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1. POLITY AND CONSTITUTION

1.1. INTER-STATE RIVER WATER DISPUTES (AMENDMENT) BILL, 2017

Why in news?

- Union Minister of Water Resources, River Development and Ganga Rejuvenation introduced Inter-State River Water Disputes (Amendment) Bill, 2017 in Lok Sabha.
- The Inter-State River Water Disputes (Amendment) Bill, 2017 proposes to streamline the adjudication of inter-state river water disputes and make the present legal and institutional architecture robust.

Need: The **Inter State Water Dispute Act, 1956** which provides the legal framework to address such disputes, suffers from many drawbacks

- Under this Act, a **separate Tribunal** has to be established for each Inter State River Water Dispute.
- Only **three out of eight Tribunals** have given awards accepted by the States. Tribunals like Cauvery and Ravi Beas have been in existence for over 26 and 30 years respectively without any award.
- Delays are on account of **no time limit** for adjudication by a Tribunal, no upper age limit for the Chairman or the Members, work getting stalled due to occurrence of any vacancy and no time limit for publishing the report of the Tribunal.

Provisions

- **Dispute Resolution Committee**
 - Proposes to introduce mechanism to resolve the dispute amicably by negotiations, through a Dispute Resolution Committee (DRC) to be established by the Central Government consisting of relevant experts, before such dispute is referred to the tribunal.
 - The Committee would strive to settle the dispute within a period of one year, which may be extended by 6 months.
 - In case of failure of such negotiations, the dispute would be referred to the Tribunal.
- **Single Tribunal**
 - Bill proposes a Single Standing Tribunal (with multiple benches) instead of existing multiple tribunals.
 - The tribunal shall consist of one Chairperson, one Vice-Chairperson and not more than six other Members
 - The term of office of the Chairperson is five year or till he attains the age of 70 years, whichever is earlier, the term of office of Vice Chairperson and other member of tribunal shall be co-terminus with the adjudication of the water dispute.
- **Timeline:** The tribunal should settle a dispute in four-and-a-half years.
- The decision of the Tribunal shall be final and binding.
- **Data Collection:**
 - The Bill also provides for transparent data collection system at the national level for each river basin.
 - For this purpose, an agency to maintain data-bank and information system shall be appointed or authorized by Central Government.
- **Technical Support:** Provides for the appointment of Assessors to provide technical support to the tribunal. They shall be appointed from amongst experts serving in the Central Water engineering Service.

1.2. NITI AYOJ TO PARTNER WITH CIVIL SOCIETY ORGANISATIONS

Why in news?

- Recently an interaction session of NITI Aayog was held with the leading Civil Society organizations (CSOs) and key ministries of the Union Government, to deliberate upon taking forward the social sector initiatives of government.
- The move is significant in the context of NITI Aayog's view of late that the state governments were not taking enough steps to implement various centrally sponsored schemes in the social sector.

Impact of this partnership

- **Efficient utilisation** of government resources in the social sector.
- **Innovative solutions** to various problems such as eliminating poverty, hunger and all other forms of deprivation which may create a lasting impact on the lives of all citizens.
- **Improvement in service delivery** of major government schemes through partnership with CSOs with government at all levels (national, state/district and ground level).
- **Ensuring inclusive growth** and development down to the last mile.

1.3. 'MITIGATING CIRCUMSTANCES' IN DEATH PENALTY

Why in news?

The Supreme Court sought relevant mitigating evidence in the December 16, 2012 gang-rape case on recognizing that neither the trial court nor the high court considered any evidence regarding the mitigating circumstances of the accused before sentencing them to the death penalty.

Consequences of this judgement

- **Effective discovery of mitigating circumstances** by allowing defence counsel to hold regular meetings in privacy unlike lack of privacy space and limited time granted by prison authorities for lawyer-client meetings
- **Imposing no limit on the 'nature of evidence'** as court allowed presenting details of relevant circumstances through affidavit, giving teeth to liberal and expansive construction of mitigating factors mandated in *Bachan Singh case*.
- **Sufficient time for collection of mitigating evidence** and preparation required for counsel to aid an effective sentencing hearing by setting separate date for sentencing arguments gives. It also revises burden over defense counsel of making a case against death unlike earlier where prosecution had the burden of making a case for death.
- It may set a **good precedent of following procedural safeguards** which involves determining sentences based on all relevant info gathered from accused, family, peers, mental health and other experts and not on absurd mathematical calculations using young age and number of dependents etc.

Various cases associated with death penalty

Jagmohan case – where concern was raised regarding arbitrary power with judges

Bachan Singh case – apex court came up with 'rarest of rare doctrine' and giving great weight to 'mitigating circumstances'

Bhullar case – created exception for the cases related to death penalty to person involved in terror activities

Shatrughan singh chauhan – gave guidelines regarding meeting with family, opportunity to challenge rejection of mercy petition, evaluation of mental health before executing death sentence. This judgement overrode Bhullar judgement.

1.4. EMPLOYEES COMPENSATION AMENDMENT BILL

Why in news?

- Parliament has cleared the Employee Compensation (Amendment) Bill, 2016.

Background

- The Bill amends the Employee's Compensation Act, 1923. The Act provides payment of compensation to employees and their dependents in the case of **injury by industrial accidents, including occupational diseases**.
- Dispute related to an employee's compensation are heard by a Commissioner (with powers of a civil court). Appeals from the Commissioner's order lie before the High Court.

Amendments made in the Act

- **Duty to inform employee for right to compensation**- in writing as well as through electronic media in English, Hindi or the relevant official language at the time of employing.
- **Penalty for failure to inform**- enhanced the amount from 5000 to between 50,000 and 100,000
- **Revise the minimum amount** involved in the dispute for which appeal can be filed to the High Court, from the existing Rs 300 to Rs 10,000.
- **The Bill deletes section 30A** which deals with withholding payments of employee if the employer has appealed against the Commissioner's order.

Way forward

- The Bill is worker friendly but the focus should also be given on strong enforcement mechanism related to safety measures at the industrial sites.
- Steps should also be taken to bring in the unorganized workforce into its ambit.

1.5. JUDICIARY

1.5.1. JUDICIAL TRANSPARENCY

- **Supreme Court** has ordered installation of **CCTV cameras** in **courtrooms** and its **premises**, without audio recording, in at least in **two districts** of all states and union territories within three months.
- Such a move came after several rounds of deliberations happened between **Union Executive** and **Supreme Court India** to record court proceedings. **Law Commission** have recommended for audio-visual recording of court proceedings.
- Earlier chairman of 20th **Law Commission Ajit Prakash Shah** have recommended for audio-visual recording of court proceedings.
- However SC made it clear that footage of the CCTV cameras **will not be available** under **Right to Information Act** and anybody who want the video footage of court proceedings have to get permission of **concerned High Court**.

1.5.2. JUDICIAL OVERREACH BY TRIBUNALS

Why in news?

- Armed Forces Tribunal granted non-functional upgrade to armed forces.

Objections to Tribunal Orders

- The government in principle accepts NFU to armed forces.
- The **Armed Forces Tribunal does not have the power** to pass such an order.
- The **Anomalies Committee** set up for the purpose is already looking into the issue.

Non-functional Upgrade (NFU)

- NFU is given to alleviate stagnation in the service due to non-promotion.
- It entitles an officer to get the pay scale of the highest promoted officer of their batch even if he or she is not promoted to the same rank after a certain period.

About Administrative Tribunals

- **Administrative tribunals** are set up under **law by the Parliament (Article 323A)** to hear cases related to **service matters** of employees of Union or of any State or local or other authority.
- The **Chairman** of Central Administrative Tribunal (CAT), set up under **Administrative Tribunals Act, 1985**, must be either a sitting or a retired High Court Judge.
- **Article 323(B)** provides for setting up of tribunals **by appropriate legislature** for **adjudication of other matters** which include: taxation; foreign exchange, import and export; industrial and labour related matters; land reforms; urban ceiling on property; elections to Parliament and state legislature; food stuffs and rent and tenancy rights.
- The Parliament or the relevant legislature can also provide by law **to exclude the jurisdiction of all courts except jurisdiction of the Supreme Court** in matters to be heard by these tribunals.

1.5.3. JUDICIAL DELAYS

Why in news?

- The Supreme Court issued guidelines for fixed time-bound hearing and disposing of criminal cases.
- Recently, at least 15 judges of the Supreme Court decided that they will be sitting in the forthcoming summer vacation to deal with three cases of Constitutional importance.

Significance of timely justice

- Supreme Court has said that Article 21 of the Constitution entitles prisoners to a **fair and speedy trial as part of their fundamental right to life and liberty**.

- It has been estimated that if court decisions were quick and delays reduced, **economic growth could receive a boost** to the tune of 1-2% of gross domestic product.
- Speeding the process will also **help the poor and those belonging to disadvantaged social groups**.

Guidelines

- High Courts should decide bail applications within a month and subordinate courts within a week.
- Magisterial trials, where accused are in custody, should normally be concluded within six months and sessions trials, with accused in custody, within two years.
- High Courts to ensure that subordinate courts dispose of cases pending for five years by the end of 2017.
- Cases before High Courts where accused are in custody for more than five years should be concluded at the earliest.

Reasons for Judicial Delays

- **Poor Judges to Population Ratio:** India has only 17 judges per million population and nearly 5000 posts in subordinate courts are vacant. The Law Commission in 1987 had proposed 50 judges per million population. In contrast, US has 151 and China has 170 judges for a million population.
- **Impasses over Appointments of Judges:** Memorandum of Procedures for appointment of judges remains work in progress while vacancies in various High Courts have reached nearly 50% of their sanctioned strength.
- **Inefficient and time-consuming procedures:** liberal adjournments of cases must be avoided and witnesses once produced must be examined on consecutive dates.
- **Management of cases** depend not on judiciary but on availability of lawyers.
- **Police lacks training** for scientific collection of evidences and also police and prison official often fail to fulfil their duty leading to long delays in trial.

Measures

- **Information and communication technology (ICT)** tools and **modern case management systems** should be used to improve transparency and the flow of information.
- **Alternate Dispute Resolution** mechanism should be strengthened and people must be made aware about it.
- **International best practices** such as judicial management of cases, plea bargaining, trial readiness, settlement conferences, fixed times for certain filings by attorneys, the elimination of preliminary inquiries, etc. have been developed that have proven to be most effective in eliminating delay and consequently reducing backlogs.
- **Police Reforms:** The police administration need to be provided with more resources - financial and human both for its effective functioning and improvement of investigation system.
- **Physical infrastructure** needs to be expanded and the necessary support staff be provided to declog the system.
- The implementation of setting up **Gram Nyayalayas** to ensure that “opportunities for justice were not denied to any citizen by reason of social, economic or other disabilities” need to be sped up.

1.6. REMOVAL OF PROPERTY TAX

Why in news?

Aam Aadmi Party had promised to waive property tax on residential properties if it came to power in municipality elections of Delhi.

Background

- Only 30-35% of the properties pay taxes in Delhi
- Nationwide, municipal revenue is very low – just 0.75% of GDP to support 31% population living in urban areas as given by Jannagraha NGO in its Annual Survey of Indian City System, 2015.
- The property tax is collected from residential, commercial and industrial units as well as mixed land use.

Revenue source of Municipalities

- Tax revenue- property tax, Octroi, Advertisement tax, etc.
- Non-tax revenue- municipal fees, lease amounts
- Other receipts- sundry receipts, lapsed deposits, fines
- Shared revenue- entertainment tax, surcharge on stamp duty, profession tax
- Grants in aid
- Loans

Criticism of the move

- It would **require an amendment to the Delhi Municipal Act, 1957**, which requires the approval of Parliament and hence does not come under the power of municipalities.
- Delhi municipalities are **not able to give salaries to their employees** and this move will further cut the revenue of the municipalities.
- It can become a **nationwide epidemic as a populist move** in other municipality elections which can drain out revenues of municipalities.
- It is considered to be **regressive as the people** in upper strata will be benefitted.
- **Issuance of municipal bonds** would be a challenge with decreasing revenue source.
- **Potential being wasted**- Economic survey 2016-17 talks about property tax as the untapped potential to augment the revenue base of urban local bodies.

1.7. ELECTORAL REFORMS

1.7.1. LIFE TIME BAN OF CONVICTED LAWMAKERS

Why in news?

- **Election commission (EC)** has supported a **Public Interest Litigation** in Supreme Court demanding a **life time ban** on **convicted politicians** from contesting elections and entering legislature.
- **EC** is of the view that such a uniform ban is in spirit of **Fundamental rights** of the Constitution including **Right to Equality**.

Present Provisions for banning convicted lawmakers

Section 8 of Representation of People Act, 1951 lays down certain rules for disqualification of MP's and MLA's such as:

- Under **Section 8 (1), (2)** of the Act if any of the lawmakers are convicted of crimes like **rape; murder; practicing Untouchability or Sati; violating Foreign Exchange Regulation Act; causing enmity over religion, language or region; indulging in electoral violations, insulting Indian Constitution; importing and exporting banned goods, indulging in terrorist activities;** etc. will be disqualified for a minimum period of **six years**. It is irrespective of whether they are **fined or imprisoned**.
- Crimes under **section 8(1) and 8(2)** are related to various acts of **Indian Penal Code; Protection of Civil Rights Act 1955; Prevention of Corruption Act 1988; Prevention of Terrorism Act 2002, Unlawful Activities (Prevention) Act 1967**, etc.
- Moreover any lawmaker convicted of any other offence under **section 8(3)** and sentenced to imprisonment for not less than **two years**, he/she will be disqualified from date of conviction and further **six years** from the time released.
- **Section 8(4)** of RPA, 1951 which had provisions for convicted lawmakers to hold on to their seats provided they filed an appeal in higher court within **three months** of their conviction against the order of lower court. However in **2013 Lily Thomas vs. Union of India case**, SC struck down **section 8(4) of RPA, 1951** calling it unconstitutional.
- Henceforth there is **automatic disqualification** (his/her seat becomes automatically becomes vacant) of any lawmakers if they are convicted under **sections 8 (1), 8 (2) and 8 (3)**.

Argument for

- This will help in **Decriminalization of politics**. As per **Association for Democratic Reforms** in 16th Lok Sabha (2014) **34%** of newly elected MP's have **criminal cases** filed against them. In **2009** this figure was **30%**.
- It will act as a **deterrent factor** in future for candidate to not indulge in criminal activities.
- As candidates with clean background entering the legislature, common people will have more faith in Political system thereby strengthening the roots of **Democracy**.

Argument Against

- **Life-long punishment** may seem **disproportionate** as candidate guilty of committing even minor crimes like breaking traffic rules, indulging in minor scuffling unlike heinous crimes like rape, murder, terrorism still he/she will be disqualified for life term from contesting elections.

- There may be chances that ruling party leaders may deceitfully frame their **rival leaders or genuine political activists/ innocent people** to wipe out their opposition.

Way forward

Such a lifelong ban on convicted lawmakers will go a long way in **cleansing** the Political system of India and serves as a confidence building measure. However care should be taken that such ban happens only for **heinous crimes**.

1.7.2. MULTI PHASE POLLS

Why in News?

- After polling in 5 states, Chief Election Commissioner of India (CEC) has said that long-drawn-out, **multiple-phase elections will continue in near future**.

Need

- The Constitution provides us with **the right to have free and fair elections**. Single phase election may be hard to monitor and may lead to unfair election practices.

Representation of People Act 1951

- **Section 126** – It forbids display of election matter through print or television, 48 hours before the polling starts.
- This is valid only for the constituency in which the polling would begin and not in other constituencies in multi-phase polls.

Significance

- Conduct of elections involves **elaborate security management**, including security of polling personnel, polling stations and polling materials.
 - Multi-phase polls help in **overcoming any challenges of manpower shortage** related to security.
 - It also **improves monitoring and coordination** between agencies conducting the election.
- Multi-phase polls also **distribute costs of conducting** elections over a period of time rather than application of one-time costs thus removing logistical challenges.
- Multi-phase polls **reaches maximum amount of voter population** preventing occurrence of violence and malpractices in elections.

Criticism

- Many oppose the move as multi-phase polls **undermine the authority of State Police** in law and order because of the preference given to the Central police forces.
- Multi-phase polls are also considered to be a **hindrance to free and fair polling** because –
 - Even if election campaigning stops in one area, it still continues in other area due to the **Section 126 of ROP Act 1951**.
 - This **indirectly influences the voter** of the other constituencies, thus violating the spirit of the law.
- Model Code of Conduct is extended over a larger period of time in multi-phase poll. This causes **hurdles to start new development projects** in these poll states.

Way Forward

- Although there are limitations of multi-phase polls, still in the present scenario of limited financial and human resources, the multi-phase poll is a way to remove any logistical challenges to the conduct of free and fair elections.

1.7.3. ELECTION COMMISSION ON ASTROLOGY

- **Election Commission (EC)** said that Predictions by astrologers, Tarot readers and Political analysts on election results cannot be published or broadcast by the media.
- EC observed such kind of analysis is equivalent Exit polls.
- At present, **Exit polls** are banned under **Representation of People Act, 1951**. Such restrictions are in place since 2010 with Introduction of **Section 126(A) of RPA, 1951**.

About Election Commission of India (ECI)

- EC is **Independent, Constitutional** body established as per the provisions of **Article 324** of Constitution.
- At present ECI consists of **one** Chief Election Commissioner (**CEC**) and **two** Election Commissioner. They have equal powers; receive equal salary, allowances and other perks.

- **CEC** can only be removed by President on the basis of resolution passed to that effect by both the houses of parliament with special majority either on ground of **proved misbehaviour** or **incapacity only**. Other EC cannot be removed from the office except on recommendation of CEC.
- Some of the **major functions** of **ECI** include **Conducting free and fair elections** of President, Vice President, Parliament, State legislatures; Preparing and periodically revising **Electoral rolls**; Granting **recognition** to Political Parties and **allotting** them symbols; Formulating **Code of Conduct**; Cancelling polls in case of rigging; Conduct **by-polls**; to advise **President** and **Governor** regarding disqualifications of members of **Parliament** or **state legislatures**; **act as court** to settle disputes between political parties.

1.8. AADHAAR

Why in news?

- The government has made Aadhaar mandatory for filing income tax returns; for obtaining PAN; for availing benefits under Mid-Day Meal; and also for verification of mobile phone connections.

What is Aadhaar?

- Aadhaar is a **12-digit number** issued by the UIDAI to the **residents of India**, however, it does **not confer any right of citizenship or domicile** in respect of an Aadhaar number holder.
- Any resident, **irrespective of age and gender** may voluntarily **enrol free of cost** to obtain Aadhaar.
- Aadhaar is **proof of identity, proof of residence** and now also **financial address for its residents**.
- **Data collected** includes:
 - ✓ **Demographic information required:** Name, Date of Birth, Gender, Address, Parent/Guardian details (required for children, optional for adults), Contact details phone and email (optional)
 - ✓ **Biometric Information required:** Photo, 10 finger prints, Iris

Features and benefits of Aadhaar

- Aadhaar has helped **save** government more than **INR 49,000 crore in subsidies** and more than **106 crore people** have already been allotted Aadhaar till date.
- **One Aadhaar:** As it contains biometrics which is unique, it helps in identifying fake and ghost beneficiaries in a government scheme, thereby helping in better targeting and stemming leakages.
- **Identification Services:** Agencies can check identity of a person online from anywhere in India by requesting UIDAI after obtaining prior consent of the person. This eliminates need of various identity documents required in opening bank accounts etc.
- **Blocking Biometrics:** Aadhaar card holder gets alerts every time his/her identity is authenticated and can also block biometrics, thus not allowing anyone to access details for identification.
- **Marginalized and excluded residents not having sufficient documentation** to meet the proof of identity or proof of address will also be issued Aadhaar number by way of “introducer” system.
- **Electronic benefit transfers:** Aadhaar acts as financial address and thus offers a secure and low cost platform to directly remit benefits to intended beneficiaries.
- **Improving Efficiency and Efficacy:** Clear accountability and transparent monitoring would significantly improve access and quality of entitlements to beneficiaries and the agency alike.
- **Self-service puts residents in control:** Using Aadhaar as an authentication mechanism, residents should be able to access up-to-date information about their entitlements, demand services and redress their grievances directly from their mobile phone, kiosks or other means.

Issues with Aadhaar

- **Privacy Issues:** Right to liberty and freedom of expression is compromised if right to privacy is not there. In the absence of a comprehensive privacy law in India, making Aadhaar mandatory may lead to misuse of personal information and surveillance by the State thus taking away privacy.
- **Release of Information:** Information of an individual can only be revealed in two cases:
 - ✓ On the order of District Court
 - ✓ In the case of **national security** on direction of a “**joint secretary**” (Section 33(2))
- National security is a **vague term** and these safeguards are **weaker** than those for telephone tapping as given in Telegraph Act, 1885 which allows sharing of data for **public emergency or public safety** and second, the order to share information can be issued only by Home Secretary.

- **Potential to profile individuals:** The Act does not have provisions to protect against determining of behavioural pattern and profiling of a person using big data analytics.
 - ✓ It does not prohibit law enforcement agencies from using Aadhaar as a link across various datasets such as telephone records or air travel records
 - ✓ It does not prescribe maximum duration for which authentication record of an individual can be maintained.
- **Section 57** enables the government to impose Aadhaar identification in virtually any other context that is not mentioned in the bill.
- **Cognizance of offence:** No court shall take cognizance of any offence except on a complaint made by the UIDAI. Thus, a person who is aggrieved by breach of data has no remedy at his/her disposal.
- **Discretionary powers of UIDAI:** The Act empowers UIDAI to specify other information that may be collected, **without prior approval** from Parliament.
- **No provision for public or independent Oversight:** The Act does not provide for independent oversight or limitations on surveillance.
- **Prosecution:** The Aadhaar Act does not make UIDAI liable for criminal prosecution in case of breach of data as per Section 43 of the Information Technology Act.
- **Compensation:** Unlike in western countries, the Act does not have any provision for compensation to the person whose data is compromised.
- **Authentication Failure:** In addition to wrong inclusion, exclusion of poor households, and misuse of biometric data, failure of biometric authentication stands approximately at 30 % due to connectivity and other issues.

Conclusion

- Aadhaar presents a unique opportunity to improve governance processes and outcomes. It is a strategic policy tool for social and financial inclusion, public sector delivery reforms, managing fiscal budgets, increase convenience and promote hassle-free people-centric governance. It facilitates financial inclusion of the underprivileged and weaker sections of the society and is therefore a tool of distributive justice and equality.

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2. INTERNATIONAL/INDIA AND WORLD

2.1. INDIA-CHINA

2.1.1. DALAI LAMA'S VISIT TO ARUNACHAL PRADESH:

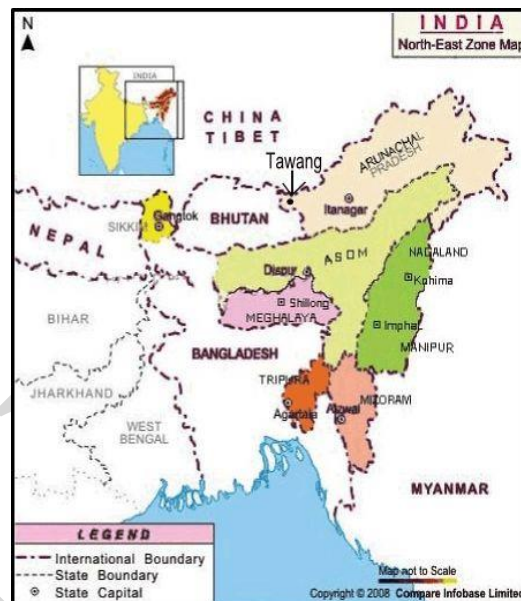
Why in news?

- China is opposed to the Dalai Lama's visit to Arunachal Pradesh, particularly Tawang, which it considers as Southern Tibet.
- China considers that the visit of the Dalai Lama will have a negative impact on Sino-Indian ties and accused New Delhi of breaching its commitment on the Tibet issue.
- Dismissing China's concerns, Indian government had responded and termed Dalai Lama's visit to Tawang as purely "religious".

About Tawang

Tawang district is the smallest of the 16 administrative districts of Arunachal Pradesh.

- The **second largest monastery in Asia and the largest in India is the Tawang Monastery**. It was established by Mera Lama Lodre Gyasto during the 17th century. It was also the birth place of the **6th Dalai Lama**. There is a magnificent 8-m high statue of Lord Buddha.
- It is a holy site for Tibetan Buddhists and a **prominent center for Gelug or Gelugpa, the pre-eminent Buddhist school in Tibet**.
- Tawang shares boundaries with **Tibet in the north, Bhutan in the south west and Sela range of West Kameng in the east**.
- In 1959, when the current Dalai Lama fled Tibet, he came into India through Tawang.
- It has sent representatives to parliament in every election since 1950.



2.1.2. INDIA-CHINA BORDER DISPUTE

Why in news?

Former Chinese special envoy Dai Bingguo said that the border dispute between China and India can be resolved if **New Delhi accepts Beijing's claim over strategically vital Tawang region in Arunachal Pradesh**

- Dai Bingguo suggested that flexibility from India over the "**eastern boundary**" in Arunachal Pradesh could **yield flexibility from China over "other areas", that is, the western boundary in J&K**.
- Indian officials, however, said Dai's proposal is neither practical nor possible for India to accept considering that **Tawang is an integral part of Arunachal Pradesh** and has sent representatives to Parliament in every election since 1950.
- China says the border dispute covers Arunachal Pradesh which it claims as Southern Tibet, India asserts that the dispute covered Aksai Chin area.

