Any act of killing that happens outside the judicial process is called Extra Judicial Killing. It has not been defined explicitly by the international law. However, US Torture Victim Protection Act defines it as “a deliberate killing not authorized by a previous judgement pronounced by a regular constituted court affording all the judicial guarantees which are recognized as indispensable by civilized peoples”. Government authorities such as Police, Army, Intelligence agencies, etc. are found involved in extrajudicial killings e.g. encounters, targeted killings/assassinations, custodial deaths/killings of prisoners in jail and killing under AFSPA.

### Different Ethical Perspective on Extra-Judicial Killings:

Theory	View	Perspective on Extra Judicial Killings
Deontology	If means adopted are right, and duty demands it, the action is moral.	Taking life of a person without following procedure established by law is unethical.
Teleology	Believes that morality of action depends upon the end purpose it serves, and not upon the means used.	
Ethical Egoism	When consequences are more favourable than unfavourable to agent who is performing the action	A policeman who is killing an alleged criminal is morally right if it creates deterrence among potential criminals and a better law and order situation in her area of administration.
Utilitarianism	When consequences have some utility and produces greatest good for the greatest number, the action is ethical.	If the law and order situation becomes better, it can be said that extra-judicial killings are ethical. But this utility is of short term. Under long term perspective, such killings will lead towards autocracy where there will be no guarantee of life and liberty of the citizens. Such a consequence is not desired in democracy. Therefore, such killings will be unethical.
Virtue Ethics	Justice is a cardinal virtue and one must avoid injustice.	It is unjust to kill a person based on allegations.
Applied Ethics	It is based on Principle of justice, Principle of Lawfulness, Principle of harm, Principle of benevolence and honesty, etc.	Extrajudicial killings violate them all.
Post-Modern Ethics	They deny the existence of a universal moral reality. Therefore, it discards universal and unchanging principles and believe in cultural relativism (different cultures have different moral values).	It believes that physical elimination of suspected enemies by government authorities can be regarded as ethical and an exceptional means of warfare. They justify the killing of Osama Bin Laden and others on that basis

### Ethical issues involved in Extra-Judicial Killings:

- **Violation of law:** EJK is a crime; it is a murder and a cognisable offence under the law of the land.
- **Violation of Fundamental Right to Life and Liberty:** Since, life is being taken away without following the procedure established by law.
- **Lack of Objectivity:** Those who are generally killed belong to either poor background, or from depressed castes and minority groups.
- **Violation of the Principle of Presumption of innocence:** One is considered innocent until proven guilty.
- **Justification of death in the name of Social order:** However, State tyranny can be far worse than the violence caused by terrorist groups.

- **Miscarriage of justice:** Shooting in cold blood is preferred over systematic investigations, trial and conviction because of rampant corruption, delayed justice and prejudice against a community or caste.
- **Factually guilty but legally innocent:** There is a possibility that a guilty person is legally innocent e.g. children involved in terrorist groups.
- **Cash-for-encounter Raj:** As observed in Uttar Pradesh, staged shootouts appear to be a shortcut to promotions, bribes and publicity for police officials
- **Undermining the value of life:** Recently the Philippines President compared his extrajudicial killings as a lesser crime than of stealing a peso.
- **Counterproductive:** Violence begets violence and leads to the brutalisation of society, and hence is counterproductive.
- **Lack of compassion:** People do not necessarily celebrate the death of criminals. But, there is no palpable uproar over extrajudicial killings and the readiness to kill.

Power must not be conferred arbitrarily. It is essential to follow procedures established by law. In Manipur PIL, Supreme Court held that even AFSPA is not out of the ambit of judicial review and ordered a CBI enquiry in it. Every Extra-Judicial killing has to be investigated according to the set of guidelines issued by Supreme Court in PUCL VS State of Maharashtra case. Else, the society may suffer from fear psychosis and will eventually lose trust in the system.