In terms of length, India shares 3,488 kms of border with China. The Sino-Indian border is generally divided into three sectors namely: (i) The Western sector, (ii) The Middle sector, and (iii) The Eastern sector.

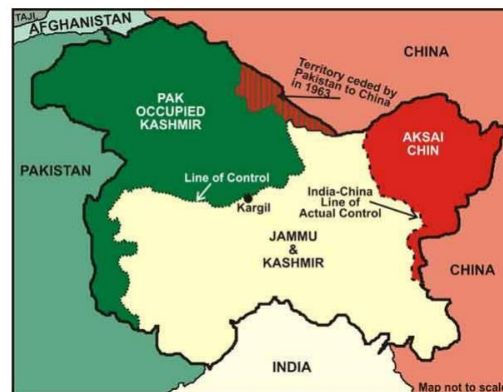
The Western Sector

The Indian boundary with china in the western sector is about 2152 km long .It is between Jammu and Kashmir and Xinjiang (Sinkiang) province of china.

Aksai Chin

The territorial dispute over Aksai Chin can be traced back to the failure of the British Empire to clearly demarcate a legal border between its Indian colony and China.

- As two borders between India and China were proposed during the time of the British Raj – the **Johnson's Line** and the **McDonald Line**.
- The **Johnson's line** shows Aksai Chin to be under **Indian control** whereas the **McDonald Line** places it under **Chinese control**.
- India considers the Johnson Line as the correct, rightful national border with China, while on the other hand, China considers the McDonald Line as the correct border with India.
- The line that separates Indian-administered areas of Jammu and Kashmir from Aksai Chin is known as the **Line of Actual Control (LAC)** and is concurrent with the Chinese Aksai Chin claim line.
- China and India went to war in 1962 over disputed territory of Aksai Chin. India claimed this was a part of Kashmir, while China claimed it was a part of Xinjiang.



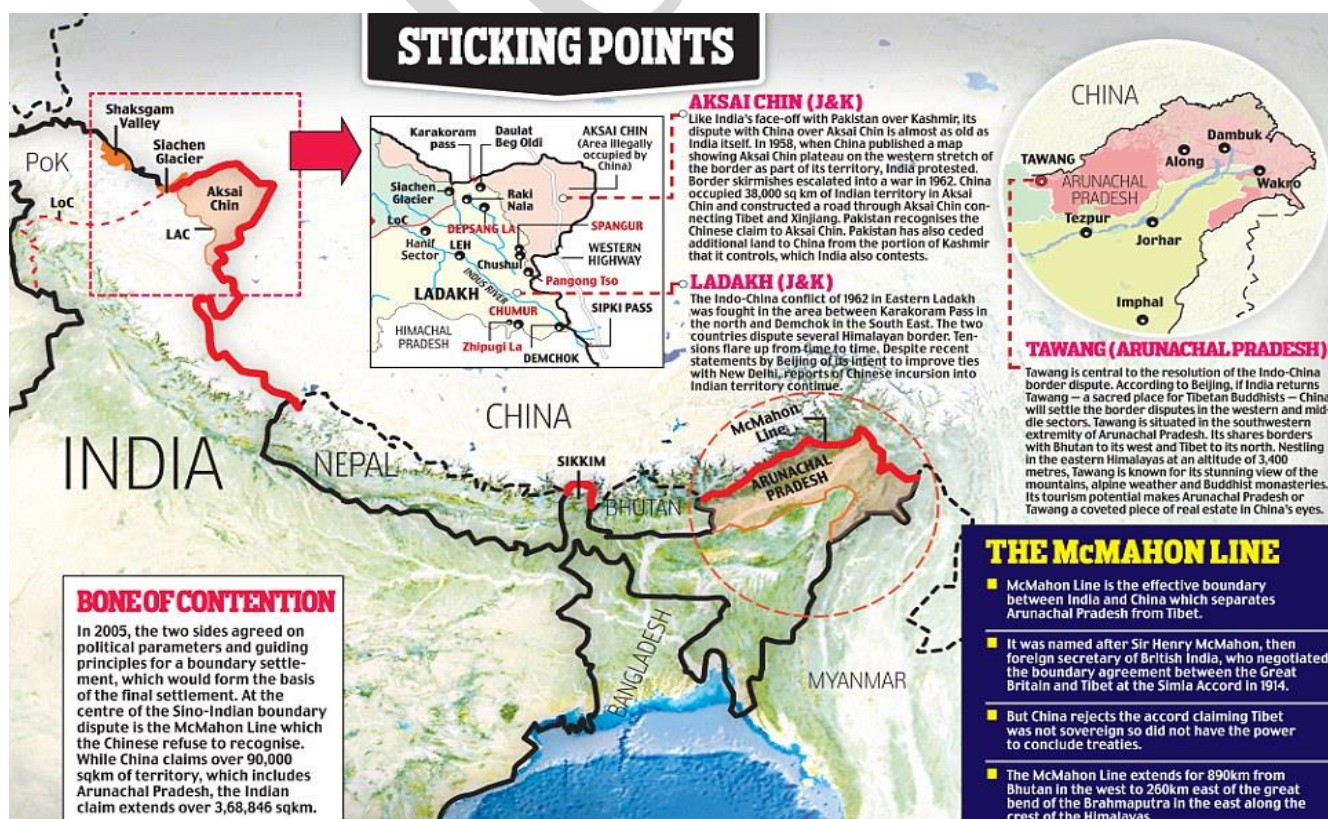
The Middle sector

The middle sector boundary is about 625 km long which runs along the watershed from Ladakh to Nepal. The states of Himanchal Pradesh and Uttarakhand touch this border with Tibet (China).

The Eastern Sector

The boundary in the eastern sector is 1,140 km long and runs from the eastern limit of Bhutan to a point near the **Talu Pass at the trijunction of India, Tibet and Myanmar**. This line is called the **McMahon Line** after Henry Mc Mahon, a British representative who signed the 1913-14 Shimla Convention.

- The boundary was established along the Himalayan crest of the northern watershed of the Brahmaputra, except where the Lohit, Dihang, Subansiri, and Kameng rivers break through that watershed.
- China considers the **McMahon Line illegal and unacceptable** claiming that **Tibet had no right to sign the 1914 Convention held in Shimla** which delineated the Mc Mahon line on the map.



Special Representative Talks on the border issue

- China and India appointed **Special Representatives to discuss the boundary question in 2003**.
- In 2005, the two sides agreed on political parameters and guiding principles for a boundary settlement, which would form the basis of the final settlement.
- India and China have held 19 rounds (the latest of which was in April 2016 between NSA Ajit Doval and Yang) of Special Representative Talks on the border and there has yet to be an exchange of maps.

2.2. INDIA-AFGHANISTAN

Why in news?

India will soon hold talks with Afghanistan on ways to **boost bilateral trade and investment**.

- It is also aimed at mounting pressure on **Islamabad to facilitate trouble-free transit of goods from India to Afghanistan through Pakistan (Wagah-Attari route)**.
- This is to help in the development of Afghanistan which is a **land-locked and Least Developed Country (LDC)** as well as to boost trade and investment in South Asia through better regional connectivity.
- It will also help India to **improve trade ties with Central Asian nations**.

Trade statistics between India and Afghanistan

- The bilateral trade between India and Afghanistan stood at \$834.5 million in 2015-16 with India's exports to Afghanistan being \$526.6 million and its imports from Afghanistan worth \$307.9 million.
- India's main export items to Afghanistan are textiles, pharmaceuticals, tobacco, iron & steel and electrical machinery, while its imports from Afghanistan are fruits and nuts, gums and resins, coffee, tea and spices.

No Transit route through Pakistan

In the absence of transit route through Pakistan, India depends on other countries, including Iran, to send goods to Afghanistan even though it increases time and costs for Indian exporters.

- As per **Afghanistan-Pakistan Transit Trade Agreement (APTTA)**, Afghanistan can use Pakistan's territory for transit trade while Pakistan's goods can move through Afghanistan to nations bordering Afghanistan. However, Islamabad has not agreed to allow using APTTA for goods to be transported from India to Afghanistan through Pakistan's territory (via the Wagah-Attari route).
- India is keen to join APTTA and Afghanistan has backed India's readiness to be an APTTA member but Pakistan has so far rejected such a proposal.

Way forward

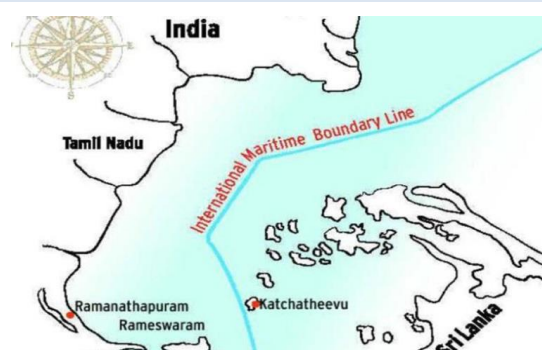
- India is planning to strengthen air cargo links with Afghanistan.
- Expedite the development of Chabahar Port in Iran to bypass the Pakistan route to increase trade relations with Afghanistan, Iran and Central Asian countries.
- India is likely to soon make renewed efforts to be an APTTA member.
- The **'India-Afghanistan Joint Working Group on Trade, Commerce and Investment'** meeting will discuss ways to make use of the United Nations TIR (International Road Transport) Convention to boost trade between India and Afghanistan through Pakistan.

2.3. INDIA-SRI LANKA

Why in News?

An Indian fisherman was shot dead allegedly by the Sri Lankan navy while he was fishing in a mechanised boat at a short distance off Katchatheevu islet.

- The issue of fishermen arrests and fishing vessel seizures between Indian and Sri Lanka has dragged on for several years.



- The issue of Tamil Nadu fishermen allegedly poaching in Sri Lanka's territorial waters has been an ongoing conflict, with Sri Lanka's northern fishermen repeatedly raising concerns over their **falling catch and the serious environmental damage caused** by trawlers originating from India.
- Both countries are separated by the **International Maritime Boundary Line (IMBL)**. Often, fishermen from both sides cross over to the other side for bottom trawling fishing expeditions and that results in arrests and, on many occasions, shootings.

Katchatheevu Island

- One of the major reasons complicating the issue is of Katchatheevu Island. India ceded the uninhabited island to its southern neighbour in 1974 under a conditional accord.
- In 2009, the Sri Lankan government declared Katchatheevu Island as sacred land owing to a Catholic shrine's presence on the piece of land.

Way forward to end conflict

- **Sustainable fishing and alternate livelihood**
 - ✓ The solution cannot be extra deployment of Navy and Coast Guard. The underlying cause needs to be addressed.
 - ✓ There is a glaring need for **institutionalisation of fishing in Indian waters** by the government of India so that alternative means of livelihood are provided.
 - ✓ Government will have to mark up a comprehensive plan **to reduce the dependence of Indian fishermen on catch from Palk Bay**.
 - ✓ Without arriving at a settlement on **sustainable exploitation of the marine resources** that would end the use of bottom trawlers from Tamil Nadu, India and Sri Lanka will not be able to ensure incident-free fishing in the strait.
 - ✓ Indian fishermen, who invoke traditional rights to justify their incursions, want a three-year phase-out period before they end trawling.
 - ✓ But unless they take to **deep-sea fishing, and inland alternatives**, India's fishermen will be locked in a conflict with their Sri Lankan counterparts as well as with a hostile Sri Lankan Navy.
- **Institutional mechanism**
 - ✓ Last year, the two countries agreed on establishing a **Joint Working Group (JWG) on fisheries to help resolve the dispute**.
 - ✓ A hotline between the Coast Guards of India and Sri Lanka, convening of the JWG once in three months, and meetings of the fisheries ministers every half-year were the components of the mechanism to be put in place.
- Indian Navy or Coast Guard should join the Sri Lankan Navy **in jointly patrolling the international boundary to prevent trespassing**.

2.4. INDIA-USA

2.4.1. ENERGY COOPERATION

India has discussed energy cooperation with U.S. along with New Delhi's growing needs, export of Liquefied natural gas (LNG) from early 2018, Indian investment in LNG and Shale sector in America.

- President Donald Trump and Republican lawmakers have already set in motion a series of measures that will **deregulate American oil, gas and coal sectors** and India sees an opportunity to enhance bilateral cooperation in these areas in the coming years.
- **Thirty percent of all increase in world's energy demand from now to 2040 will be from India**, and energy cooperation will be an increasingly key component of bilateral relations
- India will start importing Liquefied Natural Gas from the U.S. in 2018 under contracts signed during the previous Obama administration.
- Three Indian public sector companies, **GAIL, Oil India and IOC and Reliance** have invested in U.S. shale gas production.

2.4.2. ISSUE OF GENERIC DRUGS

India's small and medium-sized generic drugmakers say the **threat of tougher rules and higher barriers for outsiders in the U.S. healthcare market** will force many to find a niche or focus their expansion efforts on other countries.

- India supplies nearly a third of medicines sold in the **U.S., the world's largest healthcare market**.
- A more **protectionist stance by President Donald Trump**, with the prospect of **import tariffs** and the U.S. **boosting local drug manufacturing**, mean the operating environment for smaller generic players will get worse.
- Consolidation among U.S. drugs distributors and a federal investigation into drug pricing have also **reduced the pricing power of drugs makers**.
- The **U.S. Food and Drug Administration** has also banned dozens of Indian drug factories from supplying the U.S. market following inspections that **found inadequate quality-control practices**.

2.5. INDIA-MYANMAR

Indian Navy will set up **meteorological facilities and impart training for the Myanmar Navy**.

- This fits into India's overall effort **to boost strategic cooperation under the 'Act East' policy** and will help offset increasing Chinese presence in its neighbourhood.
- Both India and Myanmar have been trying to strengthen their defense collaboration over the past few years, with a focus on **the maritime domain**.
- In addition to a land border, both countries also share a long maritime boundary in the strategically significant **Andaman Sea and Bay of Bengal** where they face common challenges, which include not just a rising China but illegal fishing and smuggling.
- India is also in a position to assist a less developed but growing Myanmar Navy with some capacity-building.

2.6. BILATERAL MILITARY EXERCISES

India is leveraging bilateral military exercises to further strategic cooperation.

- According to Minister of State for Defence during the last three years India has signed defence agreements/memorandum of understandings (MoU) with 21 countries.
- The Army has conducted exercises with 18 countries during the three-year period, including the current year, and Indian military personnel attended training and courses in 34 countries.

Recent military exercises

- **Surya Kiran:** The Surya Kiran exercise with Nepal is underway at Pithoragarh in Uttarakhand.
- **Al Nagah-II:** Al Nagah-II exercise with Oman is underway at Bakloh in Himachal Pradesh.
- **Bold Kurukshetra exercise:** The Bold Kurukshetra exercise with Singapore is an armoured exercise under way at the Babina field firing range in Uttar Pradesh.
- **Nomadic Elephant 2017:** The twelfth edition Indo-Mongolian Joint Military Exercise Nomadic Elephant 2017 has begun at Vairengte in Mizoram.

Significance of Such Exercises

- **Confidence building measure (CBM)**
 - ✓ Participation in international level military exercises is an indication of the **highest level of trust and confidence between the member nations**.
 - ✓ It is a key **confidence building measure (CBM) and an indication of the faith reposed by India** on another nation or a group of member nations.
- **To promote bilateral Army-to-Army relations**
 - ✓ On the operational side, military exercises enable militaries **to understand each other's drills and procedures, overcome language barriers, and facilitate familiarisation with equipment capabilities**.
 - ✓ It also facilitates understanding and familiarisation with new technologies that other countries may be utilising and enables **on-the-job training of each other's crews**.

- ✓ This is particularly useful in the event of **joint operations whether in war or in operations other than war (OOTW) - humanitarian aid, disaster relief, anti-piracy**, etc – when nations come together for a common cause.
- **‘Strategic signalling’**
 - ✓ Perhaps, the most important advantage of joint military exercises is ‘strategic signalling’.
 - ✓ A joint exercise with one or more nations serves the purpose of **signalling to a third country of the influence** we have in the region and a demonstration of our resolve to further our diplomatic objectives.
- **Nation’s soft power**
 - ✓ On the intangible side, military exercises promote **brotherhood and camaraderie between soldiers and militaries**.
 - ✓ Besides goodwill, it is a tool for projection of a **nation’s soft power – culture, language, customs, beliefs, food habits and lifestyle**.
- **Spirit of bonding and friendship**
 - ✓ Soldiers all over the world have almost similar rank and organisational structures, which helps establish a unique spirit of bonding and friendship between their communities irrespective of the country of origin.

2.7. INDIAN OCEAN RIM ASSOCIATION (IORA)

Why in news?

The Indian Ocean Rim Association (IORA) held its first summit meeting in Jakarta on 5-7 March on the 20th anniversary of its formation.

- The theme of conference was **“Strengthening Maritime Cooperation for a Peaceful, Stable and Prosperous Indian Ocean.”**

Outcomes of summit

The 21 member states issued a strategic vision document, known as the **Jakarta Concord**, that “sets out a vision for a revitalized and sustainable regional architecture”.

- The Jakarta Concord is a strategic document which sets the ways and means to strengthen the regional architecture in the Indian Ocean Rim and elevate IORA as a regional cooperation.
- Besides maximizing the potential of trade, investment and economic cooperation in the region, the **Jakarta Concord also aims to address non-traditional issues, such as illegal, unreported and unregulated fishing, human trafficking, drug trafficking, illegal migration and piracy**.
- The Summit adopted the **Declaration on Preventing and Countering Terrorism and Violent Extremism**.
- IORA developed its **first Action Plan setting out short term, medium term and long-term flagship initiatives for 2017-2021**.

Significance of Summit

- With its 2017 summit, IORA looks poised to raise its profile as a deliberative forum in the region.
- The first-ever leaders’ summit has infused the two-decade-old forum with purpose.

About IORA

The organisation was first established as **Indian Ocean Rim Initiative** in Mauritius on March 1995 and formally launched on 6–7 March 1997 by the conclusion of a multilateral treaty known as the Charter of the Indian Ocean Rim Association for Regional Co-operation (IOR-ARC).

- The **Indian Ocean Rim Association (IORA)**, formerly known as the Indian Ocean Rim Initiative and Indian Ocean Rim Association for Regional Cooperation (IOR-ARC), is an international organisation consisting of coastal states bordering the Indian Ocean.
- Currently Ambassador **K V Bhagirath** is the Secretary General of Indian Ocean Rim Association (IORA).

Objectives

The objectives of IORA are as follows:

- To promote sustainable growth and balanced development of the region and member states.

- To focus on those areas of economic cooperation which provide maximum opportunities for development, shared interest and mutual benefits.
- To promote liberalization, remove impediments and lower barriers towards a freer and enhanced flow of goods, services, investment, and technology within the Indian Ocean rim.

Membership

The Association comprises 21 member states and 7 dialogue partners; the Indian Ocean Research Group has observer status.

- The IORA membership includes India, Indonesia, Australia, Bangladesh, Comoros, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, the United Arab Emirates and Yemen.
- Its seven dialogue partners are the US, China, Egypt, France, Germany, Japan and the UK.
- Indonesia is the chair of IORA in the period 2015-2017.

2.8. BIMSTEC

Why in News?

The first meeting of **National Security Chiefs of BIMSTEC Member States** was hosted by India in New Delhi on 21 March 2017.

Outcomes of meeting

- The Meeting noted that BIMSTEC Member States **face common security challenges** and underlined the necessity of addressing traditional and non-traditional security challenges to harness economic prosperity and human security in the region.
- The Meeting underscored the **importance of recognizing the Bay of Bengal as common security space and agreed to work out collective strategies for common responses.**
- The Meeting **emphasised the importance of maritime security** in view of the significance of the Bay of Bengal for the well-being, prosperity, security and socio-economic development in the BIMSTEC Member States and decided to examine ways to further strengthen maritime security cooperation, including **Humanitarian Assistance and Disaster Relief (HADR).**
- The Meeting recognised the need for **urgent measures to counter and prevent the spread of terrorism, violent extremism and radicalization** and decided to take concrete measures to enhance cooperation and coordination among their law enforcement, intelligence and security organisations and enhance capacity building.
- The meeting also deliberated on a host of security issues including the festering **Rohingya crisis in Myanmar, which has seen terror groups like Lashkar-e-Toiba and al Qaeda trying to radicalise them.**

Significance of meeting

The idea of the security meet was mooted during the BRICS-BIMSTEC summit in Goa in 2016.

- India considers Bay of Bengal as an important economic and strategic space and security challenges in this region have assumed greater importance.
- The Bay of Bengal sits in **the centre of sea lanes of communication** and trade and energy routes.
- It has assumed greater importance after India decided to develop its eastern seaboard with its ambitious **'Sagar Mala' project.**

About BIMSTEC

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is an international organization involving a group of countries in South Asia and South East Asia.

- The BIMSTEC comprises of seven countries, Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand.
- The main objective of BIMSTEC is technological and economical cooperation among South Asian and South East Asian countries along the coast of the Bay of Bengal.
- The headquarters of BIMSTEC is in Dhaka.

2.9. WORLD TRADE ORGANISATION (WTO)

Why in news?

India has asked WTO for expediting the negotiation process for a global services pact.

- India had, in February, submitted to the World Trade Organisation (WTO) a legally-vetted proposal for a **Trade Facilitation in Services (TFS) Agreement**.

Trade Facilitation in Services (TFS) Agreement.

The proposed pact is similar to the **WTO's Trade Facilitation Agreement (TFA) in Goods** that recently came into force, and aims to ease customs norms to boost global goods trade.

- The proposed TFS, among other things, aims to ensure **portability of social security contributions and cross-border insurance coverage to boost medical tourism**.
- India had specified that the proposed TFS pact is also **about 'facilitation,'** that is "making market access 'effective' and commercially meaningful and not about 'new' (or greater) market access."
- TFS, among other things, aims to **ease norms for movement of skilled workers across borders**.
- The TFS agreement will address the key issues that are pertinent to facilitating trade in services, such as **transparency, streamlining procedures, and eliminating bottlenecks**.
- India argued that the draft legal text covering **Mode 1 (cross-border services), Mode 2 (consumption abroad) and Mode 4 (movement of short-term services providers or natural persons)** is based "on a careful mix of certain mandatory obligations, and those qualified as 'to the extent practicable,' or as 'endeavor' obligations."
- India argued that it provides for **special and differential treatment provisions** under which developing countries are offered transition period while least-developed countries are exempted from undertaking any commitments arising out of the TFS agreement.
- Several developing countries said that it would impose burdensome commitments on them.
- Major industrialized members such as the European Union (EU), Canada, Switzerland, Australia and New Zealand, among others, welcomed the Indian proposal.

2.10. THE PERMANENT INDUS COMMISSION

Why in news?

Officials from India and Pakistan discussed problems relating to Indus Basin at the two-day Indus Water Commission meeting in Lahore after a gap of nearly two years.

- The Permanent Indus Commission is a bilateral commission of officials from India and Pakistan, created to implement and manage goals of the Indus Waters Treaty.
- The commission has experts who look into issues and disputes on the ground over the utilisation of the waters of six rivers of the Indus system.
- Under the **Indus Water Treaty (IWT)**, India has full use of the three "eastern" rivers (Beas, Ravi, Sutlej), while Pakistan has control over the three "western" rivers (Indus, Chenab, Jhelum), although India is given rights to use these partially as well for certain purposes.
- The Permanent Indus Commission mandated to implement the 1960 Indus Waters Treaty (IWT) has met 113 times in 56 years, annually in each country.
- Pakistan has been flagging concerns over the designs of five Indian hydroelectric projects: 1000 MW Pakal Dul, 850 MW Ratle, 330 MW Kishanganga, 120 MW Miyar, and 48 MW Lower Kalnai.

Project Name	River/tributary	Location	Type of dam
Pakal Dul Dam	Marusadar River, a tributary of the Chenab River	Kishtwar district of Jammu and Kashmir.	The Pakal Dul Dam is a proposed concrete-face rock-fill dam
Ratle	Chenab River, downstream of the village of Ratle	Doda district of Jammu and Kashmir.	The Ratle Hydroelectric Plant is a run-of-the-river hydroelectric power station currently under construction

Kishanganga	Kishanganga is a tributary of Jhelum river. When Kishanganga enters Pakistan, it is called "Neelam river."	It is located 5 km north of Bandipore in Jammu and Kashmir,	Run-of-the-river hydroelectric scheme that is designed to divert water from the Kishanganga River to a power plant in the Jhelum River basin
Miyar	Miyar Nallah, a tributary of Chenab	Miyar Nallah, a tributary of Chenab located near Udaipur Town of District Lahaul & Spiti in Himachal Pradesh.	Miyar HEP (3 x 40 MW) project is Run-of-the-River scheme on Miyar Nallah,
Lower Kalnai	On Lower Kalnai Nalla, tributary to river Chenab	Doda district of Jammu & Kashmir.	The project involves setting up of 48 MW (2 x 24 MW), hydroelectric power project

About the Indus Waters Treaty

The Indus Waters Treaty, brokered by World Bank, was signed by the then-Indian Prime Minister Jawaharlal Nehru and Pakistani President Ayub Khan on 19 September 1960.

- It administers how Indus River and its tributaries would be utilized.
- India governs Beas, Ravi, and Sutlej; Pakistan governs Indus, Chenab, and Jhelum.
- However, India is allowed to use 20% of Indus water for irrigation, power-generation, and transportation.

2.11. SOUTH ASIAN ASSOCIATION FOR REGIONAL COOPERATION (SAARC)

Why in news?