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# 10. NEWS IN SHORT

## 10.1. UN AWARDS

- Recently, **United Nation Environment Program** has awarded **Wildlife Crime Control Bureau (WCCB)** with **Asia Environment Enforcement Awards, 2018**.
- Wildlife Crime Control Bureau is a statutory body, under the **Ministry of Environment and Forests**, to combat **organized wildlife crime** in the country.

## 10.2. GLOBAL AIR POLLUTION AND HEALTH CONFERENCE

### Why in news?

WHO organised the first global conference on air pollution and health in Geneva, Switzerland.

### More about the conference

<b>Theme</b>	'Improving Air Quality, Combating Climate Change: Saving Lives.'
<b>Target</b>	To reduce the number of deaths from air pollution by two thirds by 2030 as mandated by World Health Assembly (decision making body of WHO)
<b>Plan</b>	'Geneva Action Agenda to Combat Air Pollution' has been proposed.

## 10.3. GLOBAL COOLING INNOVATION SUMMIT

- Recently, Union S&T Minister inaugurated **Global Cooling Innovation summit**, a first-of-its-kind **solutions-focused event** to address the climate threat that comes from the growing demand from **room air conditioners**.
- Under this **Global Cooling Prize** was announced to incentivise development of a residential cooling technology that will have at least five times (5x) less climate impact. It is supported by Mission innovation and its partner organisations – Bureau of Energy Efficiency and MoEF&CC.

## 10.4. PALAU BANS SUNSCREEN PRODUCTS

- Recently the **Western Pacific nation of Palau** becomes first country to ban sunscreen to save coral reefs.
- A 2017 report found sunscreen products to be 'widespread' in **Jellyfish Lake of Palau, a UNESCO World Heritage site**.
  - It is **meromictic lake** which has layers of water that do not intermix.
  - It is also known as **Eil Malk Lake**.
  - The lake is famous for the **non stinging jellyfish**.

### How sunscreen products are harmful?

- An estimated **14,000 tonnes** of lotion end up in the world's oceans each year.
- The Chemicals, especially **oxybenzone and octinoxate** which wash off swimmers or enter the ocean through sewer systems damage coral by causing them to **expel their symbiotic algae**, stunts coral growth and are **toxic for the algae** that live within reefs.
- They can **disrupt the reproduction of fish** by interfering with their hormonal systems.

## 10.5. NITROGEN EMISSION HOTSPOT

- Recently, Greenpeace conducted a study of satellite-based data for the identification of **nitrogen emission hotspot (NEH)** around the world.
- **South Africa's Mpumalanga** province emits the highest amounts of nitrogen dioxide and the largest number of hotspots are found in **China**.
- The three in India are **Delh-NCR**, an area that falls in both **Sonbhadra in UP and Singrauli in MP** and another **Talcher-Angul in Odisha**.

## 10.6. CHERRY BLOSSOM FESTIVAL

- Recently, **third India International Cherry Blossom Festival 2018** was held in Meghalaya, which celebrates the unique autumn flowering of **Himalayan Cherry Blossoms**.
- The tradition of planting cherry blossoms (sakura in Japanese) started in **Japan**. There **Sakura Festival** started way back in the third century and continues to be a huge tourist attraction.

## 10.7. OWL FESTIVAL

- Recently, Ela Foundation (an NGO) organised the country's **first owl festival** in Pune.
- It aims to create awareness about owl as a bird and **debunking numerous superstitions** associated with Owl.

## 10.8. SRI LANKAN FROGMOUTH

### Why in news?

Recently, **rare bird Sri Lankan Frogmouth** was sighted in the **Chinnar Wildlife Sanctuary** of Western Ghats.

### About Sri Lankan Frogmouth

- The bird is rare and was sighted for the first time on the **eastern side of the Western Ghats** which is usually confined to its habitation in the western side of the Western Ghats.
- It has a unique habitat in Sri Lanka and is present in the **Thattakad bird sanctuary**, Kerela. It is also found in Karnataka, Goa, and Maharashtra

- It has a very close resemblance to **Nightjar**. It also eats insects and prey during night like Nightjar.