Pakistan succeeded in getting its official elected to the post of Secretary General of the South Asian Association for Regional Cooperation (SAARC).

- Pakistan was backed by all members, including India, which made the selection consensus-based.
- Pakistani Diplomat **Amjad Hussain B Sial** has become new **secretary general of SAARC**. He has replaced former secretary general Arjun Bahdur Thapa, whose three-year tenure ended on February 28.
- Sial, the 13th secretary general of the regional bloc. He is the second Pakistani diplomat to be appointed as secretary general.

2.12. ITI-DKD-Y CORRIDOR

Why in news?

Indian Railways is going to run a trans-continental container train full of goods from Dhaka to Istanbul, which would cover a 6,000-km journey across five countries - **Bangladesh, India, Pakistan, Iran and Turkey**.

- India already has connectivity with Bangladesh and Pakistan. But there is a proposal to extend this linkage to Istanbul (Turkey).
- This proposed "**Trans-Asian Railway (TAR)**" or the "ITI-DKD" (Istanbul-Tehran-Islamabad; Delhi-Kolkata-Dhaka) corridor will be 6,000 km long, covering Dhaka-Kolkata-Delhi-Amritsar-Lahore-Islamabad-Zahedan-Tehran- Istanbul.
- There is also a proposal to extend this corridor to **Yangon (Myanmar)**. Thus, the "ITI-DKD-Y" corridor could become one of the major international rail corridors in the world.
- The feasibility studies of the strategic route connecting the capitals of the countries have been done by the **United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)** as part of its **Trans-Asian Railway (TAR)** project for an integrated freight network across Europe and Asia.
- A meeting was organised in New Delhi by the UNESCAP with the Ministry of Railways and Organisation for Co-operation between Railways, to deliberate on the concept and remove bottlenecks.

2.13. WORLD FOOD PROGRAMME (WFP)

United Nations chief Antonio Guterres has appointed former South Carolina Governor **David Beasley** to run the Rome-based World Food Programme (WFP).

- Beasley will replace another American, Ertharin Cousin, who has been the WFP executive director since 2012.
- Washington was the top contributor to WFP in 2016 with \$2 billion, a third of the agency's budget.

About WFP

The World Food Programme is the food-assistance branch of the United Nations and the world's largest humanitarian organization addressing hunger and promoting food security.

- Assisting **80 million people** in around **80 countries each year**, the World Food Programme (WFP) is the leading humanitarian organization fighting hunger worldwide, **delivering food assistance in emergencies and working with communities to improve nutrition and build resilience.**
- Its headquarters is located in **Rome, Italy.**

2.14. SOUTH ASIA SUBREGIONAL ECONOMIC COOPERATION (SASEC)

Why in News?

Myanmar has formally become a full member of South Asia Subregional Economic Cooperation (SASEC) programme of Asian Development Bank (ADB).

About SASEC

The SASEC program was formed in 2001 in response to the request of the four countries of South Asia – **Bangladesh, Bhutan, India and Nepal** – from ADB to assist in facilitating economic cooperation among them.

- These four countries comprise the **South Asia Growth Quadrangle (SAGQ)**, formed in 1996, as a vehicle for accelerating sustainable economic development through regional cooperation.
- The SASEC program is a **project-based partnership to promote regional prosperity by improving cross-border connectivity**, boosting trade among member countries and strengthening regional economic cooperation.
- The Asian Development Bank is the secretariat and lead financier of the program, which to date has supported a total of 46 projects worth about \$9.2 billion in transport, trade facilitation, energy, information and communications technology (ICT) and economic corridor development.
- The SASEC member countries are: **Bangladesh, Bhutan, India, Nepal, Maldives Sri Lanka and Myanmar.**

2.15. INTERNATIONAL ENERGY AGENCY (IEA)

Why in news?

India has joined the International Energy Agency as an associate member.

- India is already a partner of the International Energy Agency, but the upgradation of the status will enhance its status and weight in its dialogue with major oil suppliers and consumers.
- The "Association" status would facilitate it **to participate in meetings of the standing groups, committees and working groups that constitute the IEA governance structure.**
- India can also richly gain from **IEA's data gathering processes, survey methodologies and range of energy data**, which could enable India in the near future to set up its own robust integrated database agency.
- India's participation will **enrich the energy efficiency and renewable sectors** of IEA member and other countries.
- Power Minister envisaged a greater partnership with IEA in taking forward the **International Solar Alliance framework to other countries in the world.**
- "Association" status will provide an opportunity for India to be the **voice of the developing world.**

About IEA

The **International Energy Agency (IEA)** is a **Paris-based autonomous intergovernmental organization** established in the framework of the **Organization for Economic Co-operation and Development (OECD)** in 1974 in the wake of the 1973 oil crisis.

- The IEA works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. Its mission is guided by **four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.**
- Only the OECD member states can become members of the IEA. Except for Chile, Iceland, Israel, Mexico, and Slovenia, all OECD member states are members of the IEA. In 2014, Estonia joined the IEA and became its 29th member.
- **China, India, Indonesia, Morocco, Singapore and Thailand** are the associate members of IEA.
- With India as a member, International Energy Agency now formally covers 70% of the world's energy consumption.
- Important publications of IEA:
 - ✓ **World Energy Outlook 2016**
 - ✓ **World Energy Investment 2016**

International Smart Grid Action Network (ISGAN)

- ISGAN is an agreement under **International Energy Agency (IEA)** and India is one of the **founding Member** of ISGAN.
- Its 13th Executive Committee (ExCo) Meeting was held in **Gurugram**.
- ISGAN creates a **mechanism** through which stakeholders from around the world can **collaborate to accelerate** the development and deployment of **smarter electric grids**.
- ISGAN promotes a **dynamic exchange** of knowledge and best practices, tool development, and project coordination.
- It aims to **improve** the understanding and adoption of smart grid technologies, practices, and systems as well as related enabling government policies.

2.16. TIR CONVENTION

The Union Cabinet has given its approval for India's accession to the Customs Convention on International Transport of Goods under cover of TIR Carnets (TIR Convention) and for completion of necessary procedures for ratification, for its entry into force.

Benefits from Convention

The Convention will help Indian traders to have access to fast, easy, reliable and hassle free international system for movement of goods by road or multi-modal means across the territories of other contracting parties.

- By joining the convention, the need for inspection of goods at intermediate borders as well as physical escorts en route shall be obviated due to reciprocal recognition of Customs controls.
- **Customs clearance can take place at internal Customs locations** thereby avoiding clearances at Border Crossing Points and ports that may often be congested.
- The TIR Convention facilitates trade and international road transport by **permitting customs-sealed vehicles and containers to transit nations without them being generally inspected at border crossings.**
- **TIR's single transit document also significantly reduces the risk of presenting inaccurate information**, while only approved transporters and vehicles are allowed to operate.
- Compliance with the Convention shall **ensure enhanced security in the supply chain** as only approved transporters and vehicles are allowed to operate in terms of the Convention.
- As the TIR Carnet represents a **guarantee for Customs duties and taxes and traffic in transit**, there is no need for payment of such taxes and duties en route.
- The TIR carnet also serves as a Customs declaration, and hence it precludes the **need to file multiple declarations satisfying national laws of the different transiting countries.**

- The TIR Convention can be an instrument for movement of goods along the **International "North-South" Transport (INSTC) Corridor** and would be helpful in boosting trade with the Central Asian Republics and other Commonwealth of Independent States (CIS), particularly using ports in Iran like the Chabahar port.
- India's participation in TIR may also facilitate trade with **its eastern and western neighbours**.

About TIR

The Customs Convention on International Transport of Goods under cover of TIR Carnets, 1975 (TIR Convention), is an international transit system under the auspices of the **United Nations Economic Commission for Europe (UNECE)** to facilitate the seamless movement of goods within and amongst the Parties to the Convention.

- India will be the **71st signatory to this international transit system**.
- The two countries which signed TIR before India were **Pakistan (2015) and China (2016)**.

2.17. COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF (CLCS)

India will- for the first time in two decades- not have a member in a prestigious, U.N. scientific body, **Commission on the Limits of the Continental Shelf (CLCS)**.

- The CLCS has five-year tenure and elections are due in June for the 2017-2022 term.
- Rasik Ravindra is India's current member of the CLCS.
- Ministry of External Affairs (MEA), which formally nominates Indian candidates, chose to nominate a person to another U.N. body, called the International Tribunal for the Law of the Sea (ITLOS).
- In CLCS, the sitting members from the Asia-Pacific region are **China, Japan, South Korea, Pakistan, Malaysia and India**, and all countries, except India, are learnt to be sending candidates for both posts.
- India became a signatory to the UNCLOS in 1982 and has had continuous representation in CLCS, ITLOS and the International Seabed Authority (ISA) since their inception in 1997, 1996 and 1994 respectively.

Implications of this move

Not having an Indian in this 21-member group would mean that China and Pakistan would likely "grab" two of the five seats allotted to the so-called Asia-Pacific group.

Why membership of CLCS is important for India?

- It is a prestige to have member in scientific body.
- A membership of the commission allows India **to gauge the scientific strength of claims by countries** to parts of the seabed that, like territorial waters, are often hard to demarcate. Such information is privy only to participants.
- India has had disputes with several neighbours- Pakistan, Bangladesh and Sri Lanka- over how the continental shelf (the seabed under the Arabian Sea, the Indian Ocean and the Bay of Bengal) can be fairly distributed.
- India has huge interest in CLCS and applied for extending the **Exclusive Economic Zone (EEZ) up to 350 nautical miles from the existing 200 nautical miles**.

About CLCS

Commission on the Limits of the Continental Shelf (CLCS) is one of the three institutions created under the 1982 United Nations Convention on the Law of the Sea (UNCLOS). The other two institutions are the International Tribunal for the Law of the Sea (ITLOS) and the International Seabed Authority (ISA).

- The purpose of the CLCS is **to facilitate the implementation of the UNCLOS** in respect of the establishment of the **outer limits of the continental shelf beyond 200 nautical miles (M) from the baselines** from which the breadth of the territorial sea is measured.
- To consider the data and other material submitted by coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nautical miles.
- **To provide scientific and technical advice**, if requested by the coastal State concerned during preparation of such data.

3. ECONOMY

3.1. DRAFT SECURITY RULES FOR E-WALLET FIRMS

Why in news?

- The Ministry of Electronics and Information Technology issued the **draft Information Technology (Security of Prepaid Payment Instruments) Rules 2017** for public consultation.
- The **personal information** of the customers will be treated under Section 72A of the Information Technology Act, and the **financial data** of the customer shall be deemed to be sensitive personal data under the "Information Technology Rules, 2011, and every e-PPI issuer shall maintain and implement the practices and procedures prescribed in those rules.



What is digital wallet (e-wallet)?

- It includes apps like Paytm, MobiKwik, Freecharge, or Oxigen which can be used for cashless transaction.
- They allow you to create an account using the mobile number. You can add money to the wallet via net banking or debit/credit card.

3.2. INSURANCE LITERACY PROGRAMME FOR SCHOOL

Why in news?

- **National centre for financial education** set up with the collaboration of various governmental financial and educational organisation on March 10, 2017, extended the insurance literacy for School education to implement the **National Strategy for financial education**.

National Strategy for Financial Education

- The basic financial education consists of fundamental tenets of financial well-being of the country. On this premises, government had come up with a broad action framework namely National Strategy for Financial Education in 2012.
- It will work under policy frame of Vision, Mission, Goals, Strategic action plan, Stakeholders.
 - ✓ **Vision:** A financial aware and empowered India.
 - Financial education for; role of money, advantage of savings, advantage of formal financial sectors, protection through insurance.
 - ✓ **Mission:** To undertake massive Financial Education campaign
 - Financial education campaign for; all section of society, increasing the skill and competence, life cycle started from school and education institution.
 - ✓ **Goals:** It must be achieved with certain objects
 - Awareness for various types of financial products and their features
 - Change attitudes to translate knowledge into behaviour.
 - Make consumers understand their rights and responsibilities as clients of financial services.
 - ✓ **Strategic Action Plan:** with timeframe of 5 years
 - To set up the structure as envisaged in this document
 - financial education in school curriculum up to senior secondary level
 - Create awareness about consumer protection and grievances redressal machinery available in the country

- The financial education to be delivered by trained persons in a format suitable to each target group.
- Channelized the stakeholders such as NGOs, civil society, Independent research organisation.
- To establish initial contact with 500 million adults, educating them on key saving, protection and investment-related products.
- ✓ **Stakeholders:** financial Consumers, Financial Market Players (FICCI, DICCI etc), Educational institution, Financial Sector Regulator, Multilateral Players such as OECD, G-20 etc.
- Moreover, the implementation of above strategy plan will be implemented by The **National Centre for Financial Education (NCFE)** has set-up for proposed strategy.
- NCFE comprising representatives from all financial sector regulators i.e. Reserve Bank of India (RBI), Securities Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDA), Pension Fund Regulatory and Development Authority (PFRDA) and National Institute of Securities Markets (NISM).
- NCFE will work under the guidance of a Technical Group on Financial Inclusion and Financial Literacy of the **Financial Stability and Development Council (FSDC)**.

Towards a Financial Literate society

- India has 30%-plus savings rate, but it is not channelized to investment. Such an initiative could help improve that situation.
- According to the survey, conducted by Standard & Poor: 73% of Indian men are financially illiterate whereas the same statistics for Indian women was 80%. This is due to the orthodox belief system that women are seen to be housekeepers and all the finance related matters of the household are addressed by men.
- The above survey also highlighted that 76% of the Indian adult population lacks knowledge about basic finance and 14% of Indians save in a formal financial institution, which is later on reflected in terms of low financial Inclusion.
- Digital platform will help in achieving the financial literacy to grassroots level. This is because mobile Internet penetration in rural India is expected to reach at 70 million in 2017.

3.3. LOK SABHA CLEARS FINANCE BILL 2017, MINI REFORMS PACKAGE

Why in news

- The Lok Sabha signed off on Finance Bill 2017, ratifying the government's tax proposals announced in the budget.

Key changes proposed

- **Anti – Black Money**
 - **Linking Aadhar with PAN and Income Tax:** It has been made mandatory to quote Aadhaar number after July 1, 2017 when: (i) applying for a PAN, or (ii) filing the Income Tax returns. This would help in weeding out multiple PANs held by one individual which were used for tax evasion.
 - **Lowering limit on cash transactions:** Cash transactions above two lakh rupees will not be permitted: (i) to a single person in one day, (ii) for a single transaction (irrespective of number of payments), and (iii) for any transactions relating to a single event. The earlier limit proposed in the Budget was Rs 3 lakh. This will ensure a paper trail for all high-value transactions.
 - **Streamlining political funding:**
 - Contributions to political parties will have to be made only through a cheque, bank draft, electronic means, or any other scheme notified by the government.
 - Bill also contains provisions to introduce electoral bonds to make contributions to political parties.

What are the bill's aims?

ANTI-BLACK MONEY

- Linking Permanent Account Number with Aadhaar
- Legal cash transaction limit set at Rs2 lakh
- Streamlining political funding

EASE OF DOING BUSINESS

- Faster disposal of cases with merger of tribunals and pay parity for judges
- Ambiguity over taxation of foreign portfolio investors removed

LESS-CASH ECONOMY

- Payments regulator to be set up within the central bank
- Tax breaks to point-of-sale manufacturers and for small businesses using digital modes of payment collection

- It removes: (i) the limit of 7.5% of net profit of the last three financial years, for contributions that a company may make to political parties, (ii) the requirement of a company to disclose the name of the political parties to which a contribution has been made.
- **For Ease of Doing Business**
 - The merger of eight tribunals with existing ones and pay parity for judges will ensure that these quasi-judicial bodies are adequately staffed, ensuring faster disposal of cases.
 - Ambiguity over taxation of foreign portfolio investors removed.
- **Towards cashless economy**
 - Payments regulator to be set up within the central bank
 - Tax breaks to point-of-sale manufacturers and for small business using digital modes of payment collection.
- **Power to impose penalty by officers:** The Securities Contracts (Regulation) Act, 1956 and the Depositories Act, 1996 were amended in 2004 to empower the adjudicating officer to impose penalties on offenders for various offences including their failure to furnish information, documents or returns. Amendments to the Finance Bill, 2017 propose to clarify that the adjudicating officer will always be deemed to have had this power.

Issues

- It is yet another attempt to bypass Rajya Sabha by legislating non-budgetary policies through the finance bill.
- Aadhar has been made mandatory when it itself faces issues of privacy, legality and acceptability.
- The rationale behind replacing certain Tribunals is unclear. For example, the TDSAT may not have the expertise to adjudicate matters related to the pricing of airport services.
- Allowing the executive to determine appointment, reappointment and removal of members could affect the independent functioning of the Tribunal. There would be conflict of interest if the government were to be a litigant before a Tribunal, as well as determine appointment of its members.
- The amendments also state that the central government will have the power to amend the list of these Tribunals, through a notification. That is, prior Parliamentary approval is not needed to bring other Tribunals into this scheme.
- Income tax officer's power has been increased. This can be misused by the ruling party for political vendetta. There is a need for "checks and balances" on taxmen and they should put on file the objective for conducting survey, search and raid, otherwise there would be no accountability.
- Political party funding from corporate has been made easier and less transparent.

3.4. EIGHT TRIBUNALS FACE AXE

Why in news

- The Lok Sabha approved amendments in the Finance Bill of 2017 to wind up eight tribunals. These Tribunals are proposed to be replaced, and their functions are proposed to be taken over by existing Tribunals under other Acts.

Changes with respect to tribunals in Finance Bill

- There are changes in the norms for tribunals, appellate tribunals and other boards associated with the administration of 17 central laws.
- Amendments to the Finance Bill, 2017 propose that the central government may make rules to provide for the (i) qualifications, (ii) appointments, (iii) term

TRIBUNALS IN FOCUS

Act	Tribunal being replaced	Tribunal taking over
Competition Act, 2002	Competition Appellate Tribunal	NCLAT (under Companies Act, 2003)
AERAI Act, 2008	AERA Appellate Tribunal	TDSAT (under TRAI Act, 1997)
Information Technology Act, 2000	Cyber Appellate Tribunal	Airport Appellate Tribunal (under AAI Act, 1994)
Control of National Highways (Land & Traffic) Act, 2002	National Highways Tribunal	
EPF & Miscellaneous Provisions Act, 1952	EPF Appellate Tribunal	Industrial Tribunal (under the Industrial Disputes Act, 1947)
Copyright Act, 1957	Copyright Board	Intellectual Property Appellate Board (under the Trade Marks Act, 1999)
Railways Act, 1989	Railways Rates Tribunal	Railway Claims Tribunal (under the Railways Claims Tribunal Act, 1987)
FEMA, 1999	Appellate Tribunal for Foreign Exchange	Appellate Tribunal (under the Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976)

NCLAT: National Company Law Appellate Tribunal; AERAI: Airports Economic Regulatory Authority of India; TDSAT: Telecom Disputes Settlement and Appellate Tribunal; TRAI: Telecom Regulatory Authority of India; AAI: Airports Authority of India; EPF: Employees Provident Fund; FEMA: Foreign Exchange Management Act.

of office, (iv) salaries and allowances, (v) resignation, (vi) removal, and (vii) other conditions of service for the Chairpersons and other members of the Tribunals that will continue to operate.

- The amendments also state that the central government will have the power to amend this list of Tribunals, through a notification. That is, prior Parliamentary approval is not needed to bring other Tribunals into this scheme.

Rationale for these changes

- Many tribunals wrapped up had not much work load and can be shared by other tribunals.
- This rearrangement will free infrastructure and staff unused by the tribunals.
- Adequate staffing will ensure reduce the pendency of cases in tribunals.
- Overall, this will improve ease of doing business and generate positive investor sentiments.

Issues with these amendments

- By allowing the government to determine the appointment, reappointment and removal of members through rules, the threshold of Parliamentary scrutiny of these provisions is being lowered. Earlier these were done through amendments to the respective acts of the tribunals. Thus, Parliament was involved.
- The rationale behind replacing certain Tribunals is unclear. For example, the TDSAT may not have the expertise to adjudicate matters related to the pricing of airport services.
- Also, the NCLAT which deals with matters related to company disputes and governance will have the expertise to deal with matters related to anti-competitive practices, which are currently managed by the Competition Appellate Tribunal.
- The Supreme Court in 2014 held that appellate tribunals have similar powers and functions as that of High Courts, and hence matters related to their members' appointment and reappointment must be free from executive involvement.
- Currently, there is already a Bill pending in Parliament since 2014, which seeks to ensure uniformity in conditions of service across 26 tribunals, appellate tribunals and other authorities. This has also been examined by a Parliamentary Standing Committee, which agreed that tribunals must be free from executive involvement.

3.5. GLOBAL ENERGY ARCHITECTURE PERFORMANCE INDEX REPORT

The Global Energy Architecture Performance index, prepared in collaboration with **Accenture**, is part of the **World Economic Forum's System initiative** on Shaping the Future of Energy.

- The index benchmarks the energy system performance of 127 countries according to 18 indicators covering **three core dimensions: energy access and security, sustainability and contribution to economic growth**.
- The list was topped by **Switzerland followed by Norway and Sweden** in the second and third place, respectively.
- India has marginally improved its position to **87th place on a global energy architecture** performance index. Regarding India, the report noted that it is "facing a vast array of challenges in the power sector in order to meet its growth targets".
- Among the BRICS nations, Brazil was the top performer as it was ranked at the 30th place, followed by Russia (48th), South Africa (76th), India (87th) and China (95).

3.6. AADHAAR PAY

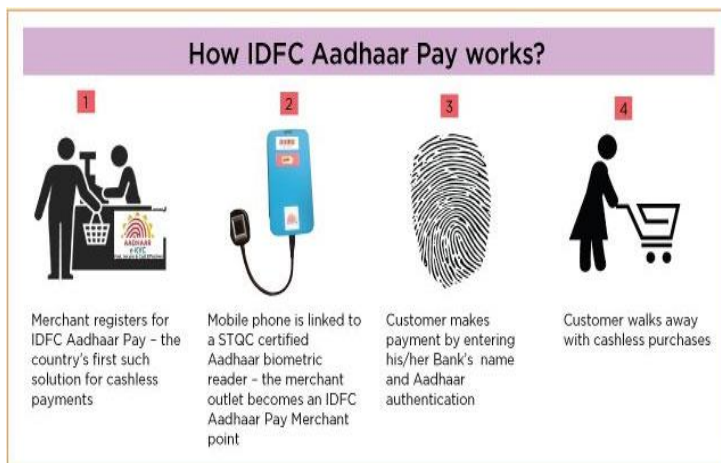
Why in news?

- The government has requested all public sector banks to go live with Aadhaar Pay (a digital payment platform for merchants).

What is Aadhaar Pay?

- While the government launched BHIM as a payment application for peer-to-peer transactions, Aadhaar Pay is meant for merchants to receive digital payments from customers over the counter through Aadhaar authentication.

- Customers need not use debit or credit cards, download mobile applications or even carry a mobile or any other device to make cashless transactions. They will need just a bank account seeded with Aadhaar and will be able to use their thumb impressions for authentication.
- The merchant needs a smartphone and has to download his or her bank's Aadhaar Pay app from the Google Play Store and accept payments by sending a pull notification to the customer's bank account.
- For Aadhaar Pay transactions the merchants will have to pay to their respective banks the merchant discount rate, or MDR, which has been fixed at 0.25% of the transaction amount.



Benefits

- The move is aimed at getting people who are not comfortable using cards or mobile wallets also to make digital payments by just leveraging the Aadhaar database and using thumb impression as the authentication factor.
- Aadhaar Pay smartphone payment app would also eliminate the fee currently being charged by the private card companies such as “MasterCard” and “Visa”.
- The Aadhaar Pay App for merchants would help eliminate the long waiting period and hassle of getting a new POS (Point of Sale) machine.
- Hence it will encourage the use of digital payments leading to cashless economy.

3.7. FREE CREDIT REPORT

Why in news

- The Reserve Bank of India (RBI) has made it mandatory for all credit information bureaus in the country to provide a full credit report, on demand and without any charge, to individuals whose credit history is available with them.
- At present, there are four such companies in India: CRIF High Mark Credit Information Services Pvt. Ltd, Equifax Credit Information Services Pvt. Ltd, Experian Credit Information Co. of India Pvt. Ltd and Transunion Cibil Ltd.
- As you can avail one free report from each bureau, this means that you can get four free reports every year.

What is a credit report?

- A credit information report (CIR) contains details of your credit history, as collated by a credit information company.
- Whenever you apply for a loan, the lender contacts a credit bureau to check your credit background to know details such as, whether you have paid earlier dues on time.
- This information reflects your monthly payments and how you manage your credit. It forms a part of your overall credit history, and will reflect in your CIR. Based on the information, the bureau assigns a score.

THE MAKING OF YOUR CREDIT SCORE

- Credit bureaus receive your data from lending institutions
- This information includes:
 - Credit products held by you
 - Your payment behaviour
 - Credit utilization
 - Time for which you serviced the credit payments
 - Enquiries made for new credit products
- The bureau analyses this data using various algorithms
- The end result of this analysis is your credit score
- Credit scores vary across bureaus as their parameters and algorithms are different

If you detect a major discrepancy in your report, contact the bureau's redressal desk to rectify it

3.8. STAGNATING FEMALE LABOUR FORCE PARTICIPATION IN INDIA

Why in news?

- National Sample Survey (NSS) data for India show that labour force participation rates of women aged 25-54 have stagnated at about 26-28% in urban areas, and fallen substantially from 57% to 44% in rural areas, between 1987 and 2011.

The abnormality

- This is despite the favourable economic and demographic conditions. Economic growth has been high; fertility has fallen substantially; and female education has risen dramatically.
- In other regions, including Latin America and the Middle East and North Africa, similar trends have led to large increases in female participation.

Possible Reasons

- Labour supply factors:
 - Rising incompatibility of work and family duties as the workplace moves away from home.
 - An income effect of the husband's earnings.
 - Stigma against females working outside the home (generally or in particular sectors).
 - The decline might be driven by increasing returns to home production, relative to market production. This might be particularly relevant if the domestic production is childcare.
- Labour demand factors:
 - Jobs deemed appropriate for more educated women (especially in healthcare, education and public service) have not grown commensurately with the rise in female education.
 - The lack of availability of agricultural and non-agricultural jobs in rural areas appears to be driving the declining participation in rural areas.
 - Structural change in India led to a rapidly shrinking agricultural sector in favour of a rapidly expanding service and construction sector where female labour force participation is less.
 - The lack of a shift towards manufacturing and a persistently low female share in manufacturing ensured that the labour force as a whole did not become more female.

Steps ahead

- The role of macro, trade and structural **policies** needs to be investigated. When comparing India with Bangladesh, we can notice how an **export-oriented, manufacturing-centred growth strategy** has led to increasing female employment opportunities there.
- Policies will be needed to **tackle the social stigma** that appears to prevent particularly educated women from engaging in outside employment.
- Beyond **education, skilling, pay parity** and board positions, India's agenda also includes providing women **leadership positions** in political life.
- India can also take lessons from Japan. An important component of the Japanese Prime Minister Shinzo Abe's Abenomics was "**womenomics**", getting more women into the workforce and in positions of leadership.
- The "womenomics" plan also contains reforms like removing the tax penalty for working mothers, and introducing new training subsidies to help them return to the workplace.

3.9. FARMER PRODUCER ORGANISATIONS (FPOS)

Why in news?

A conclave was held in Delhi to discuss the idea of creating a national-level association of FPOs as a lobbying platform.

What is FPO?

- A Producer Organisation (PO) is a legal entity formed by primary producers, viz. farmers, milk producers, fishermen, weavers, rural artisans, craftsmen.

- A PO can be a producer company, a cooperative society or any other legal form which provides for sharing of profits/benefits among the members.
- FPO is one type of PO where the members are farmers.
- Farmers, who are the producers of agricultural products, can form groups and register themselves under the Indian Companies Act.

Objectives of FPO

- To overcome a host of challenges confronting small and marginal cultivators – from fragmentation of holdings to inadequate access to credit, technology, extension services and markets.
- It is modelled on the role played by the National Dairy Development Board during the Operation Flood programme that involved support to dairy cooperatives from the village to the apex level.
- Collectivization of Producers especially small and marginal farmers so as to form an effective alliance.
- Supply of inputs such as seed, fertilizer and machinery, market linkages, training & networking and financial and technical advice are also among the major activities of FPO.

Institutions involved

- NABARD initiated the Producer Organisation Development Fund (PODF) and SFAC has set up nearly 250 FPOs since 2011.
- To strengthen their capital base, SFAC has launched a new Central Sector Scheme “Equity Grant and Credit Guarantee Fund Scheme for Farmers Producer Companies”.

Current Status

- Across India, almost 3,000 FPOs have now either been registered or are in advanced stages of mobilisation.
- The National Bank for Agriculture and Rural Development has set a target of promoting another 5,000 in the next three years.
- World Bank and Asian Development Bank, too, have incorporated FPO development as a standard feature in several agricultural intervention projects that they are funding.

Challenges

- It takes 4 to 5 years to form a FPO that can stand on its feet
- There is not much clarity in terms of choosing the most appropriate structure of the FPOs.
- Farmers are afraid of companies as they are unaware about them.
- Influential and bigger farmers tend to join cooperatives. FPO's are with small and marginal farmers in majority membership.
- The lack of engagement with RRBs that have extensive rural networks compared to commercial banks.

Way forward

- Providing them urgent credit in an organised, institutional form.
 - Providing comprehensive Early Stage funding for activities such as bulk purchase of inputs.
 - Designing appropriate loan products.
 - Encouraging Value Chain Financing under Priority Sector Lending. It will also incentivize innovation.
 - Warehouse Receipts-based Lending and Price Risk Mitigation.
 - Setting up a Dedicated Agri-Business Bank (NBFC) with the help of SFAC or NABARD.
- The RBI guidelines on priority sector lending by banks already mention FPOs. This needs to be broadened to include “agri-input supply, agro-machinery rental/operation, agri-processing, packing, storage and transport units” owned by FPOs into the ambit of agricultural priority sector lending.
- There is a need to promote FPOs on a scale similar to the SHG movement. SHGs got become prominent because of NABARD's continuous nurturing of the concept and coordinating with various Government agencies to create an enabling policy environment.
- Regional Rural Banks could play a pivotal role in financing FPOs. The RRBs could directly provide operational working capital limits such as cash credit facility, crop loans to farmers, SHG loans to FIGs/SHGs for raising crops and such other agricultural needs.

3.10. ROADBLOCKS IN HYDROCARBON INDUSTRY OF INDIA

Why in News?

- Farmers in Neduvasal village of Tamil Nadu are protesting against an onshore hydrocarbon project block allotted under the Discovered Small Fields bidding.

Need of new energy projects

- India now imports more than 80 per cent of its crude oil and 40 per cent of its natural gas requirement. This leads to sufficient depletion of foreign currency reserves and lose control on domestic inflation.
- Demand is rising with economic growth but **domestic production has been falling**.

Challenges to the new domestic projects

- **Due to scarcity of land**, there are protests at many places by farmer community against **onshore oil projects**.
- **Hydrocarbon Pricing:**
 - **Oil Sector:**
 - ✓ The new Hydrocarbon exploration licensing policy promotes revenue sharing contracts rather than production sharing model.
 - ✓ This might discourage large investment in this sector because of higher risks in revenue sharing contract.
 - **Gas sector:**
 - ✓ Unlike crude oil, domestic gas prices are not market-linked but are formulae-based.
 - ✓ It is determined every 6 months as a weighted average of four international benchmarks — US-based Henry Hub, Canada-based Alberta gas, UK-based NBP and Russian gas
- **Investments:**
 - PSU companies are also seen to make sub-optimal investments.
 - Eg. ONGC acquired GSPC's 80 per cent stake in the not-so-successful Deen Dayal asset for \$1.2 billion.
 - **Sub-optimal capital allocation** impedes the ability of the PSU companies to invest in the future prospects.
- **Poor Infrastructure:** Due to lack of **poor evacuation infrastructure** in gas sector like poor pipeline connectivity, the sector has not achieved its full potential in India.

Under recoveries

- It denotes **notional losses** that oil companies incur due to the difference between the subsidized price at which the companies sell certain products like diesel and the price which they should have received for meeting their production cost.

Government steps to promote hydrocarbon sector

- **Pricing reforms:** Fuel prices like petrol and diesel have been deregulated especially after the slump of global oil prices. This has improved the profit margins of oil companies too.
- The Hydrocarbon Exploration Licensing Policy has the following provisions:
 - **Revenue-sharing contract:** Sharing revenue with the government as soon as commercial production begins.
 - **Unified licensing policy:** Exploration of all possible hydrocarbons in a block
 - **Open acreage licensing:** Bidders can select the exploration blocks on its own without waiting for the formal bid round.
 - Pricing and marketing freedom for new gas production from difficult terrains.
- Indian oil companies have also signed **contracts to explore shale gas** in the United States.
- **Renegotiation of long term projects** with major gas suppliers to boost foreign investment.
- **Planning of strategic reserves** in places like Vishakhapatnam, Padur, Bikaner etc. in times of low oil prices.
- In the recent Budget, the government has proposed to create an **integrated public sector 'oil major'**. This would enhance finances to bid for big-ticket foreign assets that see intense competition from major international players.

3.11. BLUE REVOLUTION

Why in News?

- Government has envisaged a program named 'Blue Revolution' based on integrated approach to tap India's potential in the fisheries sector.
- Government has identified thrust areas to enhance fisheries production from 10.79 million metric tonnes (mmt) (2014-15) to 15 mmt in 2020-21.

Blue Revolution

- Blue Revolution in technical sense refers to **integrated development and management of Fisheries**.
- In a broader sense, blue revolution is now assumed to **encompass even infrastructure development and creation of livelihood** for communities along coasts.

Need

- Government is planning to double the farmer income by 2022. Emphasis on blue revolution is a step towards it.

Components of envisaged program

- **Productivity enhancement** shall be achieved by production oriented activities such as:
 - Production of quality fish seeds
 - Cost effective feed and adoption of technology.
 - Use of High Yielding Varieties of brooders
- It will have a **sub mission on Fish Fingerling (finger shaped fishes)**. About Rs. 520 crores will be used to establish hatcheries and Fingerling rearing ponds.

Pilot Project on Ornamental Fisheries

- It is a fishery sub-sector dealing with breeding and rearing of **coloured fish** of both freshwater and marine water.
- They are used for aesthetics like aquarium.
- The major objectives of the pilot project are:
 - Promote ornamental fish culture with cluster-based approach.
 - Augment ornamental fisheries trade and exports.
 - Rural and peri-urban employment opportunities
 - Employ modern technology and innovation.

Background

- Recently, Prime Minister has recently announced plans to develop a **smart city around Kandla port** in Gujarat, one of the 12 major ports of India.
- Government is also planning to help fishermen cooperatives to buy fishing boats at 50% subsidized rates.
- Government has launched Sagarmala project in 2015 to develop coastal Indian communities.

Sagarmala Project

- Its main objective is to promote **port-led direct and indirect development** and to provide **infrastructure to transport goods to and from ports** quickly, efficiently and cost-effectively.
- Four components of Sagarmala project are:
 - Port Modernization
 - Port Connectivity
 - Port led industrialization
 - Coastal Community development

Significance

- Production of fisheries can help **improve agricultural exports** of India.
- Blue revolution focused on **infrastructure development and livelihood opportunities** will help improve employment in the **allied sectors of Agriculture**.

3.12. TRADE IN AGRICULTURAL PRODUCTS-WAREHOUSE RECEIPTS

Why in News?

- Central Depository Services (CDSL) is set to launch the country's first demat facility for commodity markets that would primarily allow **warehouse receipts in demat form**. This would be a move to promote trade in agricultural products.

Central Depository Services Limited

- A depository facilitates holding of securities in the electronic form and enables securities transactions.
- CDSL was set up with the objective to provide secure depository services at affordable cost to all market participants.
- It is promoted by BSE Ltd, and sponsored by India's leading banks.

Background

- Traditionally, the lack of liquidity, quality testing and assurance, and delivery guarantees kept small farmers and institutional traders away from commodities market.

- The **grant of repository licenses to CDSL and NCDEX** and the **SEBI proposals to introduce commodity options** are positive signs.
- Currently a farmer can take the produce to a certified warehouse and receive a negotiable warehouse receipt with a unique identity (ISIN).

Negotiable Warehouse Receipt (NWR)

- Warehouse Receipts are documents issued by warehouses to depositors (like farmers) against the commodities deposited in the warehouses.
- They may be either non-negotiable or negotiable.
- Negotiable warehouse receipts are those that are **transferable by simple endorsement /signature**. Therefore they can be traded.
- It has been defined in the Warehousing Act 2007.

Significance

- It provides **better price realization** for farmers than the APMC markets.
- It is **safer collateral for lenders like banks and NBFCs** to make credit available to farmer.
- It gives a more efficient market place for hedgers and **lowers disruptions in supply for the end customer**.
- It also helps in **improving quality of agricultural produce** with quality of product linked to price realization.

Challenges

- Due to majority of smaller farm sizes in India, the **total produce is many times lower than a single tradable lot at the exchange**.
- MSP has become the market price instead of being the minimum assured price creating a **disincentive for farmers to carry the goods to the warehouses**.
- The suspension of forwards contracts, ban on trading of chana and castor in 2016 by the government has impacted volumes and market confidence thus **lowering private participation in this market**.
- The **storage cost at certified warehouses is higher** than the cost at the non-certified one.

Way Forward

- **Creating a pool of farmers** through initiatives like Farmer Producer Companies (FPC) will eliminate the problem related to small farmer lands.
- To encourage private companies to directly buy from the farmers, the rules for purchase and payments at various APMCs need to be standardized.
- Government should also **introduce standard price adjustments** based on location of the farm and the quality parameters to lower the influence of MSP.

3.13. JAL VIKAS MARG PROJECT

Why in news?

- **Ministry of Shipping** is implementing phase 1 of **Jal Vikas Marg Project** (capacity augmentation of **National Waterway-1**) between **Varanasi** and **Haldia** with technical and financial assistance of **World Bank**.
- **Jal Vikas Marg Project** was announced during **Budget 2015-16**.

About Jal Vikas Marg Project

- This Project envisages developing a **navigable channel** (achieve **Least Available Depth** of 3.00 meters for commercial navigation of 1500-2000 tonnes of ship) between 1,620 km **Allahabad and Haldia** (National Waterway-1) stretch on river **Ganga**. This project will be completed in **6 years**.
- **Main objective** of the project is to provide an **environment friendly, fuel efficient** and **cost-effective** alternative mode of transportation.
- **National Waterway-1 (NW-1)** is a waterway passing through Uttar Pradesh, Bihar, Jharkhand and West Bengal serving major cities like Allahabad, Varanasi, Patna, Howrah, Kolkatta, Haldia, etc.
- **International Waterway Authority of India (IWAI)** is the implementing agency of this project.
- With development of National Waterway-1 huge quantities of bulk cargo can be transported thereby helping in economic development of the region.
- **IWAI** along with **Dedicated Freight Corridor Corporation of India (DFCCIL)** will create logistics hubs with rail connectivity at important nodal points along the National Waterway.
- The project includes **development of fairway; multi-modal terminals at Varanasi, Haldia and Sahibganj; strengthening of river navigation system; conservancy works, modern River Information System; Digital**

Global Positioning System; Night navigation facilities; Modern methods of channel marking and construction of a new state of the art **navigational lock at Farakka**.

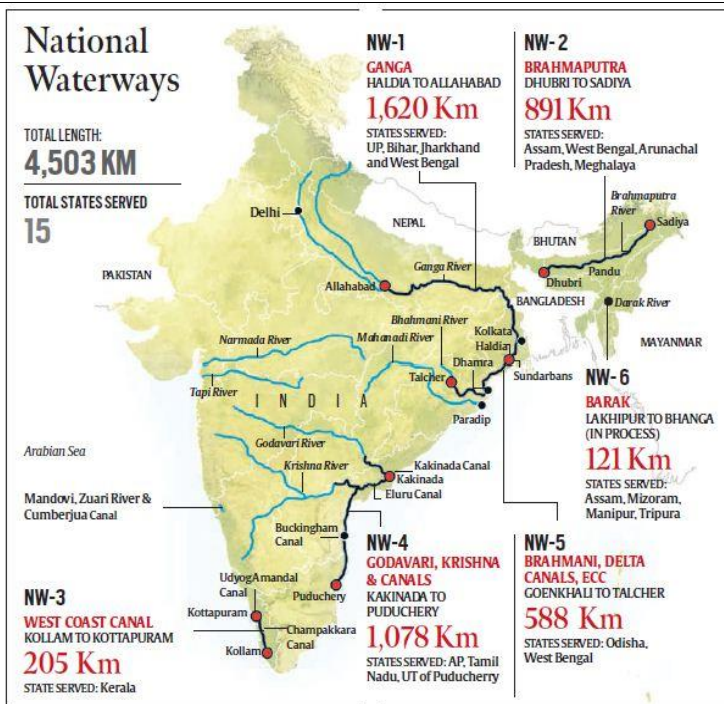
- This Project Will Result in Employment Generation; Provide Cheap, Efficient and Environment Friendly Option Transportation of Cargos; Economic Development of Areas Along the Nw-1 and Also Their Hinterlands; Maximum Utilization of Nw-1, Etc.

About Inland Waterway Authority of India

- It is an apex statutory body created in 1986 for development and regulation of **inland waterways** for shipping and navigation under **Ministry of Shipping**.
- The head office of the Authority is at **Noida (UP)**.

About National Waterway (NW)

- India has about **14,500 km** of navigable waterways which comprise of rivers, canals, backwaters, creeks, etc.
- India has total of **111 NW** out of which **106** where Created in 2016 as per **NW Act, 2016**.



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4. SECURITY

4.1. SURVEILLANCE SHIP

- Recently, indigenously developed surveillance ship called **INLCU L51**, of the **landing craft utility (LCU) Mk IV Class project**, has been commissioned into Indian Navy.
- It is fitted with state-of-the-art **Electronic Warfare suite** for early detection of adversaries.
- It is the first of the **eight ships** of the **LCU Mk IV Class** and has been built by **Garden Reach Ship Builders & Engineers Ltd, Kolkata**.
- This ship will help in maritime surveillance of Andaman & Nicobar Islands to prevent activities like **humans and drugs trafficking, illegal fishing, poaching** and **other unlawful activities** in Indian Ocean.
- It will further enhance the capabilities of the Andaman and Nicobar Command in **Humanitarian Assistance** and **Disaster Relief Operations**.

- The **Landing Craft Utility (LCU)** is a type of boat used by **amphibious forces** to transport equipment and troops to the shore.
- Rest of the **7 LCU Mk IV class ship** are launched and undergoing sea trials test.

4.2. DEFENCE SECTOR ALLOCATION: A NEGLECTED AREA

Why in news?

- **Parliament Standing Committee on Defence** supported **Ministry of Defense** proposal of setting up of a **“Non-lapsable Capital Fund Account”**.
- At present proposal of setting this fund is pending with Finance ministry for its approval.
- Such proposal has been recommended because defense procurement often takes years to complete however budget allocated lapses at the end of the financial year. Thus defense ministry if forced to return money meant for capital acquisition.
- However Finance Ministry is still not in favour of creation of such fund for Defence Ministry.
- Earlier in **1998-99** Parliament has constituted Non-lapsable Central Pool of Resources for North Eastern region.

4.2.1. PARLIAMENT STANDING COMMITTEE ON DEFENCE REPORT ON DEFENCE BUDGET 2017-18

- **Parliament Standing Committee on Defence** headed by **Maj. B. C. Khanduri** in its report pointed out that Defence allocation of **2.74 lakh crore** in **Budget 2017-18** is woefully inadequate to meet the demands of **Indian armed forces** and will impact military preparedness.
- With modest hike of just **6%** compared to last year (Last year **2.58 lakh crore** allocated) Defence budget is pegged at **1.62% of GDP** this year (lowest since **1956-57**). This is way below defence ministry panel recommendation of atleast **2.5% of GDP**.

Highlights of the report

- Regarding **Navy**, committee noted that the in Budget 2017-18 only **18000 crore** has been allocated for **capital acquisition** however contracts are signed to for **22000 crore**. Hence the allocation **won't even suffice** for the deals already signed.
- In the case of **Army**, which lack adequate critical weapons and surveillance systems, only paltry sum of **25,254 crore** has been allocated for capital allocation however committed liability being carried forward from 2016-17 to present year itself amounts to **23,000 crore**.
- Even for the Airforce, only **4000 crore** has been allocated exclusively for **“new schemes”**. It would hamper the **modernization** drive of force as the procurement of aircraft and other related equipment are highly costly in nature.
- Committee also stressed for creating long pending post of **Chief of Defence Staff (CDC)** as it will help in avoiding **duplication** in purchase of equipment common to all the **three services**.

- Committee even pulled up the Defense ministry on its “**Make in India**” initiative by pointing out that in **2016-17**, more than **22 lakh crore** was spent by **India Air Force** on modernization however only 268.10 crore worth of contracts was provided to indian vendors.
- Lastly committee came down heavily on **Finance ministry** for not providing timely clearance for crucial proposals.

Way ahead

- Government of India must understand that there is urgent need to augment resources substantially, especially under **stores** and **capital procurement** which witnessed tremendous pressure in last few years.
- Moreover, though defence ministry demand for higher allocation is genuine, it must ensure **optimum utilization** of available resources in time bound manner.
- Defense ministry must also try to **rationalize** the budget by controlling manpower to give more room for higher allocation to other items.
- The meagre increase of **6 % per cent** in the defence budget is grossly inadequate especially in view of the vast voids existing in military capability and the imperative need of modernisation and operational preparedness.

Departmentally related Standing Committee:

- There are total **17** departmentally related Standing Committees formed in **April, 1993**.
- Term of the members of these committees is **1 year**.
- Out of these 17 standing committees some are serviced by **Rajya Sabha Secretariat** while other is serviced by **Lok Sabha Secretariat (Parliament Standing Committee on Defence** is serviced by Lok Sabha Secretariat).
- Each of these committee consists of not more than **45 members- 30** to be nominated by the **Speaker, Lok Sabha** from amongst the members of **Lok Sabha** and **15** to be nominated by the **Chairman, Rajya Sabha** from amongst the members of Rajya Sabha.
- **No** Minister is eligible to be nominated to these Committees.
- **Major functions** of these committees are:
 - ✓ Consideration of Demands for Grants.
 - ✓ Examination of Bills referred to by the Chairman, Rajya Sabha or the Speaker, Lok Sabha.
 - ✓ Considering long term policy documents of respective ministry.
- These committees serves as an instrument for **parliamentary surveillance** over administration by providing necessary direction, guidance and inputs for broad policy formulations and in achievement of the long-term national perspective by the government.

4.3. KALVARI CLASS SUBMARINE

Why in news?

- Indian navy successfully test fired an **anti-ship missile** from **INS Kalvari Submarine**.
- This anti-ship missile enhances submarines ability to neutralize surface threats at extended ranges.

About Scorpene class submarine

- Indigenously built diesel powered **Kalvari submarine** is first in the series of six **Scorpene class submarines**.
- These **Scorpene class** submarines are being built by **Mazagon Dock Limited (MDL)** in collaboration with **France’s DCNS** under the **Project 75**.
- Recently, **INS Khanderi**, second of the six **Scorpene class submarine** was launched at **Mazagon Dock Limited**.
- These submarines are equipped with “**air independent propulsion system**” to allow submarine stay underwater for longer duration. They are designed to **operate in all theatres**, including the Tropics.
- They are endowed with superior **stealth features, precision guided weapons** and long range guided **torpedoes**.
- These classes of submarines can undertake various types of missions like anti-surface warfare, anti-submarine warfare, intelligence gathering, mine laying, area surveillance, etc.

PROJECT 75: Under this project, French company **DCNS** will provides design and technology to public sector **Mazagon Docks limited** to make **six** Scorpene submarines. These are expected to be commissioned by 2020.

4.4. SWATHI-WEAPON LOCATING RADAR

- It is an indigenous mobile artillery locating radar (WLR) handed over to army and developed by DRDO.
- Swati has a range of 50 km, which brings all artillery guns presently in service worldwide under coverage.
- It is being used extensively along the LoC and has played a major role in suppressing fire from other side of border

4.5. ADMIRALTY BILL

Why in news?

- Lok Sabha passed The Admiralty (Jurisdiction and Settlement of Maritime Claims) Bill, 2016.

Background

- **Admiralty laws** deal with cases of accidents in navigable waters or involve contracts related to commerce on such waters.
- Admiralty laws in force presently in India were enacted in colonial era when India had only three major ports — **Bombay, Calcutta and Madras**.
- Now there are 13 major ports and 205 minor ports in India but under the existing legislation, matters related to admiralty could be **decided only by the High Courts of Bombay, Calcutta and Madras**.
- The Bill **seeks to consolidate the existing laws** on civil matters of admiralty jurisdiction of courts, admiralty proceedings on maritime claims, and arrest of ships.
- The Bill **repeals five obsolete laws** such as the Admiralty Court Act, 1861, the Colonial Courts of Admiralty Act, 1890.

Major Provisions of the Bill

- It **confers admiralty jurisdiction on high courts** located in coastal states up to territorial waters which can be further extended to exclusive economic zone or any other maritime zone of India.
- **Applicability:** The law would be applicable **on every vessel irrespective of place of residence or domicile of owner**.
- It will not apply to **Warships and naval auxiliary** and **vessels used for non-commercial purposes**.
- **Inland vessels and vessels under construction** are **excluded** from its application, however, Central Government by **notification** can bring these vessels under this law.
- **Adjudicating Maritime Claims:** The jurisdiction is for adjudicating on a set of **maritime claims listed in the Bill**.
- In order to ensure security against a maritime claim **a vessel can be arrested in certain circumstances**. The **liability** in respect of selected maritime claims on a vessel **passes on to its new owners** by way of maritime liens subject to a stipulated time limit.
- **Assessors:** **The central government** will appoint a **list of assessors qualified and experienced in admiralty and maritime matters**. The central government will also **determine the duties of assessors, and their fee**. Typically, **assessors assist** the judges in determining **rates and claims** in admiralty proceedings.

5. ENVIRONMENT

5.1. ENVIRONMENTAL CLEARANCE (EC) VIOLATION

Why in news?

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has issued a notification, giving a six-month window period to project proponents, who have been operating without obtaining a prior environmental clearance.

Background

- The process of granting ECs by the ministry includes grant of terms of reference (ToRs), public consultations and environment impact assessment (EIA).
- Different sector-based Expert Appraisal Committees (EACs) in the environment ministry appraise projects as per the provisions of the EIA notification 2006 after which it recommends or rejects environment clearance to projects.