#### Chinnar Wildlife Sanctuary (CWS)

- This sanctuary in Kerala is contiguous to **Eravikulam National Park, Kurinjimala Sanctuary and the Anaimudi Shola National Park and Wildlife Sanctuary of Tamil Nadu**.
- **Chinnar and Pambar rivers** are the major perennial water resources in the sanctuary.
- There are about 11 tribal settlements in the inside CWS of which main habitants are **Muthuvas and Pulayars**.
- The habitat types range from high altitude shola grassland to dry thorny scrub jungle.

#### 10.9. HOG DEER

- Recently, Indian scientists have discovered the presence of a sub-species of **Hog Deer at Keibul Lamjao National Park (KLNP), Manipur**.
- Hog deer or Pada is an **endangered species** in the IUCN Red List and is protected under Schedule I of the Indian Wild Life (Protection) Act, 1972.

#### 10.10. INDIRA GANDHI PEACE PRIZE

- Centre for Science and Environment (CSE) has been awarded with Indira Gandhi Prize for Peace, Disarmament and Development for the year 2018.
- This prize is given **annually to organizations and individuals in recognition of creative efforts towards promoting peace**, development internationally using scientific discoveries for the greater good of humanity.
- Some notable recipients of the prize are: Dr. Manmohan Singh (2017), UN High Commission for Refugees (UNHCR) (2015), Indian Space Research Organization (2014), Angela Merkel (2013), UN and its secretary-general Kofi Annan (2003) and MS Swaminathan (1999).

#### 10.11. CENTRE FOR RESEARCH AND PLANNING

- The Supreme Court's in-house think-tank, **Centre for Research and Planning**, was recently unveiled by the Chief Justice of India.
- Its main mandate would be **to carry out cutting-edge research into fundamental jurisprudence and doctrines of law**.

#### 10.12. NPCC - MINIRATNA

- National Projects Construction Corporation Limited (NPCC) has been conferred with the status of Miniratna: Category –I by the Government of India.

Maharatna	Navratna	Miniratna
<ul style="list-style-type: none"> <li>• Having Navratna status.</li> <li>• Listed on Indian stock exchange with minimum prescribed public shareholding under SEBI regulations.</li> <li>• Average annual turnover of more than Rs. 25,000 crore, during the last 3 years.</li> <li>• Average annual net worth of more than Rs. 15,000 crore, during the last 3 years.</li> <li>• Average annual net profit after tax of more than Rs. 5,000 crore, during the last 3 years.</li> <li>• Should have significant global presence/ international operations</li> </ul>	<p>The Miniratna Category – I and Schedule 'A' CPSEs, which have obtained 'excellent' or 'very good' rating under the Memorandum of Understanding system in three of the last five years, and have composite score of 60 or above in the six selected performance parameters, namely,</p> <ul style="list-style-type: none"> <li>• net profit to net worth,</li> <li>• manpower cost to total cost of production/services,</li> <li>• profit before depreciation, interest and taxes to capital employed,</li> <li>• profit before interest and taxes to turnover,</li> <li>• earning per share and</li> <li>• inter-sectoral performance.</li> </ul>	<p>The CPSEs which have made profits in the last 3 years continuously and have positive net worth are eligible to be considered for grant of Miniratna status.</p>

#### 10.13. PAISA PORTAL

- Recently Ministry of Housing launched a web portal named PAISA- **Portal for Affordable Credit and Interest Subvention Access**.
- The portal is designed and developed by Allahabad Bank and is expected to be joined by all states, commercial banks, RRBs and Cooperative Banks.
- It acts as a centralized electronic platform for processing interest subvention on bank loans to beneficiaries under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM).
- It will directly link government with the beneficiaries to ensure greater transparency and efficiency in delivery of services.

#### 10.14. DRAFT CAPE TOWN CONVENTION BILL, 2018

- Recently the **Ministry of Civil Aviation** released the draft Bill that seeks to implement the **Cape Town Convention** (Convention on International Interests in Mobile Equipment), and Protocol (Protocol to the Convention on Matters Specific to Aircraft Equipment) in India.
- The Cape Town Convention was adopted in 2001 under the joint auspices of **International Civil Aviation Organisation (ICAO)** and **International**

**Institute for the Unification of Private Law (UNIDROIT).**

- The Convention is general in nature and is meant to be applied to **three sectors**, viz. Aviation, Railways and Space Equipment.
- **India** became a party to the convention /Protocol in July, 2008. As of 2016, there are 65 Parties to the Convention.

### 10.15. APPLICATION PROGRAMMING INTERFACE EXCHANGE (APIX)

- Indian PM along with deputy PM of Singapore recently launched APIX.
- APIX is a **banking technology platform** designed to reach two billion people worldwide who are still without bank accounts.
- It will help people in 23 countries including the 10 ASEAN members as well as major markets such as India, and small nations including Fiji

### 10.16. WORLD ENERGY OUTLOOK 2018

- The International Energy Agency has published its flagship publication World Energy Outlook, 2018 with this year theme as “Electricity”.

### 10.17. GLOBAL CITIES' INITIATIVE

- The United Nations has selected Uttar Pradesh's **Noida and Greater Noida** to participate in its **Global Sustainable Cities 2025 initiative**.
- This initiative aims to **create 25 model cities across the world** that will be fully compliant with the sustainable development goals by 2025.
- As part of this initiative, the **UN will enter into an agreement with the city administration** to provide multi-million dollar funding to work towards realising SDGs.

### 10.18. DATA CITY PROGRAMME

- Karnataka Government launches **Data City Programme to Solve Bengaluru's Problems**
- It is a 7 month long programme where the **corporates, startups, government agencies and citizens** will work closely to find solutions to city's growing issues like mobility, water, waste management etc.
- It is the **first Data City programme launched in Asia**.
- **Government agencies** involved in this programme **will not fund the project**, but will only support corporates and startups.

### 10.19. SAFE CITY PROJECT

- Recently the Union Ministry of Home Affairs approved safe city project for Lucknow in **eight selected cities** — **Mumbai, Delhi, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Lucknow**.

- It was proposed under the **Nirbhaya Fund Scheme** with an aim to strengthen security of women in public places.
- The **other components** of the project are an augmentation of existing **Asha Jyoti Kendra**, implementing safety measures in buses, including installation of cameras, improving street lighting and integration of women power helpline with **single Emergency number '112'**.
- The project is implemented with collaboration of the **Ministry of Women and Child Development, Ministry of Urban Development, Ministry of Electronic and Information Technology, respective municipal and police commissioners of the cities besides civil society organizations**.

### 10.20. SOUTH ASIAN REGIONAL CONFERENCE ON URBAN INFRASTRUCTURE

- Recently **NITI Aayog** in partnership with **UNESCAP and Asian Development Bank** organized South Asian Regional Conference on Urban Infrastructure in New Delhi.
- It aims to review overall issues and assess the **sustainability of PPPs and urban finance** in South Asia, specifically India.
- **United Nations Economic and Social Commission For Asia And The Pacific (UNESCAP)** is the **regional development arm of the United Nations** in Asia and the Pacific, with its **headquarters in Bangkok, Thailand**.

### 10.21. EASE OF MOVING INDEX

- Recently Ola Mobility Institute launched India's 1st 'Ease of Moving Index' which depicts **mobility preferences and aspirations of Indian commuters** across **20 cities**.
- **60% of people use public modes of commute**, signaling that integrating modes of first and last mile connectivity with mass transport could lead to improved usage.
- Urban mobility is going digital with **55% of commuters who use public transport owning smart cards, and over 40% transact digitally** while using public transport including Intermediary Public Transport (IPT).