CAG's performance audit on ECs

- It said that ministry has failed at every step in ensuring environment is protected
- It also said that ministry has not penalized even a single project for non-compliance.
- Only in 11% of the cases were the ECs granted within the prescribed time limit of 105 days.

New notification

- There is a window for applying EC but the action will be taken in case an expert panel of the ministry finds it to be environmentally unsustainable.
- In cases where EAC finds that the project can run in an environmentally sustainable manner, the expert panel will prescribe assessment of ecological damage, a remediation plan and natural and community resource augmentation plan (NCRAP).
- The idea is to take away the economic benefit (if any) derived by the company due to violation and pay for the remediation of damage caused due to violation.

Environmental Impact Assessment

EIA is an important management tool for ensuring optimal use of natural resources for sustainable development.

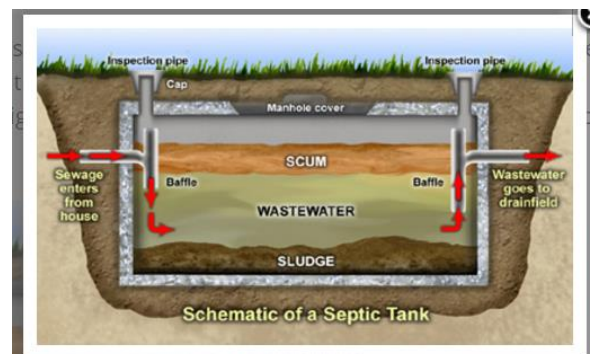
Future Concerns

- Environmentalists are not happy because it encourages violation and negates the purpose of detailed EIA
- The EC should not be granted once project activities have started, but if it is now allowed the implementation of remedial measures and compliance of clearance conditions must be strictly monitored.

5.2. TWO PIT SOLUTION

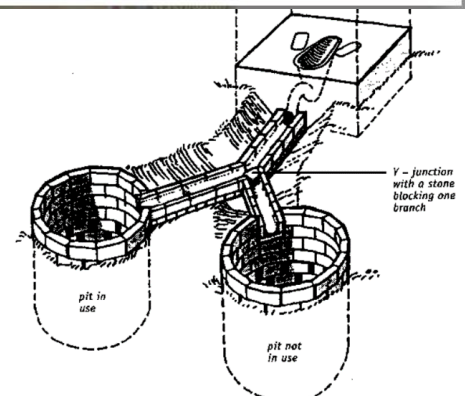
Background

- Septic tanks are generally preferred by rural households as a mini sewage treatment plants.
- It separates the solid waste from the waste water.
- They have the advantage of being economical, low maintenance cost and most importantly waste water can be used to drain the farms
- But they also have inherent disadvantages such as regular maintenance is required, foul smell, etc. Also, one time investment of building a septic tank is high for the rural households of India.



Two pit Latrines

- This system has two leach pits, with a 'Y' junction. The practice is to fill one and cover it over when nearly full, and leave it to stand while the second pit is used. The waste in the first pit will convert into manure in a year.
- It has the following advantages over septic tanks:



- They are very cheap as compared to building septic tank. Also, maintenance cost is also minimal.
- Manure can be used in field or can be sold out giving another economic advantage.
- It will also promote the culture of using latrines because of the economic advantage of manure.

The low preference of farmers for two-pit latrines over septic tanks suggest that there is lack of awareness among them about the advantages.

5.3. LIVING PERSON STATUS TO GANGA AND YAMUNA

Why in news?

The Uttarakhand HC division bench declared the Ganga and Yamuna living entities, bestowing on them same legal rights as a person.

The Court verdict

- The Ganga and The Yamuna, all their tributaries, Glaciers like Gangotri, Yamunotri and Forest are declared as living person with all corresponding rights, duties and liabilities.
- Director of the Namami Gange programme, the Uttarakhand Chief Secretary, and the Advocate-General of Uttarakhand would serve as “parents” for the rivers and would be the human faces to protect, conserve and preserve the rivers and their tributaries.
- Earlier the bench asked authorities to impose complete prohibition on alcohol including beer in Rudrapur, Chamoli and Uttarkashi districts from April 1.
- Directed the state government to impose a ‘glacier tax’. (It’s a cess imposed on tourists visiting the Himalayas in order to protect depleting glacier ecology and the amount realized by way of it would be used only for the benefit of people visiting the area including the pilgrims)
- Asked Uttarakhand Environment Protection & Pollution Control Board (UEPPCB) strictly to seal the industries, hotels, ashrams and other establishments, which are discharging the sewerage in the rivers.
- The constitution of Ganga Management Board is necessary for the purpose of regulating irrigation, rural and urban water supply, hydro power generation, navigation, industries.

Earlier precedents

- Earlier New Zealand has recognised the Whanganui River as living being after relentless effort by the Iwi indigenous peoples who live along the bank of river by passing Te Awa Tapua bill.
- In Ecuador, people went to court in the name of the Vilcabamba River, being affected by a road widening project.

Significance

- Recognition of the rivers’ rights is based on its value for socio-political-scientific development and the spiritual significance as they serve us but it should be due to their innate qualities and being a part of overall ecosystem.
- It may be extended to all other rivers and other natural resources like hills mines etc. to protect them also.
- It has potential ramification of legal litigations if a situation arises when private and public property are damaged by river and other streams as they are considered legal living person now.
- It’s a positive move as National aquatic animal Gangatic Dolphine and other river ecosystem animal will be saved inadvertently.

5.4. GREEN NOD FOR NEUTRINO PROJECT SUSPENDED

Why in news?

The Southern Bench of the National Green Tribunal suspended the Environmental Clearance (EC) granted to the India-based Neutrino Observatory (INO)

About INO

- India-based Neutrino Observatory (INO) is a particle physics research project under construction to primarily study atmospheric neutrinos in a 1,300 meters deep cave near Bodhi west hills reserved forest near pottipuram village in Theni district, Tamil Nadu.

- After photons, neutrinos are the most abundant particles in the universe. They are affected only by a weak sub-atomic force of much shorter range, making it possible for them to pass great distances through matter without being affected.

Reason

- The petitioner says that the project was 4.9 km away from Mathikettan Shola National Park in Idukki district, Kerala. This makes INO a category 'A' project (within 5 km of a national park) requiring clearance from the National Board for Wildlife (NBWL).

Environmental concerns

- Site stands on an aquifer that feeds three important river systems – Periyar, Vaigai, and Vaippar
- Rock-blasting during construction could seismically impact reservoirs including Mullaperiyar and Idukki
- Department of Atomic Energy could use the underground space for storing high-level radioactive waste from nuclear power plants
- Tribunal and Bhopal, Pune, Kolkata and Chennai being the other four place of sitting of the Tribunal.

About National Green Tribunal (NGT)

- The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- Its mandate is to enforce any legal right relating to environment, providing relief and compensation for damages to persons and property.
- It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues.
- The Tribunal is mandated for disposal of applications or appeals finally within 6 months of filing of the same.

5.5. DAROJI SLOTH BEAR SANCTUARY

Why in news?

Sloth Bear cubs are spotted after 4 years in Daroji Sloth Bear Sanctuary.

About Daroji Sloth Bear Sanctuary

- It is located in Ballari district in Karnataka and 15 km near Hampi
- Created exclusively for preservation of Indian sloth bear. It is the flagship species (the ability of one threatened species to help drive conservation efforts that also benefit others smaller and important species i.e. Tiger, Elephant conservation requires large area and effort and in due course other species get protection inadvertently) of the sanctuary.
- Flora is dry deciduous scrub and southern thorn forest.

About Indian sloth bear

- There are eight species of Bears in the world. Indian Sloth Bear is confined to India and Sri Lanka only
- Locally called KARADI in Karnataka
- Comes under endangered species.

5.6. BARASINGHA CONSERVATION

Why in news?

Bhoorsingh the Barasingha- Kanha tiger reserve becomes first in India get official mascot.

About Barasingha

- Barasingha also called swamp deer is state animal of Madhya Pradesh
- It comes under vulnerable category in IUCN red list.
- It is extinct in Pakistan and Bangladesh and its native of India and Nepal.
- Kanha tiger reserve is spread over Mandla and Balaghat district.
- The swamp deer differs from all the Indian deer species in that the antlers carry more than three tines because of this distinctive character it is designated barasingha meaning twelve-tined.

5.7. WORLD'S NATURAL SALTIEST POND

Why in news?

Scientists discover how the world's saltiest pond gets its salt.

How does it remain liquid?

- Don Juan Pond gets its salt and some of its water from a nearby deposit of calcium chloride salt.
- The salt deposit sucks water from the icy air whenever the humidity increases.
- That salt laden water then slowly trickles downhill towards the pond. The rest of the pond's water comes from occasional snow melt that helps to wash the salt into the pond.

About Pond

- Name - Don Juan Pond situated in frigid McMurdo valley in Antarctica.
- Its unique feature is it remains in liquid form and does not freeze.
- Saltiest water body on earth, 8th times brinier than The Dead Sea.
- Don Juan Pond was discovered in 1961, named after two helicopter pilots, Lt. Don Roe and Lt. John Hickey.

5.8. DIVYA NAYAN

Why in news?

Chandigarh based Council of Scientific and Industrial Research (CSIR) lab develops the most advanced reading machine for visually challenged.

Features

- It is portable device is based on the principle of contact scanning of a printed document and converting it into speech. It can scan any script and reads it aloud for visually challenged to understand.
- The device can analyse a multicolumn document and provide seamless reading
- It is capable of page, text and word level navigation while reading
- The device is standalone (able to operate independently of other hardware or software), portable, completely wireless and uses open source hardware and software
- Currently it supports Hindi and English languages later on it will be programmed for other Indian and foreign languages as well.
- Internal storage of 32 GB with run time of upto 3 hours and weighs 410 gram
- It is equipped with WiFi and Bluetooth interface
- It also can be connected to a monitor and be used as a mini computer with screen reader utility.

Advantages

- Earlier Braille was the primary source of reading for such people but converting text into Braille is time consuming, now this limitation has been removed.
- India has a population of 15 million visually challenged, of the 39 million across the world. Such large number of people will be benefited by access of technology.
- It would bridge the gap of available technology for visually challenged.

5.9. GROUNDWATER EXPLOITATION

Why in news?

- On the **World Water Day on March 22**, the Karnataka government admitted that the groundwater levels in more than 140 of the total 176 talukas have depleted due to overexploitation.

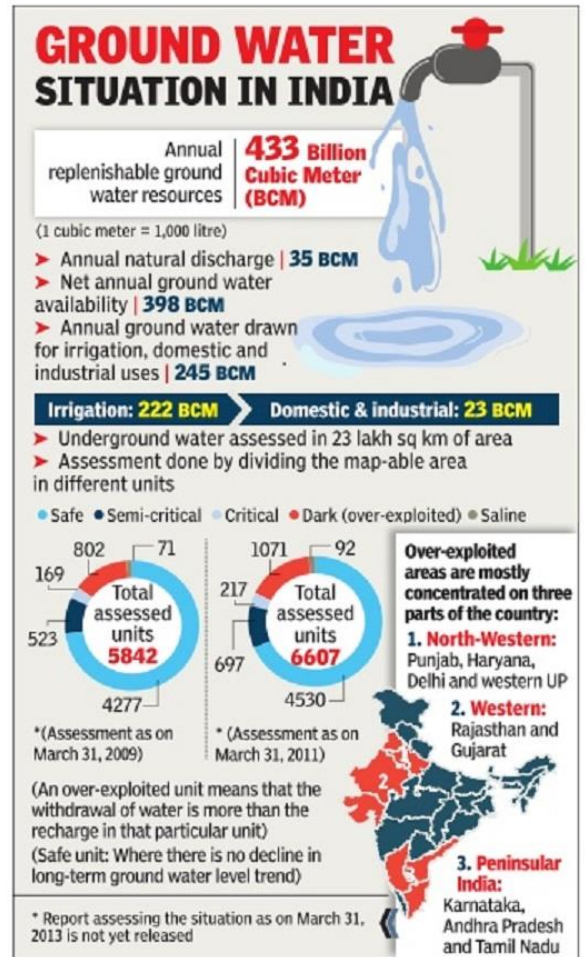
What is groundwater exploitation?

- **Excessive withdrawal of groundwater** for various purposes including **irrigation, domestic and industrialization**, which result in decline in ground water levels.

- On the other hand, ground water recharge in many areas is reduced due to varied & erratic rainfall pattern as well as change in land use.

Initiatives Taken Up by GOI

- The **National Water Policy (2012)** was formulated which **advocates conservation, promotion and protection of water and highlights the need for augmenting the availability of water** through rain water harvesting, direct use of rainfall and other management measures.
- Central Ground Water Authority (CGWA)** has been constituted.
- Under “The Environment (Protection) Act, 1986” for the purpose of regulation and control of ground water development and management.
- As per Schedule-I of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the **water conservation and water harvesting structures** to augment **ground water constitute** a special focus area for MGNREGA works.
- CGWB has taken up **Aquifer Mapping and Management** programme during XII Plan.
- Ministry of Environment, Forest and Climate Change have merged two separate programmes, namely, **National Lake Conservation Plan (NLCP)** and **National Wetland Conservation Programme (NWCP)** into a new **Integrated Scheme of National Plan for Conservation of Aquatic Eco-Systems (NPCA)** for conservation and management of identified lakes and wetlands in the country.
- CGWB has been organizing **mass awareness programmes** in the country to promote rain water harvesting and artificial recharge to ground water.



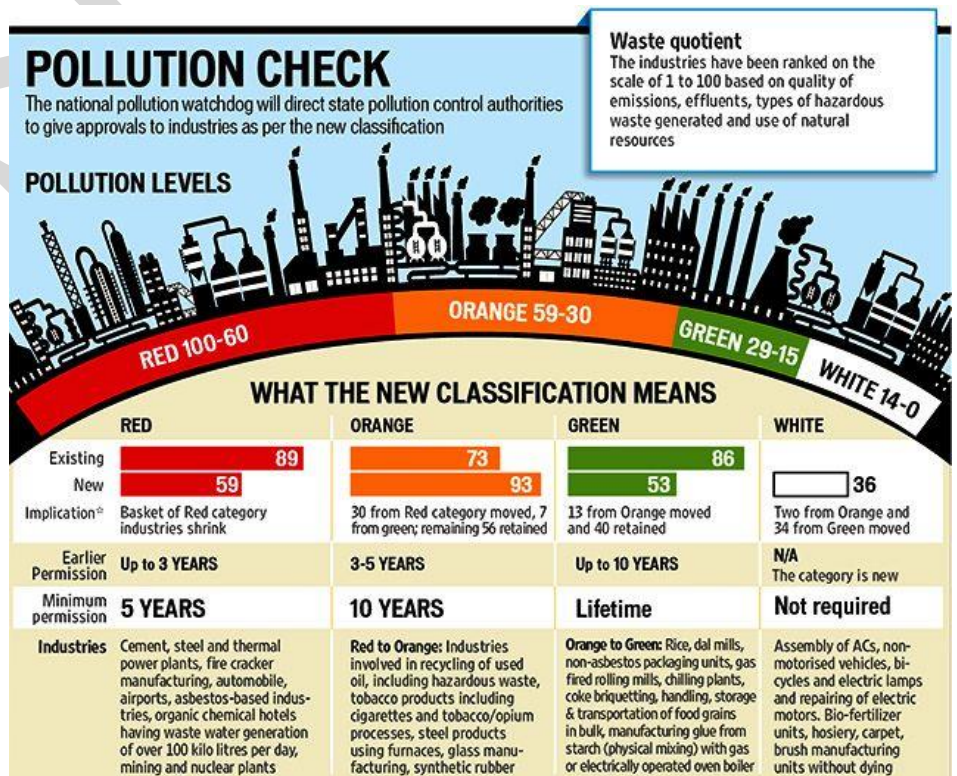
5.10. ONLINE FILING OF ACCESS AND BENEFIT SHARING APPLICATIONS

Why in news?

- Ministry of Environment, Forest and Climate Change (Moef)** launched the online filing of Access and Benefit Sharing (ABS) applications.
- The **National Biodiversity Authority (NBA)**, teamed up with the **National Informatics Centre (NIC)**, to launch the website to enable E-filing of applications.

What is Access and Benefit Sharing?

- Access and benefit-sharing (ABS)** refers to the way in which genetic resources may be accessed, and how



benefits from that result from their use are shared between the people or countries using the resources (users) and the people or countries that provide them (providers).

- The **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity** is a supplementary agreement to the Convention on Biological Diversity.
- It was constituted on 29th October, 2010.

- NBA is a statutory body established under the provisions of the **Biological Diversity Act**.
- It performs facilitative and advisory functions for the Union government on issues of **conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources**.

5.11. EASING OF RULES FOR CLEARANCE OF NON-POLLUTING INDUSTRIAL PROJECTS

Why in news?

- The **Ministry of Environment, Forests and Climate Change (MOEF)** has said that Projects under the new category of “white”, which is practically non-polluting, will not require environmental clearance.

Background

- **MOEF** in consultation with the **Central Pollution Control Board** has reclassified the industries into “Red”, “Orange”, “Green” and “White” with an objective to promote “Ease of Doing Responsible Business”.
- Projects are supposed to get environmental clearances under **Environment (Protection) Act, 1986** or Consent under **Air (Prevention and Control of Pollution) Act, 1981** and **Water (Prevention and Control of Pollution) Act, 1974**.

Significance

- It will **simplify procedures to fast-track industries falling under the “white” category which includes real estate projects**.
- Will **cut procedural delays** to spur growth through improved 'ease of doing business'.

Criticism

- The hurry to spare the real estate projects when the similar matter under the December 9 notification is pending in the NGT.
- It also bypasses the Environment (Protection) Act as well as the 2006 EIA notification"

5.12. ALGAL BLOOM

Why in news?

- The algal bloom has expanded from the shores of Oman on the west to India and Pakistan on the east raising environmental concerns.

What is algal bloom?

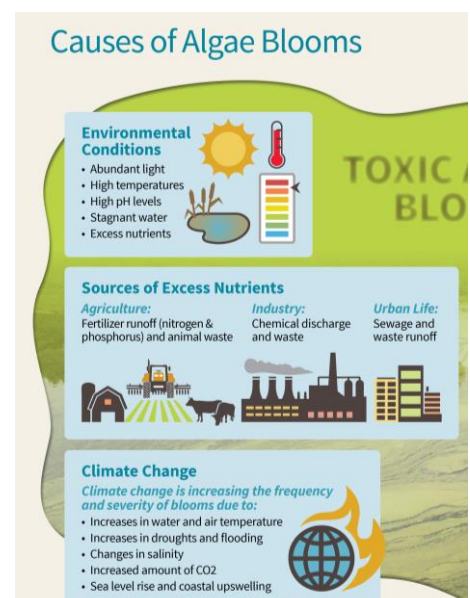
- An algal bloom is a rapid increase in the population of algae in an aquatic system.

What are harmful algal blooms?

- Algal bloom is caused by **Noctiluca scintillans—microscopic dinoflagellates** that feed on plankton and suck up energy from the sun through microscopic algae living within their cells.

Effects of harmful algal blooms

- Produce extremely dangerous toxins that can sicken or kill people and animals.



- Create dead zones in the water.
- Raise treatment costs for drinking water
- Hurt industries that depend on clean water

Dinoflagellates are **one-celled aquatic organisms** bearing two dissimilar flagella and having characteristics of both plants and animals.

5.13. WHO REPORT ON NOISE POLLUTION

Why in news?

- World Health Organisation “**Worldwide Hearing Index**” claims Delhi to be the second worst city with highest noise pollutions.
- The report has been created by digital hearing app founders Mimi Hearing Technologies GmbH after an analysis was done on 2, 00,000 of their users.

Report Analysis

- **Guangzhou** in China had the worst noise pollution, while **Zurich** in Switzerland had the least.
- A typical **source of noise pollution** is **transport**, such as road, rail and air traffic.
- Most of the people living in the noise polluted cities face hearing loss. Around **360 million people** worldwide have been facing hearing loss out of which **32 million are children**
- In next few years around **1.1 billion teenagers** worldwide are at risk of developing hearing loss due to **unsafe use of personal audio devices** and exposure to damaging levels of sounds in **noisy entertainment venues**.


Effects of Prolonged Noise Pollution

- According to a 2007 WHO estimate, almost **six per cent people** in India suffer from hearing loss.
- Prolonged exposure to noise above 60 dB can lead to irreversible **Noise Induced Hearing Loss (NIHL)**
- Other serious health implications are:
 - ✓ **deafness,**
 - ✓ **heart conditions,**
 - ✓ **sleep disorders and**
 - ✓ **cognitive impairment in children**

Preventive measures

NIHL can be prevented by improving one’s **diet**

- Dietary supplements rich in antioxidants can protect hair cells in the inner ear.
- Food rich in Beta-Carotene, Vitamin C and E, and magnesium protect from threshold shifts.
- Use of **ear plugs and muffs** is also recommended as a sound protective measure.



NORMS TO CHECK DECIBEL DEMON

<p>REGULATION Under Environment Protection Act 1986 and Noise Pollution (Regulation and Control) Rules 2000, in a 100-metre radius around silence zones, noise levels should be within</p> <ul style="list-style-type: none"> ● 50 decibels between 6am and 10pm ● 40 decibels between 10pm and 6 am 	<p>VIOLATION</p> <ul style="list-style-type: none"> ● Violations can be reported to police, municipality, pollution board, and , if necessary, the judiciary <p>PUNISHMENT</p> <ul style="list-style-type: none"> ● Fine of Rs 100 per violation as per Motor Vehicle Act 1968 and Rules of Roads Regulations 1989
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5.14. SPARROW CONSERVATION

Why in news?

- The House Sparrow which was declared as the **State bird of Delhi** in 2012 is now fast disappearing.

Reasons

- **Anthropogenic factors** food and nesting places are destroyed by humans.
- Homeless due to “**matchbox styled**” architecture that makes it difficult for the bird to build nests.
- Increased use of **packaged food**.
- Insects which are their primary source of food are killed due to **use of pesticides and insecticides** in farms and gardens
- **Radiation** from mobile towers.

Solution

- **Kitchen waste** can be utilised to make birds feed by making microbes through decomposition.

- The **Great Sparrow Count** is a **Nature Forever Society of India (NFSI)** Initiative.
- The aim is document the population and distribution of 24 different species of sparrows found across the world.
- NFSI is a non-profit organization found to conserve house sparrows.
- **March 20** is celebrated as **World Sparrow Day** across 50 countries annually since 2010.

- In summer, **Bird -bath** along with **water bowls** would help them to rehydrate.
- **Plants and hedges** can be grown to help build them nests.
- **Artificial nests** outside our homes could be build for a safe breeding and roosting place.

What is being currently done?

- **Seminary hills in Nagpur** is to designated as a sparrow conservation site.
- A similar sparrow conservation programme is also being launched at **Sanjay Gandhi National Park (SGNP), Borivali**, and forest department's **Rambagh Colony in Chandrapur**

5.15. REFORMS IN WATER GOVERNANCE

Why in News?

- On March 22 2017, Government of India observed the **World Water Day**; which stresses the need to look at Water and its associated problems.
- Moreover, United Nations World Water Development Report, '**Wastewater: the Untapped Resource**', has also advocated a paradigm shift from wastewater as a problem towards as a resource.

Reason for Water problem in India

- Farmers are dependent on ground-water irrigation.
- High energy subsidies to farmers have encouraged relentless exploitation.
- Lax regulation on water use.
- Lopsided price incentives, for example, incentivising paddy cultivation which in itself is a water gurgling crop.
- Lack of water expertise in government organisations.
- Underutilization of government water reservoirs.
- Centralized water treatment plants.

About the Water issue

- UN Environment Programme forecasts the water crises to be the top global risk over the next decade because water demand for industry, energy and agriculture will increase by 50% by 2030.
- The current trends of water usage will continue to perpetuate water scarcity, endangering human health and ecosystems and constraining sustainable economic development.
- The availability of water resources is also intrinsically linked to water quality, as the pollution of water sources may prohibit different types of uses.
- Increased discharges of untreated sewage, agricultural runoff and inadequately treated wastewater from industry coupled with climate change call for a look for water security.

UN World Water Development Report 2017 Four-pronged strategy (Wastewater)

Reducing

- Minimising waste water flow.
- Priority over traditional 'after-use' treatment.
- Prohibiting or controlling the use of certain contaminant.
- Monitoring and reporting of pollutant discharges.

Removing

- Low-cost decentralized systems of wastewater treatment systems.
- Effluent of adequate quality for several potential uses, including agriculture and allied activities.
- Can provide a safe, affordable and effective alternative to more costly centralized systems to meet the needs of unnerved populations.

Reusing

- Enhance water availability and offset water scarcity.
- Treating wastewater to the level most appropriate for its intended 'safe' use.
- Enhance food security and provides opportunities for improved nutrition.

Recovery

- Energy can be recovered from wastewater in the form of biofuel, biogas, heat, and electricity generation.
- Recovering nutrients like **nitrogen, and especially phosphorus**, from sewage sludge.

India and water scenario

- India has 63 million people living in rural areas without access to clean water and half of the total households with access to water supply in their premises, depend on untreated tap-water.
- India's farms consume more water to grow the same amount of crops, compared to global averages. That crop production, grazing and animal water supply accounted for a little **over 92% of total water** use in the India. Whereas Industry and domestic use accounted for only 4.4% and 3.6%, respectively.
- Due to poor water sanitation, there is a 15% increase in water-born health problems during the last decade.