### 10.22. LOCATION TRACKING AND EMERGENCY BUTTONS

- The Ministry of Road Transport & Highways (MoRTH) has mandated that **all new public service vehicles** must have Vehicle Location Tracking (VLT) with **emergency buttons**.
- The rule is **applicable to all new vehicles** registered on or after January 1, 2019.
- **Auto-rickshaws and e-rickshaws** have been exempted from this rule.

- **Command and Control Centres** will be setup which will provide interface to various stakeholders.
- The details of each VLT device will be uploaded on the **VAHAN database** by the device manufacturer.

### 10.23. EMERGENCY RESPONSE SUPPORT SYSTEM

- Recently Union Home Minister launched Emergency Response Support System (ERSS) for **Himachal Pradesh and Nagaland**.
- Himachal Pradesh is the first state to launch **pan-India single emergency number '112'** under ERSS which will connect to Police, Fire, Health and other helplines through an Emergency Response Centre in the State.
- Central Government has allocated Rs 321.69 crore under **Nirbhaya Fund** for implementation of ERSS project across the country.
- A **SHOUT feature** has been introduced in '112 India' mobile app **exclusively for women**.

### 10.24. NATIONAL ENVIRONMENTAL HEALTH PROFILE PROJECT

- Ministry of Environment and Forest is undertaking a National Environmental Health Profile Project which would look at the quantum of **health effects arising from environmental exposure** across **20 cities** divided into four zones.
- In each zone, the city which do not have high pollution level will be taken as **referral city** and the cities with the higher pollution levels will be taken as test city where the study will be conducted.

### 10.25. TIANGONG: CHINESE SPACE STATION (CSS) PROGRAM

- Recently China presented replica of its first permanently crewed space station.
- Tiangong ('Heavenly Palace') is a space station program of China to place the **Chinese large modular space station** in Low Earth orbit by 2022.
- International Space Station (ISS) is expected to be de-commissioned in 2024 and **CSS** will fill the vacuum in Space Station based research.
  - The International Space Station is a habitable artificial satellite in low earth orbit operational since 1998. It is collaborative effort between space agencies of the United States, Russia, Canada, Europe and Japan.

### 10.26. NASA'S INSIGHT PROBE

- Nasa's Mars lander **InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport)** touched down safely on the surface of the Red Planet.
- It is the first spacecraft designed to explore the deep interior of the red planet.
- This is important because Earth and Mars used to be similar — warm, wet and shrouded in thick

atmospheres — before they took different paths 3-4 billion years ago. Mars stopped changing, while Earth continued to evolve.

- The landing site is **Elysium Planitia**, close to planet's equator where InSight can stay still and quiet.
- It was Nasa's ninth attempt to land at Mars since the 1976 Viking Probe. NASA last landed on Mars in 2012 with the Curiosity Rover.

### 10.27. OSIRIS-REX MISSION

- Recently OSIRIS-REx captured first clear images of **asteroid Benu**. NASA launched a space probe - **OSIRIS-Rex (Origins, Spectral Interpretation, and Resource Identification-Regolith Explorer)** for a near earth asteroid **Benu in 2016**.
- These first images of Benu present a remarkable similarity with the ones recently obtained by the **JAXA Hayabusa2 mission** (Japanese mission) of another primitive asteroid, **Ryugu**.
- **Benu's orbit is close to Earth's and crossing it.**

### 10.28. EARTH'S TWO EXTRA HIDDEN 'MOONS'

- Recently, a group of Hungarian scientists confirmed a long-standing astronomical speculation—the Earth has three natural satellites or moons.
- The new moons are entirely made up of extremely tiny dust particles of less than one millimetre size and reflect light rather faintly making them difficult to observe and study even when they are located at around the same distance as the Moon from the Earth—400,000 kilometres.
- They were observed for the first time in 1961 by Kazimierz Kordylewski, a Polish scientist and they were later named after him as **Kordylewski Dust Clouds (KDCs)**.
- These were found close to Lagrange point L5 of the Earth-Moon gravitational system.
  - Lagrange points, are where the gravitational pull of two orbiting objects—such as Earth and the sun—is balanced out by the centripetal force of their orbits.