- Wastewater generation is one of the biggest challenges associated with the growth of informal settlements (slums) in India.
- A large proportion of wastewater is still released into the environment without being either collected or treated. For instance, only 8% of domestic and industrial wastewater is treated in India.
- The phenomenon of global warming has modified the ecology of major rivers of India. For instance, Ganga and Indus suffer significant-to-severe levels of water scarcity for 7 to 11 months in a year.

Governance on Water

- Water Footprint Network has identified that water related policies of the Government of India emphasis on **symbolic aspect** rather than factual outcome.
- The existing Water governance framework faces **complete lack of coordination and clarity**. For example, Mihir Shah Committee 2016 identified that India's existing water-governance system as silo-based which views ground water, river basin rejuvenation and other such challenges as isolated tasks.
- Agriculture related policies of India are indifferent to water scenario. For example, guaranteed procurement policy by the Food Corporation of India neglects the water consumption by major crops.
- Moreover, National Water Policy 2012 does not mandate any **legally liability** for any damage caused to the water resources as a result of over extraction.

Reforms

• On Governance

- ✓ Water has multidimensional impact on life; thus, policies pertaining to it must be based on its myriad usages, for example, **WFN (Water Footprint Network) classifies water usage into three types**: green (rain water); blue (surface and groundwater); and grey (amount of water required to carry off pollutants).
- ✓ Mihir Shah Committee advocated the coordination approach for water governance with international studies. For example, independent studies which are based on internationally comparable evapotranspiration rates (sum of water lost to atmosphere due to evaporation and transpiration via plants) must be considered for water related governance.
- ✓ Robust infrastructure and reframe of water governance mechanism ranging from agricultural to domestic usage is the need of the hour. For instance, committee on restructuring of Central Water Commission and Central Ground Water Board advocate for **National Water Commission (NWC)** as the nation's apex facilitation organisation dealing with water policy, data and governance.

• On Sanitation

- ✓ World Health Organisation released UN-Water Global Analysis and Assessment of Sanitation and Drinking-water (**GLASS) report 2017**, advocating the need for increase in spending on sanitation, drinking-water and hygiene.
- ✓ Robust awareness programmes in informal settlement is need of the hour; this is because, GLASS report 2017, highlighted that there is neglect of WASH (Water Sanitation and Hygiene) approach in government policy.

• On Conservation

- ✓ Community based water quality monitoring guidelines should be encouraged. Infrastructure intrinsically linked to ground water recharge must be adopted for sustainability.
- ✓ Besides reducing pollution at the source, policy initiatives must shift focus towards removing contaminants from wastewater flows, reusing water, and recovering useful by-products. For instance:
 - In Singapore and the southern California coastal city of San Diego, residents already drink recycled water.
 - Japan's sewage operators use bio-solids as a carbon-neutral form of energy.
 - According to World Water Development Report 2017, more than a fifth of global phosphorus demand worldwide could be met by recycled human urine and faeces.
 - Waste water is a rich source of nutrients, minerals and energy all of which can be cost-effectively extracted.

5.16. WWF TO UNDERTAKE GANGES DOLPHIN COUNT

Why in News?

- World Wide Fund for Nature-India has raised concern about the decreasing numbers of Ganges Dolphin in River system.
- WWF decide to count the number of Dolphins by using equipment which help in more accurate imaging.
- Earlier, counting was based on sightseeing.

About Ganges Dolphin

- It is the national aquatic animal of India.
- Other common names: Ganges river dolphin, **blind dolphin**, Ganges dolphin, **Ganges susu**, Gangetic dolphin, Hihu, Side-swimming dolphin, South Asian River Dolphin, Indus River Dolphin.
- It is a fresh water dolphin found in the river system of Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh.
- Categorised under IUCN (International Union for Conservation of Nature) status : **Endangered**
- Lowest estimate for the total population is 1,200–1,800 dolphins.

Conservation Action

- Ganges Dolphin is legally protected in all range states and occurs in a number of national parks and other designated areas.
- Vikramshila Gangetic Dolphin Sanctuary (Bihar) in the mainstream of the Ganges River was designated as a protected area for dolphins.
- Its species are listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (**CITES**) Appendix I.

What is World Wide Fund for Nature (WWF)?

- Switzerland based International **Non-Governmental organisation**, est. in 1961 and engages in conservation of wildlife and natural habitat.

Objectives

- Works under the mission statement:
 - To stop the degradation of the planet's natural environment and build a future in which humans live in harmony with nature.
- Conserving the world's **biological diversity**.
- Ensuring that the use of **renewable natural resources** is sustainable.
- Promoting the reduction of **pollution** and wasteful consumption.
- Enhancing **active participation** of all sections of society in nature conservation and environmental protection through environmental education, awareness and capacity-building.

Threats to the Ganges River dolphin

- Water development projects
- Pollution loads/ Toxic element
- Deliberate Killing (Meat and oil)
- Mortality in Fishing net

What is IUCN?

- It is an **International Union** created in 1948, comprises of both government and civil society organisations.
- It is **only** environmental organisation with official United Nations Observer Status
- It engage in data gathering and analysis, environmental research, advocacy, lobbying conservation, spreading education about equitable and ecologically sustainability.
- It publishes the **Red Data Book** under Global Species Programme, working with the Species Survival Commission.
- **Red Data Book** assessing the conservation status of species, subspecies, varieties, and even selected subpopulations of **both flora and fauna**.
- IUCN Red Data Book is listed to catalogue:
 - Extinct
 - Extinct in wild
 - Critically Endangered,
 - Endangered
 - Vulnerable
 - Near Threaten
 - Least Concern

What is CITES?

- It is an **International agreement** between governments, drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN.
- To ensure that **international trade** in the specimens of **wild animals and plants** does not threaten their survival.
- CITES regulates international trade in species by including species on one of the three Appendices.
 - Appendix I - species cannot be traded internationally for primarily commercial purposes, e.g. Tiger, Himalayan brown bear, elephant, and Tibetan antelope.
 - Appendix II - species can be traded internationally for commercial purposes, but within strict regulations, requiring determinations of sustainability and legality, e.g. Hippopotamus, bigleaf mahogany, and the gray wolf.
 - Appendix III - a species included at the request of a country which then needs the cooperation of other countries to help prevent illegal exploitation, e.g. walrus, Hoffmann's two-toed sloth, and the red-breasted toucan.

5.17. EARTH HOUR/LIGHT POLLUTION

Why in News?

- In an effort to spread the message of energy conservation, and climate change, billions of people across the globe had observed 'Earth Hour' on March 25, 2017, from 8:30 pm to 9:30 pm.
- Apart from aforesaid initiative, the Earth Hour also highlighted the issue of **Light Pollution**.

What is Earth Hour?

- It is a symbolic event organised by **World Wide Fund for Nature (WWF)** at Sydney (Australia) in 2007.
- Across the globe, various organisations, households and individuals switch off their lights for one hour to show that they care about the future of the planet earth.
- Through this, people also come to know about the contemporary environmental issues such as global warming and depletion of natural resources.

What is Light Pollution?

- It is also known as photo-pollution or luminous pollution.
- It is an excessive, misdirected, or obtrusive artificial (usually outdoor) light in the environment.
- In the process of urbanisation, demand for outdoor lighting has increased and light pollution sprawled beyond the city limits and into suburban and rural areas.

Causes of Light Pollution

- Unnecessary use of artificial lights.
- Poorly designed residential, commercial, and industrial outdoor lights.
- Unshielded light fixtures which emit more than 50% of their light skyward or sideways.

Effect of Light Pollution

- **Environment**
 - ✓ Excessive night-time lighting releases more than 12 million tons of carbon dioxide.
 - ✓ Photo-pollution increases air pollution by suppressing a naturally occurring **Nitrate radical** that cleans the air at night. (Nitrate prevents ground level Ozone formation).
 - ✓ Artificial light also increase the chemicals for ozone pollution by 5%.
- **Energy**
 - ✓ Wasted light results in energy waste. An International Dark Sky Association (IDA) study in 2016 estimated that 30% of all light emitted by public outdoor light fixtures is wasted.
- **Wildlife**
 - ✓ Lights can attract or repel animals and insects. Most of the animal life functions on a diurnal or nocturnal system that is thrown out of sync by light pollution. This can place the entire species in danger, or attract unwanted species into human areas.
 - ✓ It disturbs the reproductive cycles of some animals and the migration of birds that navigate using the stars, and to disorient night-flying insects.
- **Astronomy**
 - ✓ Light spill and sky glow interferes with astronomical equipment, and makes viewing faint celestial bodies difficult, even with the aid of a telescope.
 - ✓ Moreover, it obstructs the observations, research and scientific study of night sky.
- **Human-Health**
 - ✓ Affect the circadian rhythms which regulate physiologic activities such as brain wave patterns, hormone production, and cell regulation.
 - ✓ Disrupting these rhythms can result in a variety of health problems, including sleep disorders, anxiety, depression, diabetes, cancer (particularly breast and prostate cancer), cardiovascular disease, immunological disorders, and obesity.
 - ✓ Melatonin, the naturally occurring hormone that regulates the sleep and wake cycle, is acutely affected by light pollution. The hormone is activated by darkness and repressed by light.

Way forwards

- Awareness programme is a need of the hour because light pollution is the least known type of pollution.
- Use of new lighting technology is required, that uses the full cut-off concept.
- Government policies on the use of lights must be stepped-up in a way that forces consumers to buy more energy-saving light.

5.18. NATIONAL LARGE SOLAR TELESCOPE

Why in News?

- In March 2017, wildlife panel of the Union Government cleared a proposal for diversion of forest land from the **Changthang, Cold Desert Wildlife Sanctuary** in Ladakh region of Jammu and Kashmir for the establishment of National Large Solar Telescope (NLST).
- The project of NLST would be implemented by Bangalore based, Indian Institute of Astrophysics (IIAP).

What is National Large Solar Telescope?

- It will be a 2-m class, multipurpose and state-of-the-art solar telescope (NLST).
- NLST will be the largest solar telescope in the world, because till recently, only one meter class solar telescopes are in existence throughout the world.
- NLST will be larger than the current solar telescopes such as the 1.5-m German telescope **GREGOR** (on Tenerife) and the 1.6-m New Solar Telescope at Big Bear.
- NLST would be a unique research tool for the country and will attract several talented solar astronomers to the country.

Features of National Large Solar Telescope

- It is capable of doing both day and night astronomy because of unprecedented high spatial resolution.
- It will fill the longitude gap between Japan and Europe. Currently, there is no telescope between these regions.
- It will provide high spatial resolution that would provide crucial information on the nature of magnetic fields in the solar atmosphere.
- It will help in understanding the formation and decay of sunspots by using Helioseismology, which is a powerful technique for probing the solar interior using acoustic Oscillations.

Why Ladhak Region for NLST?

- High altitude region which will fundamentally enhance the NLST capacity.
- Prolong region of sunshine, clear sky (high visibility) with low sessional variation.
- Low concentration of aerosol and dust particles in sky.
- Lower wind speed and presence of mild gusts and direction; also the laminar winds blowing in favourable condition.

5.19. BIO-DIESEL BODY CALLS FOR LOWER TAX RATE (BIO-DIESEL)

Why in News

- **Bio-Diesel Association of India** raised their concern in pre- budget memorandum to the Government, about the **skewed tax rate** pertaining to Bio-Diesel, which is hampering the major clean energy initiatives of India.

What is Bio-Diesel Association of India?

- **Non-profit national association** representing the bio-fuels sector.
- Co-ordinating body for marketing, research and development of bio-fuels.
- Interacts with a broad range of co-operators including industry, government and academia.

National Large Solar Telescope

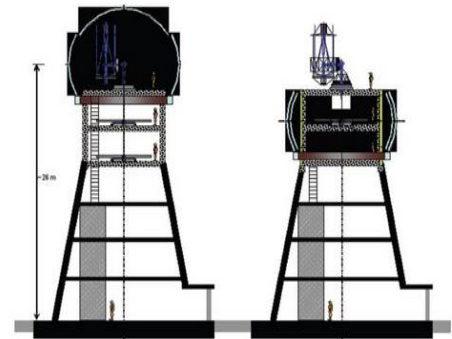


Figure 2. NLST with the dome deployed (left panel) and dome retracted (right panel)

- Membership comprises of farmers/cultivators societies, national feedstock and feedstock processor organizations, bio-diesel suppliers, fuel marketers and distributors and technology providers.

5.20. CLEANING GANGA

Why in News?

- National Green Tribunal on Thursday prohibited all camping activity on beaches along the Ganga which fall within 100 meters from the middle of the river during lean season flow from Shivpuri to Rishikesh, a hub for eco-tourism and river rafting.
- A major step taken to develop sewage treatment infrastructure in Patna to keep Ganga clean, projects worth Rs 1,050 crore have been awarded under Namami Gange Programme.
- The amount will be spent for setting up two two Sewage Treatment Plants (STPs), renovation of one existing STP, construction of two pumping stations and laying of new underground sewage network of about 400 kilometers.
- Also NMCG Signs MoU with Rotary India to implement 'WASH in school' program.

History of Cleaning Ganga process

Ganga Action Plan(GAP) Phase I & II:

- Phase I was launched in 1985, covering 25 Ganga towns in three states.
- Phase II launched in 1993 covered 59 towns in five states;
- Rivers such as Yamuna, Gomti, Damodar, Mahananda had separate action plans.

NGBRA

- Setting up of National Ganga River Basin Authority NGRBA in 2009
- Focused on a basin-specific approach; 43 towns were covered in five states.

National Mission for Clean Ganga

- National Mission for Clean Ganga (NMCG) was registered as a society on 12th August 2011 under the Societies Registration Act 1860.
- It acted as implementation arm of National Ganga River Basin Authority (NGRBA).

About 'WASH in Schools' Program

- The program includes the implementation of Water, Sanitation and Hygiene services in the targeted government schools and sensitizing all the stakeholders including school children, teachers, school management communities and communities etc. on practicing positive health behaviors for improving awareness on sanitation.
- This will be achieved through an integrated learning environment and enabling children to serve as agents of change for their siblings and communities at large.
- Rotary India has planned to undertake WASH in Schools programme in 20,000 Government Schools **in the states of Bihar, Jharkhand and Nadia District of West Bengal and other states where Rotary has a strong presence.**

Background

- The various types of pollution abatement schemes taken up to clean Ganga may be categorized into core and non-core schemes.
- Core Schemes include Interception and diversion (I&D) of sewage discharging into the Ganga River and creating treatment infrastructure to treat the intercepted sewage.
- Non-Core Schemes include Providing Low Cost Sanitation (LCS) at community and individual levels at identified locations, Installation of Crematoria (electric as well as wood based improved crematoria), River Front Development (RFD) including bathing ghats, Afforestation, protecting bio-diversity and creating Public awareness and participation.

About Rotary

- Rotary is a global network of 1.2 million neighbors, friends, leaders, and problem-solvers who come together to make positive, lasting change in communities at home and abroad.
- Rotary Foundation (India) supports selected programs and projects of The Rotary Foundation of Rotary International. Rotary Foundation (India) is a society registered under the Societies Registration Act of 1860

Namami Ganga Programme

- May 2015, the Centre had approved the Namami Gange programme with an outlay of Rs 20,000 crores for five years.
- Focus is on 'aviral dhara' (uninterrupted flow) and 'nirmal dhara' (clean flow) of Ganga.

- Following are proposed to be taken up under Namami Gange:
 - Ensuring ecological rejuvenation by conservation of aquatic life and biodiversity.
 - Promotion of Tourism and Shipping in a rational and sustainable manner.
 - Knowledge Management on Ganga through Ganga Knowledge Centre.

Other Recent Initiative by the government

- **Ganga Manthan**- Ganga Manthan was a national conference held to discuss issues and possible solutions for cleaning the river.
- **Ganga Task force**- On January 05, 2016 the Central Government launched the first company of Ganga Task Force Battalion which was deployed at Garhmukteshwar.

Hurdles in cleaning program of Ganga

- ‘Unreasonable’ directions by the National Green Tribunal (NGT) questioning the operating capacity of sewage treatment plants in Uttar Pradesh.
- Delay in clearances of STPs by State governments to execute projects.
- Lack of coordination between the Centre and state governments
- The Parliamentary Committee on Environment and Forests has found that the mission to clean Ganga and Yamuna has failed due to undue investment on technical aspects like creating sewage treatment plants to prevent the pollution in river Ganga without involving people living on the banks of the river.
- The committee thinks that ministry has ignored the social aspects of pollution in the rivers.
- The committee also noted that the schemes for cleaning the two rivers have failed because their catchment areas have been encroached upon and diverted for construction and developmental activities.

Solving the problem of Ganga pollution

Treating Urban Sewage

- Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal together generate over 7,300 million litres of sewage per day that flows directly or indirectly into the river.
- Creating sewage treatment plants (STPs) is one major task to be completed to solve the problem of sewage.
- The government has now decided to rope incorporates to do this work in all the 118 urban centres along the river.

Others Initiatives that can be taken

- They include the launch of a public awareness exercise, regeneration of aquatic biology, plantations, and riverfront development.
- GIS data and Spatial Analysis for Ganga basin
- Afforestation – Conservation of Flora
- Capacity building of urban local bodies
 - A comprehensive law on the Ganga can also help in giving legal backing.

Rural Sewage

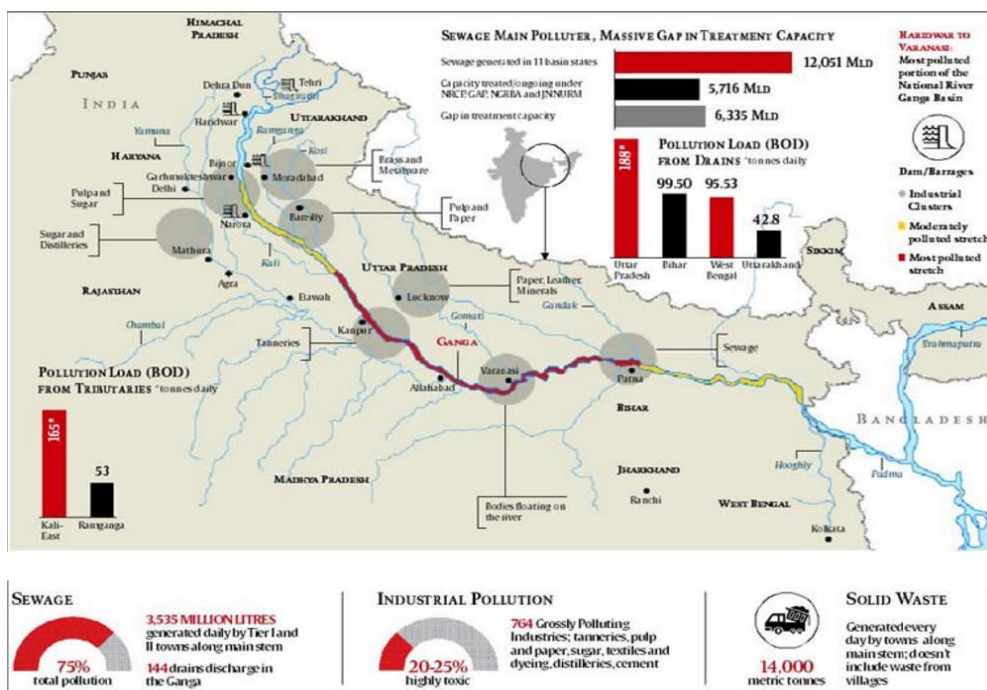
- About 1,650 gram panchayats lie directly on the banks of the Ganga About half the population in these villages defecates in the open.
- The government plans to use biological means to deal with this waste. It wants to experiment with Sechwal model.
- Seechewal inculcated the practice of segregation of solid and liquid waste, treatment of waste water through oxidation ponds, use of treated water for irrigation, and composting of solid waste with a sense of community participation and ownership of the river.

Industrial Effluents

- There are 764 polluting industries on the banks of the Ganga, mostly in Uttar Pradesh. These include tanneries, paper and pulp industries, sugar mills, dyeing factories, distilleries, and cement plants. Effluents from all these flow untreated into the river.
- Industries must install Common effluent treatment plants (CETPs), install new technologies, and ensure zero liquid discharge into the river.

Surface Cleaning

- Solid waste, clothes, polythene, and all kinds of religious offerings are dumped into the river, and float on its surface. It is the easiest to clean them — and can result in a quick visual makeover for the river.
- Machines called trash skimmers have been ordered from abroad to clean the river surface near all major towns.



Burning the Dead

- Cremation along rivers and immersion of remains is a unique reason for pollution in Indian rivers, and especially the Ganga. Burning of wood leads to air pollution as well.
- Need to build gas or electric crematoriums, especially in religious centres like Varanasi and Allahabad.

5.21. FEWER MIGRATORY WATER BIRDS SIGHTED AT ROPAR

Why in news

- Asian Waterbird Census 2017, conducted by Wetlands International, South Asia, and Punjab's Wildlife Preservation Department on January 16 this year, revealed that the number of water birds this season stood at 2,302 as against 3,114 last year.
- There was an increase in number of some of the species- Eurasian coot, bar-headed geese, spot-billed duck.

Reasons for decreasing number

- Human disturbances are considered to be the major reason for the decline in number
- At Ropar, boating, fishing and more of human presence along the riverbanks seem to drive away the water birds.
- Ropar is a riverine wetland with hardly any vegetation; but there are farmlands along the riverbanks where geese and ducks go for feeding. However, farmers try to keep them away from their land.

About Wetland International

- Wetlands International is the only global NGO dedicated to the conservation and wise use of wetlands.

Asian Water bird Census

- Every January, thousands of volunteers across Asia and Australasia visit wetlands in their country and count waterbirds.
- This event is called the Asian Waterbird Census (AWC), which is part of a global waterbird monitoring programme, the International Waterbird Census (IWC), coordinated by Wetlands International.
- The AWC initiated in 1987 in the Indian subcontinent and this was 50th AWC.
- In India, the AWC is jointly coordinated by the Bombay Natural History Society and Wetlands International.

5.22. WEBSITE FOR OBTAINING COASTAL CLEARANCES

- The Minister of State of Environment, Forest and Climate Change, Shri Anil Madhav Dave, launched the web portal for obtaining Coastal Regulation Zone clearances.
- The web-based system will enable the Project proponents and the concerned State/Union Territory bodies like the State Coastal Zone Management Authorities (SCZMAs) and Municipal/Town Planning agencies in tracking the status of their proposals.
- The web portal will help in:
 - enhancing efficiency, transparency and accountability in the process of CRZ clearances;
 - enhance responsiveness through workflows and availability of real-time information on the status of CRZ clearance proposals;
 - ease of business and convenience of citizens in accessing information and services;
 - standardised procedures and processes across Central and State levels.

Classification of Coastal Regulation Zone

- Category I (CRZ-I): area between Low Tide Line and the high Tide Line
- Category-II (CRZ-II): The areas that have already been developed upto or close to the shoreline.
- Category-III (CRZ-III): Areas that are relatively undisturbed and those which do not belong to either Category-I or II. These will include coastal zone in the rural areas (developed and undeveloped) and urban areas.
- Category-IV (CRZ-IV): Coastal stretches in the Andaman & Nicobar, Lakshadweep and small islands, except those designated as CRZ-I, CRZ-II or CRZ-III.

5.23. WESTERN GHATS CONSERVATION

Why in News?

- A draft government notification has allowed the Centre to create an Ecological Sensitive Area (ESA) **over 50,000 square kilometers** in the Western Ghats spanning Gujarat, Maharashtra, Karnataka, Goa, Kerala and Tamil Nadu. It is still a draft notification and not inducted as a law.

Need

- **Western Ghats have shrunk in space** in recent times because of loss of species and degrading habitats – this **might affect rainfall patterns, river flow, water supply and climate of the country**. Therefore its conservation is a must.

Ecologically Sensitive Area (ESA)

- **MoEF defines it as** a bio-climatic unit wherein human actions have caused irreversible changes in the structure of biological communities and their natural habitats.
- As per **Environment (Protection) Act, 1986**, the government can prohibit industrial operations like mining, sand quarrying and thermal power plants in it.
- But Environmental Act 1986 **does not mention ESA explicitly**.

Background

- The government had come up with a similar draft notification in 2014 but since it was not made into a law, it lapsed.
- Issue of conservation of Western Ghats surfaced in 2011 with the **Western Ghats Ecology Panel/Madhav Gadgil committee giving its recommendations** (see box).
- In 2012, K. Kasturirangan committee recommended that only about 60,000 sq km (**about 37% of Western ghats**) be declared as ESZ. It also recommended a ban on hydroelectric projects here.
- Later, after protests in Kerala due to **perceived loss of livelihood after a declaration of ESZ**, the ESZ area was reduced to about 56,825 sq km by excluding 3,117 sq km of settlements and agricultural land in the State.
- In 2017, Kerala government has requested the Union environment ministry to reduce the ESA further by 887 sqkm.

Madhav Gadgil committee recommendations

- It recommended making **entire Western Ghats an Ecologically Sensitive Area** because of its rich biodiversity and its ecosystem services like irrigation and drinking water to people.
- It advocated **zoning of ecological sensitive area** of the Western Ghats in three layers –

- Most significant area as **Ecologically Sensitive Zone I (ESZ I)**
- Moderately significant area as **Ecologically Sensitive Zone II (ESZ II)**
- Least significant area as **Ecologically Sensitive Zone III (ESZ III)**

Zone 3 was given considerable flexibilities in infrastructure. By this Gadgil asked to protect about 64% of Western Ghats.

- Local self-government should have the authority to regulate and encourage activities in each zone.
- The parameters to be used to identify the Ecologically sensitive zones would be –
 - Biological forces like richness and rarity of species, ecological resilience etc.
 - Cultural and Historical significance of the area
 - Geo-climatic features such as slope, aspect, altitude, precipitation etc.
 - Hazard vulnerability
 - Stakeholders valuation
 - Origin of rivers, contiguous habitats to national parks and sanctuaries etc.
- The activities to be banned in Ecologically sensitive zones would be GM crops, SEZs, change of land use, thermal plants, sand mining etc.

Significance

- India's Forest **policy aims to achieve a forest cover of at least 33%** in the country. According to the State of Forests report, it is only 25%. Therefore Western Ghats conservation would be a step to achieve this goal.
- Changing patterns of rivers flowing through Western Ghats due to destruction of its biodiversity, can lead to **increase in river water disputes in peninsular India**.
- Conservation of Western Ghats would also help in improving rainfall patterns in India, thus helping **improve agricultural productivity and farmer's incomes**.

5.24. BHARAT EMISSIONS STANDARDS

Why in News?

- From April, **all of India will move to Bharat Stage IV (BS-IV)** vehicular emission norms.

Background

- India introduced emission norms in 1991 and by 1996 most vehicle manufacturers had to incorporate technology upgrades like catalytic converters to cut exhaust emissions.
- Supreme Court in 1999 made Centre notify Bharat Stage-I (BIS 2000) and Bharat Stage-II norms, broadly equivalent to Euro I and Euro II respectively,
- In 2014, Saumitra Chaudhary committee gave recommendations on **Auto Fuel Vision Policy 2025** which had recommended implementation of BS-IV (2017), BS-V (2019) and BS-VI (2024) standards.
- **Currently BS-IV norms are currently followed across 63 Indian cities** for petrol and diesel, while the rest still use BS-III fuel.
- In recent times, government decided to move up to the toughest emission standards of BS-VI from the current BS-IV **by April 2020** skipping BS-V standard.

Significance

- This would mean a lower level of harmful emissions and **reduced incidence of lung diseases**.
- This would significantly **bring down share of vehicular pollution** by reducing concentration of carbon monoxide, un-burnt hydrocarbons, nitrous oxide and particulate matter from emissions.

Challenges

- Moving to BS-VI directly will **require significant technological upgrades for which auto companies may have to invest heavily**.

Technologies used in vehicles for emission reduction

1. Diesel Particulate filter (DPF):

- It is a cylinder mounted vertically in engine compartment.
- It is used for BS-V emission standard.
- It removes Particulate Matter/soot from the diesel exhaust.
- It needs temperature of 600 degree Celsius to function, difficult in Indian conditions.

2. Selective catalytic reduction technology (SCR):

- It reduces the nitrogen oxides by injecting an aqueous solution having ammonia.
- It is used for BS-VI emission standard.
- It is fixed in the engine exhaust.

- Smaller bonnet cars of India may not be able to imbibe DPF in them.
- Normally it takes 4 years to upgrade and the government's vision may be too revolutionary.
- This can have the effect of making cars and other vehicles **more expensive**.
- Directly aping the Euro norms is problematic, considering that driving conditions in India are different from Europe.
- Further, improving the emission will not alone solve the problem of vehicular pollution as the **number of vehicles is disproportionately high** in Indian cities.

Way forward

- Government should make the emission standards transition gradual along with searching for alternative fuels like ethanol and methanol blending.
- Apart from that the government should focus on lowering the demand of fuels on the first place by promoting more physical mobility rather than vehicular mobility by following Transit Oriented Development policy.

Bharat Stage emission standards

- These are norms instituted by the government to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles.
- India has been following the European emission norms with a time-lag of five years.
- The BS-IV compliant fuels have Sulphur concentration of 50 parts per million (ppm).
- This will come down to as low as 10 ppm in BS-VI compliant fuels and auto engines.
- By switching to BS-VI, India will join the league of the US, Japan and the European Union, which follow Euro Stage VI emission norms.
- BS-VI is the Indian equivalent of Euro Stage VI.

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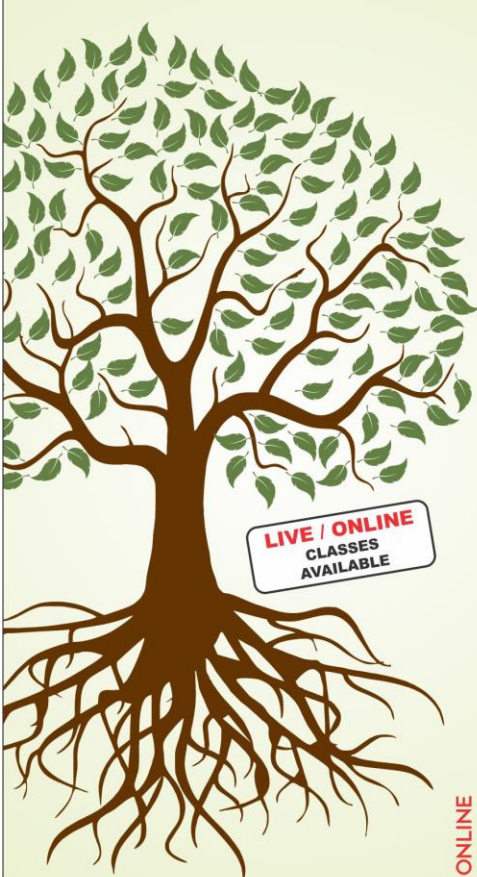
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ONLINE Students

6. SCIENCE AND TECHNOLOGY

6.1. SPACEX LAUNCHES ITS FIRST RECYCLED ROCKET

Why in news?

SpaceX Could Reuse 100% of Major Rocket Components by Next Year says founder Elon Musk.

About SpaceX

- SpaceX designs, manufactures and launches advanced rockets and spacecrafts.
- The Private Sector Company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets.
- Rocket used is Falcon 9 which was already used one year before for NASA.
- It first ever returned a spacecraft from **low-Earth orbit**, in December 2010 and again in May 2012 when its Dragon spacecraft attached to the International Space Station, exchanged cargo payloads, and returned safely to Earth
- Presently it under the contract with NASA, is flying numerous cargo supply to International space station In future it will carry crew as part of NASA's commercial crew programme.
- Rocket reusability is for the purpose of cost cutting, speed up flights, technology advancement and less space garbage dumping.

6.2. SILICON BASED POLYMER AN ELASTIC SECOND SKIN (ESS)

Background

Scientists at MIT, Massachusetts General Hospital have developed a new material that can temporarily protect and tighten skin, and smooth wrinkles.

About it

- As skin ages, it becomes less firm and less elastic which can get worse by sun exposure. This impairs skin's ability to protect against extreme temperatures, toxins, microorganisms, radiation and injury.
- ESS which mimics the mechanical and elastic properties of healthy youthful skin, could be applied as a thin, imperceptible coating and be adapted to provide long-lasting ultraviolet protection.
- It can provide a barrier, cosmetic improvement and potentially deliver a drug locally to the area that's being treated and cure eczema and other type of dermatitis.

6.3. LI-FI

What is Li-Fi?

- Li-Fi or Light Fidelity, also known as **visible light communications** (VLC) is a super-quick alternative to Wi-Fi.
- Li-Fi utilizes **visible light in place of radio waves** to bar data through the air.
- Li-Fi innovation began in 2011 by Professor Harald Haas of the University of Edinburgh, who showed that glimmering light from a solitary LED could transmit a larger number of information than a cellular tower.

Potential of Li-Fi in India

- **Connecting rural communities to internet:** It uses solar cells as receivers that could deliver communications and access to the world wide web in a way that the current free space optical (FSO) systems on their own cannot do.
- It has enormous potentials in **robotics and instrumentation**.

S. No.	Parameter	Li-fi	Wi-fi
1	SPEED	> 1 GB/S	around 150 Mb/s
2	Medium of data transfer	Use light as carrier	Use radio spectrum
3	Spectrum range	Visible light has 10000 times more	Having less spectrum range than VLC
4	Cost	Cheaper	Expensive
5	Network topology	Point to point	Point to point
6	Operating frequency	Hundreds of Tera Hz	2.4 GHz

Meghnad Saha Institute of Technology

- It can be used in **aircraft cabins, hospitals and nuclear power plants** without causing electromagnetic interference as it uses visible light.
- Li-Fi may prove useful in harnessing the power of the Internet for giving more **citizen-centric governance**.

6.4. VPM1002/ TB VACCINE

Why in news?

- The **Pune-based Serum Institute of India Pvt. Limited** is set to start a Phase II/III immunization trial for tuberculosis utilizing a novel, **recombinant BCG (bacillus Calmette-Guérin) vaccine**.

Current Status

- As per recent estimates, the number of new cases every year has risen to **2.8 million** and mortality is put at 4, 80,000 each year.
- The **National strategic plan for tuberculosis elimination (2017-2025)**, has set a highly ambitious goal of “achieving a rapid decline in burden of TB, morbidity and mortality while working towards **elimination of TB by 2025.**”

About the Vaccine

- The new vaccine is based on BCG vaccine. However it is more powerful and efficacious as it contains a gene better recognised by the immune system.
- The safety of the vaccine has been previously tested and it has been found to be **safe, well-tolerated, and immunogenic vaccine** in newborn infants.
- The vaccine will be tested in 2000 adults who have been successfully treated and cured for TB.

Significance

- The currently used BCG vaccine **causes BCG-related disease in HIV-positive babies** (due to reduced immunity). The recombinant version is **expected to be safe** in babies exposed to HIV.

6.5. IISC RESEARCHERS' ECOFRIENDLY WAY OF RECYCLING E-WASTE

Why in news?

- **Indian Institute of Science (IISc)** researchers have found a novel way to recycle the mounting pile of electronic waste more efficiently and in an environmentally friendly manner.

What is e-waste?

- According to **E-waste (Management) Rules, 2016**, “**e-waste**” means waste electrical and electronic equipment whole or in part or rejects from their manufacturing, refurbishment and repair process which are intended to be discarded as waste.
- According to a joint study conducted by KPMG-Assocham (May, 2016), India generates **18.5 Lakh tonnes of E-waste** annually and is the fifth largest producer of e-waste globally.

What is it?

- The new approach is based on the idea of crushing e-waste into **nanosize particles** using a ball mill at very low temperature ranging from -50 to -150 degree C.
- This way of recycling does not require chemicals to separate different metals.
- The crushed material when mixed with water helps to separate different metals by using gravity.
- Unlike the present techniques, it helps to segregate the metals in one phase making the recycling process much simpler.
- Although, it uses high energy, it is scalable and environment friendly.

6.6. HIGH NITROGEN STEEL

Why in news?

The Defence Research and Development Organisation (DRDO) has signed a technology transfer agreement with Jindal Stainless (Hisar) Limited (JSHL) for manufacturing High Nitrogen Steel (HNS).

About High nitrogen steel (HNS)

- High nitrogen steels are a new class of high alloy martensitic, austenitic or duplex grades with up to 0.9 mass% of N in solid solution.

Significance

- The alloy has significant applications in the defence sector due to its **much higher ballistic strength** than normal steel, but currently the country is largely dependent on imports.
- In addition to being **non-magnetic and corrosion-resistant**, the HNS **cost is about 40% less** compared to Rolled Homogenous Armour Steel (RHA)
- The HNS technology would further the Army's quest for **lighter and high-performance armouring material** compared to materials currently in use.
- will pave the way for further **acceleration of locally developed technology**,

Applications of NHS

- The potential applications of HNS include combat platforms like futuristic infantry combat vehicles, mine-protected vehicles, army bridges and army corridors.

6.7. TELESCOPE GRAPES-3 UPGRADE TO SNIPE OUT SOLAR STORM

Why in News?

- On June 21, 2015, a giant cloud of magnetized plasma was ejected from the Sun and slammed into Earth's magnetosphere, triggering a severe geomagnetic storm. This incident called for more robust preventive scientific measures for solar storm.

What is solar Storm?

- It is an eruption of mass and energy from the solar surface mainly in the form of magnetic plasma and hot gases of electrically charged particles; and in addition, more dangerous gamma, ultraviolet and X rays, out into space.
- Solar Flaries, Cronal Mass ejection, and sunspot activities are the indicators of solar storm.
- Solar storms can happen at any time but tend to become more severe and more frequent in roughly 11-year cycles.

What is GRAPES-3?

- GRAPES-3 (Gamma Ray Astronomy PeV Energies Phase-3) is a muon telescope observation unit, located in Oat (Nilgiri ,Tamilnadu).
- The first cosmic ray experiment was started in 1955 as GRAPES-1 by Tata Institute of Fundamental Research (TIFR), which was upgraded in various stages to GRAPES-2, before the new experiment GRAPES-3 was established.
- GRAPES-3 has been established with the collaboration of the Tata Institute of Fundamental Research, Mumbai, India and the Osaka City University, Osaka, Japan.

How does Solar Storm affect the Earth?

- The collision of charged particles of solar storm with earth's magnetospheres generates the shimmering Northern Lights, the aurora borealis, and aurora australis in southern hemisphere.
- Some charged particles can modify the Earth's magnetic field and affect compass readings.
- The changing magnetic fields can also induce electricity in long pipelines, or produce electrical surges in our power grids leading to brown outs and black outs.
- It can affect the space programme, trade communications (stock-exchange), broadcast communications, airlines and navigation.

What are the functions of GRAPES-3?

- To study cosmic rays, air shower detectors and muon detectors from galaxy.
- To study the sun and its accelerator of energetic particles and its effects on the Earth.
- It studies our galaxy through nuclear composition of cosmic rays and diffusion of γ -ray (gamma rays)

Why needed up-gradation?

- It will act as an early warning system and will measure the intensity of coronal mass ejection.
- The upgrade will provide precise information about the propagation of storms in the last million miles.
- It would increase the chances of spotting solar storms by observing the large extent of sky and improving the direction of incident rays.
- It would **discern the direction of detected particles** of solar storm such as plasma thereby, making it unique among all the other cosmic ray detectors in the world.

6.8. FIVE NEW SUB-ATOMIC PARTICLES

Why in News?

- In March 2017, Scientists of **Large Hadron Collider** accelerator at CERN (European Organisation for Nuclear Research) found five new sub-atomic particles.

More on the News

- The newly discovered particles are high-energy versions of the omega-c baryon, a particle made up of two strange **quarks** and one charm quark
- Omega-c-zero is a part of the same family of protons and neutrons, the so-called baryons, because they have three quarks, the fundamental building blocks of matter.
- These particle states are named, according to the standard convention, Omega-c-zero (3000), Omega-c-zero (3050), Omega-c-zero (3066), Omega-c-zero (3090) and Omega-c-zero (3119). The numbers indicate their masses in megaelectronvolts (MeV).
- Characteristic numbers are used to identify the properties of a specific particle and the determination of their theoretical significance.

6.9. CROP PROTECTION: FIRING TO KEEP THE STORM AT BAY

Why in news?

- Orchid owners of Himachal Pradesh have, recently, installed the anti-hail storm gun through collective mobilisation of funds.

Background

- More than 15% of total plantation crop is damaged by hail storms in Himachal Pradesh.
- Existing scheme for crop protection such as anti-hail net is old technique which end up damaging the crop by blocking the sunlight.
- Moreover, the anti-hail net technique is expensive to maintain and requires a professional team to install and uninstall.

How does it work?

- An anti-hail cannon is a shock wave generator intended to disrupt the formation of hailstones in the atmosphere in the beginning stage.
- An explosive charge of acetylene gas and air is fired in the lower chamber of the machine and the resulting energy passes through the neck and develops a shock wave.
- The shock wave travels at the speed of sound through cloud formations. It splits up the ice bearing layers of the cloud and it is observed that it either comes down as rain or a thin sleet that does not damage the fruit.

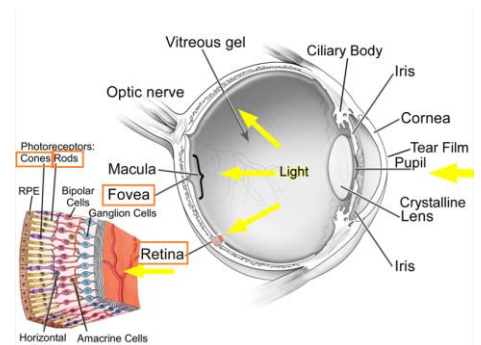
6.10. FOVEA

Why in news?

- Indian scientists has found that a **small depression** in the retina of eye called "**Fovea**" plays a crucial role in helping humans read the text , recognize faces, enjoy colours, focus on computer screens, etc.

About Fovea

- The fovea is a **specialized region** that dominates our visual perception which provides more than **half of the input** from the eyes to the visual cortex of the brain.
- It is located near the **optic nerve** and is best suited for fine task like reading.
- However Fovea is unable to process rapidly changing visual signals



because of slow response of its **cone-photoreceptors** than **rod-photoreceptors** present in the peripheral retina. This inability let the humans see continuous motion in movies/flipbooks. (**Cone-photoreceptors are the neurons that are frontline of the visual system**).

- Understanding the functioning of Fovea helps in correcting central vision loss like **Macular degeneration** and design visual prosthetics (**Bionic eye**).
- Among the mammals, only **humans** and **other primates** have Fovea. Some predatory birds like **Owls** and **few reptiles** also have similar structures.

Note: **Bionic Eye** is a retinal implant which interprets images captured by a miniature video camera worn on a pair of glasses. It mimics the function of the retina to restore sight for those with severe vision loss.

6.11. COLD ATOM LABORATORY

Why in news?

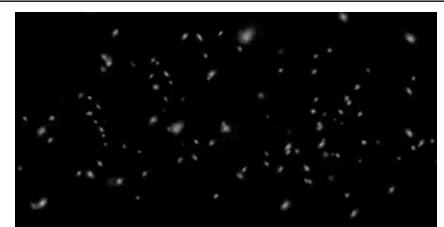
- NASA is planning to send an experimental instrument called **Cold Atom Laboratory (CAL)** on board **SpaceX CRS-12** to **International space Station** to create coldest spot known in the universe.
- Aim of the experiment is to study matter at temperatures far below anything found naturally.

Bose-Einstein Condensates

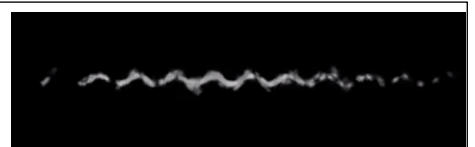
- They are **Superfluids** – a kind of fluid with zero viscosity.
- In this situation all atoms move without friction as if they are all one solid substance.

About Cold Atom Laboratory (CAL)

- This **ice chest-sized box** has been developed by NASA's **Jet Propulsion Laboratory**.
- The box will have **lasers, a vacuum chamber** and an **electromagnetic "Knife"** to cool **atoms to 100 Pico Kelvin** (one ten-billionth of a degree above absolute zero). At such low temperature all activities of atom theoretically stops.
- When atoms are cooled to such low temperatures, they form a distinct form of matter called **Bose-Einstein condensate**. In such state matter behave less like particles and more like waves.
- Observing atoms in **Bose-Einstein condensate** form in earth is extremely difficult because of **gravity** which continuously pulls the atoms towards the ground. This prevents atoms from holding on to their wavelike form for longer period to be observed.
- However in space ultra-cold atoms can hold on to their wave like forms longer because of no gravity.



Atoms motion at normal temperature



Bose-Einstein condensate

Utilities of this experiment

- Studying these hyper-cold atoms will provide new insights into **dark matter** and **gravity**.
- Better understanding of superfluids may help in more efficient transfer of energy.
- It may potentially lead to better **Sensors, Quantum computers** and **Atomic clocks** used in spacecraft navigation.

6.12. PRECURSOR MOLECULES

- Indian researchers, using a **novel technology**, has not only been able to **increase** wheat grain yield by more than **20%** but also made it more **resilient** to **environmental stress** like drought conditions.
- The technology entails using precursor compounds that enhances the production of key sugar signaling molecule called **Trehalose-6-phosphate (T6P) molecule** which stimulate starch synthesis thus increasing the yield.
- Reseachers observed that plants treated with precursor compounds were able to achieve **100 times increase** in production of **T6P molecule** compared with plants that did not received the precursor molecule. Genetic methods achieved only **2-3 times** increase in production of T6P molecule.

- Since the pathway of T6P molecule is the same in other plants, the yield can potentially be increased by using suitable precursors.
- **Four precursor compounds** were used by researchers, however a particular precursor called **ortho-nitrophenyl ethyl** gave the best result both with **Arabidopsis thaliana plant** and **wheat** in terms of higher absorption of precursor by plants and less time taken by precursor to release **T6P molecule**.
- On environmental stress front, researchers found that precursor molecule called **2 (dimethoxy (ortho-nitro) benzyl)** helped plants fight with drought like conditions.

6.13. TRADE MARK RULES

Why in News?

- The Trade Mark Rules, 2017 have been notified recently by the Ministry of Commerce and Industry.

Need

- It would replace the previous Trade Mark Rules 2002, and therefore would **streamline and simplify the processing of Trade Mark applications**.

Rules

- **Ease of filing Trademarks –**
 - **Trade Mark Forms** have been reduced from 74 to 8.
 - **Expedited processing of a registration application** has been extended up to registration stage which till now existed only up to examination stage.
 - Servicing of documents to Trade Mark Registry has been eased.
- **Trademark Fees –**
 - All fees related to trademark have been rationalized.
 - Online filing fees have been made 10% lower than physical filing fees to promote e-filing of trademark.
 - Fees for Individuals, Start-ups and Small Enterprises have been reduced to only Rs 4,500.
- For the first time, **modalities for determining well-known trademarks** have been introduced.
- Hearing of disputes has been introduced through video conferencing.
- Adjournments in opposition proceedings have been restricted to a maximum of two to avoid pendency.

Significance

- Presently, examination time for a Trademarks application has already been brought down from 13 months to just 1 month in January 2017 despite a 35% jump in filings in 2015-16. The new Rules should give a **boost to the Intellectual Property Regime in India**.
- By rationalizing the fee structure, this step may also be a right **step to promote entrepreneurship** in India.
- New rules would also give a **time-bound resolution of disputes** besides lowering the burden on tribunals and courts.
- It is a step towards **ease of doing business** and would eventually increase India's position as a good investment decision with protection of intellectual property rights.

Way Forward

- The Trademark rules have been changed at a timely moment when India stands at having a third largest startup ecosystem in the world. There should also be a commensurate capacity building needed to implement the changed rules.

6.14. HYPERLOOP TECHNOLOGY

Why in News?

- Recently two companies **Hyperloop Transportation Technologies (HTT)** and **Hyperloop One (HO)** have evinced interest to develop hyperloop technology in India by 2021.

What is a Trademark?

- It is a **sign capable of distinguishing the goods or services** of one enterprise from those of other enterprises.
- It is **protected by Trademarks Act 1999**.
- **Trademarks registry** established in India in 1940, presently administers the Trademarks Act. It is also a resource centre for trademarks.

- Hyperloop One Global Challenge selected 35 semi-finalist cities for developing hyperloop, 5 of them are in India.
- Presently such a system is being developed between Abu Dhabi and Dubai.

Hyperloop

- It was an idea of entrepreneur Elon Musk.
- It is a **system of magnetically levitating capsules** that are sent at **high speeds through low-pressure tubes**.
- It can have speeds even greater than commercial air travel.
- **Linear Induction motors** are used in it and control its speed.

Significance

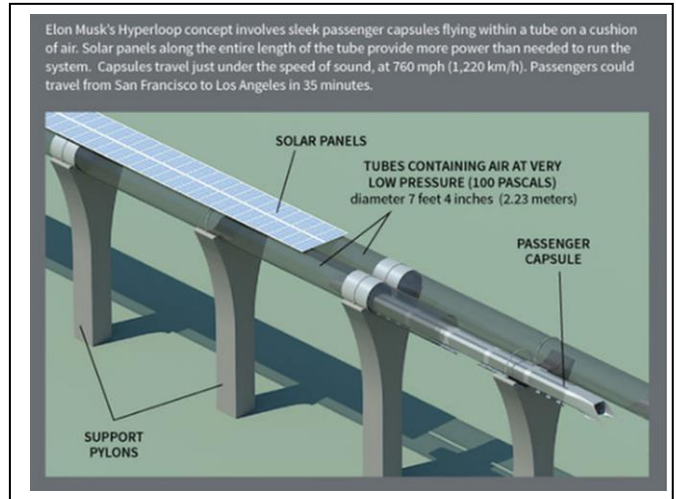
- It is a revolutionary mode of transport that has the **potential to reduce transport time of people and goods by more than 80%**.
- It has a **lower right of way problem** thus simplifying the land acquisition for this transport.
- It also has a lower carbon footprint apart from lowering noise pollution of public transport.
- It would also promote **Make in India programme** and manufacturing sector of India with technology transfer related to the hyperloop pods.

Challenges

- It requires heavy investments (about \$100 million) and therefore private sector partnership is needed. Therefore **effective public and private sector coordination** is a prerequisite.
- It may prove to be **non-inclusive way of transport** as its cost of travel may be prohibitive for the economically marginalized people.
- **High-power consumption, accidents and technical challenges** have hampered its progress.

Way forward

- At a time when railway infrastructure is abysmal and the airline industry is priced, hyperloop only perceives to be a futuristic idea.
- Still with India being able to sustain a high growth rate for another decade, hyperloop may be a disruptive technology to promote India's future ambitions.



6.15. COMMERCIALIZING ISRO PROJECTS

Why in News?

- ISRO has announced plans to for the involvement of the Indian industry towards production of integrated systems for its future launches.
- ISRO's services are presently commercialized by Antrix Corporation.