### 10.29. SPIKING NEURAL NETWORK ARCHITECTURE MACHINE

- Recently **world's largest brain like supercomputer called Spiking Neural Network Architecture (SpiNNaker)** was turned on for the first time.
- SpiNNaker **mimics the working of human brain** with the help of about thousand interconnected circuit boards.
- It has computational capability of more than 200 million actions per second. **However even at this rate it has achieved only 1 percent of scale of human brain and that too with lots of simplifications.**

### 10.30. SHAKTI MICROPROCESSOR

- Recently, India's first microprocessor called **Shakti** was developed by IIT Madras.
- Shakti is an **open-source initiative** by the Reconfigurable Intelligent Systems Engineering (RISE) laboratory at IIT Madras with funding by **Union Ministry of Electronics and Information Technology**.
- Earlier, an initial batch of 300 chips named **RISECREEK** was fabricated free at Intel's facility at USA to run on the Linux System. But now fabrication also in the country has made the microprocessor **completely indigenous**.
- The Shakti team is also almost ready with '**Parashakti**' which is an advanced microprocessor for super computers. It can be used in desktops and if 32 such microprocessors are attached together then it could be used in supercomputer.

### 10.31. POLARIMETRIC DOPPLER WEATHER RADAR

- ISRO recently unveiled **S-band 'Polarimetric Doppler Weather Radar (PDWR)'** installed at **Cherrapunjee**.
- It would provide **advanced information** and enhance the lead-time essential for saving lives in the event of a natural disaster associated with severe weather.
- While conventional radars are able to track and predict cyclones, the DWR provides detailed information on a storm's internal wind flow and structure, enabling **more accurate estimation**.

### 10.32. VAN DER WAALS MATERIALS

- Researchers believe that they hold the key to a '**post-silicon**' electronics.
- VdW materials are made of **piles of ultra-thin layers** that are held together by weak **van der Waals bonds**, which arise when atoms are in close proximity.
- A well-known example is **graphene** which stimulated scientists to look for other 2D crystals, where layers can be changed, added or removed in order to introduce new physical properties such as magnetism.

### 10.33. KIMBERLEY PROCESS

- Recently, European Union handed over the chairmanship of Kimberley Process Certification Scheme (KPCS) to India.
- It is an international certification scheme that regulates **trade in rough diamonds**.

### 10.34. MILITARY EXERCISES

- **Vajra Prahar** is an Indo-US joint military training exercise conducted alternately in India and the US.
- **KONKAN-18** is joint naval exercise between India and the United Kingdom.

### 10.35. INDIAN OCEAN NAVAL SYMPOSIUM (IONS)

- **10th anniversary** celebrations of the **Indian Ocean Naval Symposium (IONS)** were recently held at Kochi with the theme "**IONS as a Catalyst for SAGAR** (Security and Growth for All in the Region)".
- It is a **voluntary initiative** that seeks to **increase maritime co-operation** among **navies of the littoral states of Indian Ocean Region**.
- The inaugural IONS was held in **2008**.

### 10.36. MISSION RAKSHA GYAN SHAKTI

- The **Department of Defence Production** has instituted a new framework titled 'Mission Raksha GyanShakti' as part of the ongoing initiatives to enhance self-reliance in defence.
- The Directorate General of Quality Assurance (DGQA) is coordinating and implementing the programme.
- Its aim is to inculcate Intellectual Property Right culture in Indian defence manufacturing ecosystem.

### 10.37. PROJECT AIPAN

- Project Aipan was started with an aim to revive Aipan, an art form which hails from the Kumaon region of Uttarakhand, India.
- The background is prepared with red clay, called geru, and the designs are created with a white paste made from rice flour.
- Traditionally it was made on walls and floors.

### 10.38. #POWEROF18 INITIATIVE

- **Twitter** launched a social initiative namely **#PowerOf18**, with an aim to **encourage Indian youth** to contribute in public debates and participate in civic engagement in the upcoming general elections.

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