Need

- ISRO needs to **scale up its capabilities in the commercial market** for space-based surveillance and communication through integrated modules.
- Till now, participation of firms like Godrej Aerospace, L&T etc. has been limited to the supply of components and systems for launches.
- In light of global competition in space from companies like Space X (Falcon 9 rocket) and Blue Origin (New Shephard rocket), the step of commercializing its services is a welcome step.

Antrix Corporation

- It is a wholly owned Government of India Company that has been given 'Miniratna' status.
- It is under the administrative control of the Department of Space.
- The **current business activities of Antrix** include –
 - Provisioning of communication satellite transponders to various users.
 - Providing launch services for customer satellites.
 - Data Marketing from Indian and foreign remote sensing satellites.
 - Building and marketing of satellites and its sub-systems.
 - Establishing ground infrastructure for space applications.
 - Mission support services for satellites.

Significance

- Private sector participation can help in:
 - **Raising finances** for future launches.
 - Promoting competition in the space market would make the space launches cheaper. Eg. ISRO wants a **consortium approach** for the development of two Navic satellites which will also decrease ISRO's resource load.
- India is also trying to **master the re-usable technology for space shuttles**. Broad basing vendor support can support this program too.

6.16. EUROPA CLIPPER MISSION

- It is NASA's upcoming interplanetary mission to explore the habitability of Jupiter's icy moon Europa
- The term "clipper" refers to the clipper ships that sailed across the oceans of Earth in the 19th century. In the grand tradition of these classic ships, the Europa Clipper spacecraft would fly by Europa, as frequently as every 2 weeks

Why exploring Europa?

- It holds a salty liquid water ocean beneath its icy crust
- The ultimate aim of Europa Clipper is to determine if Europa is habitable, possessing all three of the ingredients necessary for life -- liquid water, chemical ingredients, and energy sources sufficient to enable biology.

6.17. GREYBALL

Why in news?

- It was revealed that Uber used **Greyball**, a tool to systematically deceive law enforcement officials in cities where its service violated regulations.

About Greyball

- It is a software tool which Uber designed to help it identify users who violate the terms of service of its app, preventing them from securing rides.
- Uber used this tool to avoid authorities in markets where its service faced resistance by law enforcement or was banned.
- The tool allowed Uber to show images of "ghost" Uber cars on the app or show that no cars were available.
- Greyball used geolocation data, credit card information, social media accounts and other data points to identify individuals they suspected of working for city agencies and blocking their request so that they cannot find the cab when it reaches to pick them up after booking.

6.18. EXPORT OF GENERIC VERSIONS OF PATENTED DRUGS

Why in news?

- The Delhi High court allowed generic drug manufacturers to export patented drugs for the purposes of development, clinical trials and regulatory clearances.

Background

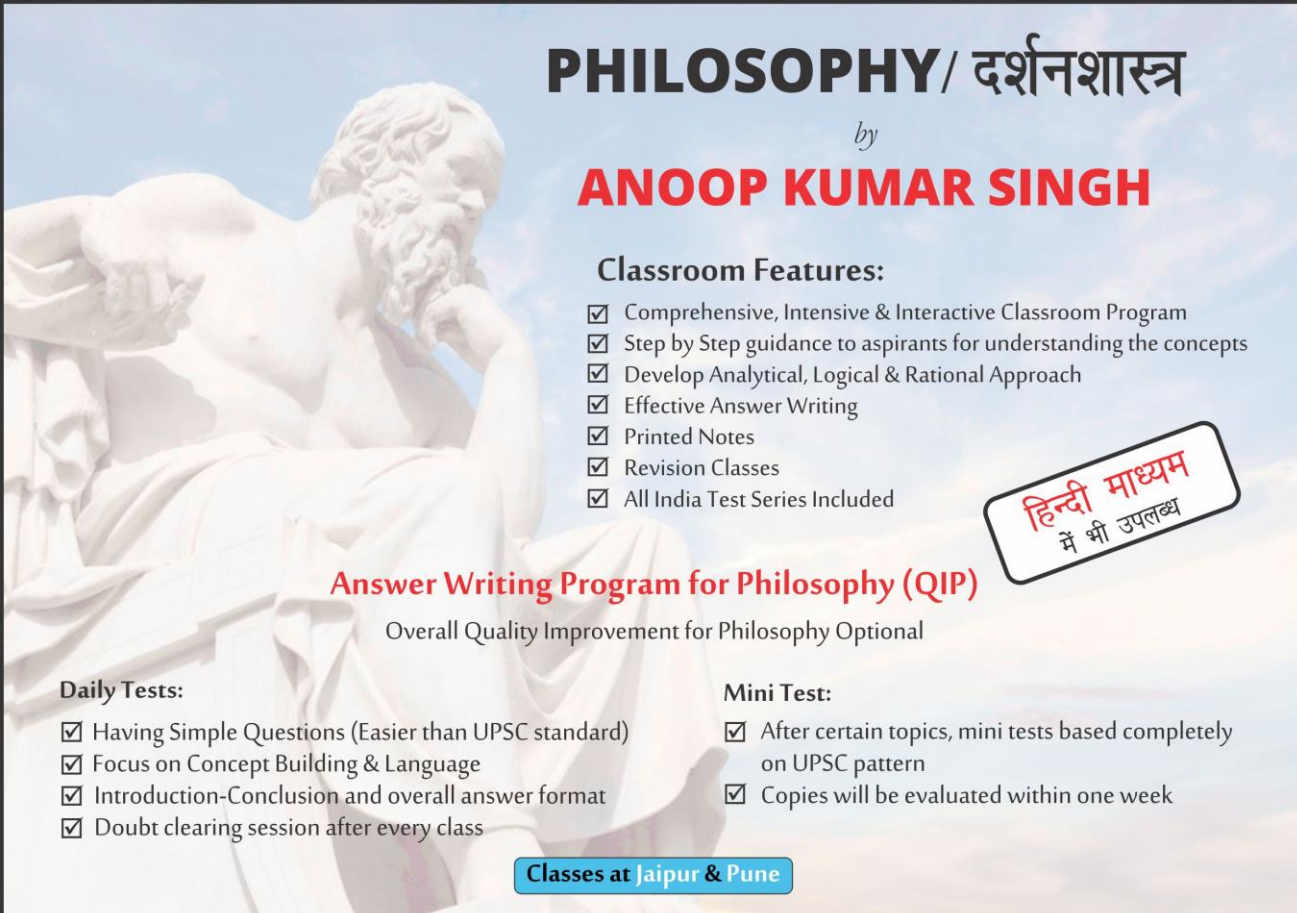
- Bayer had moved the high court to **restrain** two Indian pharmaceutical companies **from exporting generic versions** of drugs abroad-
 - ✓ Against Natco Pharma from selling invention Sorafenib, used in treatment of kidney cancer
 - ✓ Against Alembic from selling Rivaroxaban, which is a blood thinner.
- Bayer's argument was that **the compulsory licenses** granted for production of these two drugs were for sale within India only and not abroad.

Judgement

- The court noted that **Section 107A** of the Patents Act **permitted sale of a patented product during the term of the patent but only for the purpose** of obtaining regulatory approvals for making and marketing the patented product **after the expiry of the patent**.
- Section 107A of the Patents Act explains what will not constitute infringement of a patent, and includes **selling of a patented invention for the purposes of development**.
- The Court also held that **absence of law in the destination country** to ensure that patented drug is used for the purpose it was originally exported cannot become a ground for barring manufacturing and exporting of a drug.
- The judgement will help Indian drug companies to get **regulatory approval before the end of the patent duration**.

6.19. DELTARETROVIRUS

- Filling last major gap in the **fossil record of retroviruses**, scientists have discovered traces of DNA of **deltaretroviruses** in the bat genomes.
- **Deltaretroviruses** are types of **retroviruses** that cause human B- or adult **T-cell leukemia/ lymphoma**, and **bovine leukemia**.
- **Retrovirus**: A retrovirus is a virus whose genes are encoded in RNA instead of DNA.
- The retrovirus genome needs to be reverse-transcribed into DNA by an enzyme called **reverse transcriptase** before it can be copied in the usual way.
- Retroviruses are "**retro**" because **they reverse the direction of the normal gene copying process**.
- In **most viruses**, cells convert DNA into RNA which is then made into proteins.
- But in **retroviruses**, first, **the viral RNA is transformed into DNA**. Then the cell can copy the DNA or transcribe it back into RNA for viral protein replication.
- This discovery will help understand **biology and related aspects** of deltaretbro viruses.



PHILOSOPHY/ दर्शनशास्त्र
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7. SOCIAL

7.1. MATERNITY BENEFIT AMENDMENT BILL, 2016

Why in news?

Maternity Benefit Amendment Bill, 2016 was passed by the Parliament.

Analysis of the Provisions

- **Raising of Maternity Benefits from 12 weeks to 26 weeks**
 - ✓ It will be in line with the World Health Organisation recommendation **that children must be exclusively breastfed by the mother for the first 24 weeks**. This will **improve survival rates of children and for the healthy development of both mother and child**.
 - ✓ As **absence of inadequate maternity leave and income security** is one of the reasons for women dropping out of the labour force, this will provide protection to women.
 - ✓ On the other hand, increasing maternity leave from 12 to 26 weeks **could have an adverse impact on the job opportunities** available for women as the Bill requires **the employer to pay full wages during maternity leave**. It could increase costs for employers and result in a preference for hiring male workers.
 - ✓ Also, the increase in costs could **impact the competitiveness of industries** that employ a higher proportion of women workers.
- **Whether Employers Should Bear the Cost?**
 - ✓ It could be argued that since maternal and child health is a **public good**, it would be appropriate for **the government to finance such social security measures**.
- **Unorganised women workers not covered under the Act**
 - ✓ About **90% of working women** are in the unorganised sector and are not covered by the 1961 Act. But, even after the **Law Commission's recommendation** to cover women working in the unorganised sector also, the Bill fails to cover all women.
 - ✓ Currently, such women may claim maternity benefits under the **Indira Gandhi Matritva Sahyog Yojana**, a conditional cash transfer scheme.

Way Forward

- Increasing maternity benefit is a welcome step but the government should devise some mechanism to ensure that competitiveness of the private sector is not affected.

[Note: For **provisions** of Maternity Benefit Bill, 2016, please refer **August, 2016 issue**]

7.2. MENTAL HEALTHCARE BILL

Why in news?

Parliament has passed the Mental Healthcare Bill, 2016 that will repeal the Mental Health Act, 1987

Background

The Bill has been passed to harmonise the country's mental health laws to the UN Convention on Rights of Persons with Disabilities, to which the country is a signatory.

The **Bill defines "mental illness"** as a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, mental conditions associated with the abuse of alcohol and drugs.

Important provisions of the Bill

- **Rights of person with mental illness**- every person shall have a right to access mental health care and treatment from mental health services run or funded by the appropriate government at an affordable price, free for homeless and BPL.
- **Advance Directives**: given by mentally ill person regarding her treatment and who shall be her nominated representative
- **Central and State Mental Health Authority**: These bodies are required to

- register, supervise and maintain a register of all mental health establishments,
- develop quality and service provision norms for such establishments,
- maintain a register of mental health professionals
- train law enforcement officials and mental health professionals on the provisions of the Act,
- receive complaints about deficiencies in provision of services, and
- Advise the government on matters relating to mental health.
- **Suicide is decriminalized**- person attempting suicide will be treated as mentally ill and will not be treated under IPC
- **Mental Health Review Commission:** will be a quasi-judicial body that will periodically review the use of and the procedure for making advance directives and advice the government on protection of the rights of mentally ill persons.
- Mental Health Review Board to protect the rights of persons with mental illness and manage advance directives.
- The Bill also specifies the process and procedure to be followed for admission, treatment and discharge of mentally-ill individuals.
- A person with mental illness shall not be subjected to electro-convulsive therapy without the use of muscle relaxants and anesthesia.

Significance of the Bill

- It is a rights-based approach for the health of mentally ill patients providing various rights such as access to health care facilities and providing advance directives for their treatment.
- It is a step forward in making health as a fundamental right.
- Decriminalisation of suicide implies that the government has accepted that the people trying to commit suicide needs help and not punishment
- Bringing depression and mental illness into public discourse which is considered as a taboo in India will help in early detection of the patients and can decrease in chances of suicide.

Challenges

- The amount spent on mental healthcare is just 0.06% of health budget is very low to provide for infrastructure as envisaged in the Bill.
- Moreover, India has just 3 psychiatrists per million (global norms is 56 per million) is very low to look for very high and ever increasing number of cases. Also there is lack of counselling centres.
- Poor infrastructure at district and sub-district level will create burden on state government and the Implementation will vary across states with Bihar and UP are expected to lag behind.
- Advance directives clause will be an issue as in many cases patients will not be able to take rational decisions
- The bill does not focus on health and condition of existing patients in different mental institutions across the country.

7.3. DRAFT INDIAN MEDICINE AND HOMOEOPATHY PHARMACY CENTRAL COUNCIL BILL, 2016

Why in News?

- The Ministry of AYUSH has decided to introduce '**The Indian Medicine and Homoeopathy Pharmacy Central Council Bill, 2016**'
- The draft Bill has been circulated in all States &UTs and comments have been invited from all stakeholders.

Background

- Alternative system of medicine which includes Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa and Homoeopathy is an integral part of the healthcare system in India.
- A regulatory framework for education in medicine is therefore a must. Two Acts: **Indian Medicine Central Council (IMCC) Act, 1970** and **Homoeopathy Central Council (HCC) Act, 1973** were constituted with the same objective.
- Two statutory bodies: **Central Council of Indian Medicine (CCIM)** and **Central Council of Homeopathy (CCH)** were formed.

- The present draft bill is set to replace the two existing Acts.

Objectives

The Bill is to set up regulatory framework at the Central as well as State level for

- **standardization** and quality control of education,
- **practice of pharmacy** in Ayurveda, Siddha, UnaniTibb and Homoeopathy
- To **maintain registers** of the pharmacists.

Key Features of the Bill

- Making **appointments of regulators through election** rather than selection.
- A **new institutional set up** for regulation of education for Indian Systems of Medicine and Homeopathy.
 - An **Advisory Council** for Indian Systems of Medicine and Homeopathy respectively having representation both from the States and UTs to develop a national agenda on education in concerned fields.
 - **National Commission for Indian Systems in Medicine (NCISM)**: Policy making body for medical education in Indian System of Medicine
 - **National Commission for Homeopathy**: Policy making body for medical education in Homeopathy.
- Inclusion of Yoga and Naturopathy in NCISM.
- Transitional provisions have been included for smooth transition of CCIM and CCH to NCISM and NCH.
- Creation of **five mutually independent and autonomous Boards** with sharp demarcation of functions.
- To provide **National Licentiate Examination for practice** by medical professionals.
- To **allow profit-institution** to establish colleges. Earlier only not-profit was allowed

Significance

- It will help to **form a regulatory body** for Ayurveda, Siddha, Unani, Tibb and Homoeopathy.
- It will **streamline the Central councils** on issue of **membership**.
- Will bring **transparency in granting permissions** to colleges, practices, ethics as well as standards in AYUSH medical education.

7.4. MEDICAL TERMINATION OF PREGNANCY (AMENDMENT) BILL, 2014

Why in News?

- In February 2017, the Supreme Court of India declined the plea of a woman to abort her foetus detected with Down syndrome. The whole issue set a debate about a **woman's right to choice over her body** and termination of foetus, which is considered as a life after a certain period of pregnancy in Medical Termination of Pregnancy Act 1971.

Issue Involved

- Medical Termination of Pregnancy Act 1971 (MTP Act), allows a woman to terminate her foetus till the 20th week of pregnancy. However, in certain exceptional circumstances, court relaxes the aforesaid time period and allows termination of pregnancy **only if** the foetus poses danger to the woman's life or is detected with an abnormal deformity.
- To detect any abnormality in foetus, a pregnant woman can undergo the medical test only after 18-week period of her pregnancy. However, the report of the test itself can take 2-3 weeks to arrive; meanwhile, the pregnant women would have crossed the time limit allowed to opt for abortion.
- Medical professionals are of the opinion that approx. 2-3 percent foetus out of 26 million new lives, can be detected to be abnormal even after 20 week period and therefore, the cap on the time period for termination of pregnancy should be relaxed.
- Due to rigid framework of the Act and myriad aspects of social stigma (pregnancy before marriage, complication in abortion etc.) attached to the issue, around 10 women every minute in India die due to pregnancy-related complications.
- Moreover, MTP Act 1971 is indifferent to the institutional services for delivery; for example, there are grave shortages of gynaecologists at Community Healthcare Centres. This compels the rural women to choose expensive and unsafe methods of abortion.

Significance of the Medical Termination of Pregnancy (MTP) (Amendment) Bill 2014

- Medical Termination of Pregnancy (MTP) (Amendment) Bill 2014 is intended to extend the legal limit for abortion from the present **20 weeks to 24 weeks** and will also allow for abortions-on-demand up to 12 weeks.
- The earlier act (MTP 1971) was guided by the objective of population control and preventing high mortality related to pregnancy; whereas, the new amended law would take into consideration a woman's choice and autonomy over her body by extending the time limit to go for abortion.
- The proposed bill would amend certain clauses by including special ground of 'substantial foetal abnormalities' for termination of foetus.
- The amended bill would cut the role of judiciary in case of any abnormality found in the foetus after the 20 week time period and would authorise the health care provider to terminate pregnancy
- Furthermore, the proposed bill has amended the definition of 'termination of pregnancy' by differentiating the medical and surgical methods. This would allow women to use and procure abortion-related medicines.

Way ahead

- In the proposed amendment, all the stakeholders must be consulted so that sex selective abortion and high mortality rate can be curtailed due to rigidity of the law.
- Since the passage of the MTP Act in 1971, the socio and medical circumstances have undergone various changes; therefore, the law governing this aspect must address the medical and social realities of the present context.
- Till now, abortion is seen from medical and legal perspective, rather than a matter related to meanings of the family, the state, motherhood and sexuality of younger woman. Therefore, need of the hour is to look at the proposed law through a broader lens, where the right to choice of women over her body and the right of the foetus to be born, would be justified.

7.5. COMMUNITY RADIO

Why in News?

- Recently, Ministry of I&B **increased the subsidy for setting up Community Radio Station** from 50% to 90% in the North

Eastern States and 75% in other states subject to a maximum limit of Rs 7.5 lakh.

- Universities & NGOs have been permitted to set up Community Radio (CR) stations in India.

Community Radio

- It is a type of broadcasting service which **caters to the community interests** rather than focus on commercial interests. E.g. Focus on eradicating social evils in the community etc.
- Usually it is run by members of the same community that it serves.

Need

- The Constitution provides the citizens of the country with the **Right to Information as per Article 19 (1)(a)**. The community radio is tool to augment this.

- The need to **promote last mile connectivity for government awareness programmes** dictates the need to set more Community Radio stations.

TRAI recommendation on Community Radio (2013-14)

• Content:

- Allow re-broadcast news from All India Radio.
- Allow translation of news into local language without distorting the content.

• License Renewal:

- Incumbent stations can be given 5 year renewal.
- Further extension would be subject to self-evaluation reports.

- **Regulation:** An e-governance enabled single window mechanism for applicants to overcome cumbersome and bureaucratic processes.

Background

- India is host to **about 170 community radio stations**.

- The movement for community broadcasting had its roots in the late 1990s after a 1995 Supreme Court judgement **that declared airwaves to be public property**.

- Community broadcast was **opened to educational institutions in 2003-04**.

- In 2006, government released **guidelines on community radio**, opening it up to Krishi Vigyan Kendras and non-profit organizations also.

- In 2013-14 TRAI gave recommendations on community radio (*see box*).
- In 2015 Government ordered the community radio stations that broadcast about 8 to 20 hours, to mail their content every day for security reasons.

Significance

- The most significant advantage of community radio station is that it is **run by local communities in native languages**. This helps in getting a **better informed citizenry**.
- Community radios broadcast mostly to low-income audiences and their content is development oriented. This acts a tool of empowerment of socio-economically backward class.

Guidelines on Community Radio (2006)

- It gave a Community Radio license for five years.
- There was no mention of a mechanism for extension/renewal of licenses of existing radio stations.

Challenges

- TRAI says that there is a scope of broadcasting misleading information in the guise of local news which can **threaten internal security of India**.
- Community Radio stations find themselves to be **economically unsustainable as advertisers do not find them to be attractive**. Therefore there is a need for alternative revenue source.
- As the community radios communicate in local languages, there is a need for expert manpower and better technology for monitoring them.
- The monitoring needs to be real time and not post facto as is today.
- Political interference sometimes force the community radio stations to become government mouthpiece leading to a loss of their autonomy.

Way Forward

If a community can be allowed to operate a FM station then allowing community radio should also not be a problem. With a better online monitoring mechanism and a provision for self-regulation of community radio, promoting community radios can be a step towards maximizing governance in India.

7.6. ELDERLY IN INDIA-EMERGING CHALLENGES

Why in News?

- A recent study has identified that less than 1% of elderly population in India has health insurance.

Background

- Although India's demography is still inclined towards youth population, it is estimated that by 2050, 20% of the Indian population would be above 60 (presently it is only 6%).
- India already has the **second largest elderly population** in the world.
- Government projections suggest a **feminization of the elderly population** occurring, with 51% of the total likely to be women by 2016.
- NSSO data suggests that **incidence of diseases as well as hospitalization rates are much higher in older people** than the total population.

Some Government initiatives

- Government is implementing **Integrated Programme for Older Persons (1992)** to provide senior citizens with basic amenities like shelter, food, healthcare and entertainment opportunities.
- Ministry of Rural Development implements **Indira Gandhi Old Age Pension Scheme** giving a monthly pension of -
 - Rs.200 for BPL in the age group of 60-79 years.
 - Rs. 500 for BPL above 80 years of age.

Challenges

- **Infrastructure regarding elderly population is poor**. Eg. Very low numbers of Government run elderly recreation homes.

- **Lack of social security** and pensions for majority of the elderly population.
- **Migration and displacement for work** by the youth population from the rural to the urban areas leads to changing demography in **rural areas with increasing solitary elderly population**.
- There is a **supply shortfall in affordable senior care homes**.
- Even though the **Maintenance and Welfare of Parents and Senior Citizens Act** gives the police a major role, they are overburdened and insufficiently trained to handle elderly cases.
- Loneliness is a big cause of elderly right to dignified life being violated.
- Data on elderly living in a region is not available thus hindering any disaster management activities related to elderly. For eg. Chennai disaster.

Innovative steps

- UberHealth offers **preventive health care packages** at an annual subscription rate of Rs 14000 apart from one-time doctor visits which are cheaper. The facilities include –
 - Booking doctors' appointments
 - Picking up the elderly parents and dropping them back
 - A representative accompanies them for doctors' feedback, sent online to the NRI children abroad.

Way forward

- To provide healthcare to abandoned elders participation from NGOs that have trained professionals is the need of the hour.
- Government can also adopt **Public Private Partnership model to set up palliative care centres** in every town, **inside hospitals**, for the needs of elderly and terminally ill patients.
- Old-fashioned social relationships with friends and neighbours should be promoted by building **multigenerational homes** (as in Germany) where working class can leave their children with elders, thus utilizing time of both.
- Create a network of social contacts along with maintaining a registry of senior citizens area-wise so that the most vulnerable like the elderly are rescued in time during any emergency.

7.7. OECD REPORT ON EMPLOYMENT IN INDIA

Why in news?

- On 28 February 2017, Organisation of Economic Cooperation and Development (OECD) released **India Economic Survey 2017** under title of **'Strong reforms and boosting inclusive growth'**.

Highlights of the report

- India's economy will grow at 7% in the current fiscal year, which is strongest amongst G-20 countries. However, the growth rate of employment generation shows negative trend since last decade.
- Over 30 percentage of youth, aged 15-29 in India are not in employment, education or training (**NEETs**)
- Government spend nearly 3.8 percent of the GDP on education. This low level of spending reflects in low employment capability of youth of the country. Thus, the focus of the government needs to be shifted toward spending on enhancing the quality of education and vocational training.
- The report pointed out that due to complex and strict labour laws in India, corporates rely heavily on temporary contract labour system and maintains substitute labour.
- Moreover, non-availability of data pertains to labour market trends, delays the microeconomics policy initiatives of government, for instance, the last NSSO round was held in FY2011-12 and data on total employment of country available only every five years.
- Furthermore, the report lauded the India's structural reform of GST (Goods and Service Tax) for reducing the tax cascading and increase market competitiveness.
- It is mentioned that there is a need to make income and property taxes more growth-friendly and redistributive. So that the need of social and physical infrastructure of local level can be fulfilled.

7.8. VISION ZERO CONFERENCE: OCCUPATIONAL, SAFETY AND HEALTH

Why in news?

- Government of India, Ministry of Labour and Employment with the collaboration of Germany social security organised the **world first Global conference** on 15-17 March 2017 on theme of 'Vision Zero conference on Occupational safety and health'.

What is Vision Zero?

- It is an emerging effective tool for improving the occupational safety and health of the worker by achieving the Zero-Accident at workplace.
- The tools involve the safety manual, network and alliance for Ground Level Corporation, protective equipment, industrial hygiene, and environment protection at workplace.

Issue involved

- Accidents and occupational disease claims the lives of millions of worker, for instance, 8 accidents in every second took place in industrial space and this rate of accidents are even higher in developing countries.
- Providing safety and protective environment to worker is mandated by International labour Organisation.
- To achieve these goals International Social Security association set seven golden rule and describe the measure to achieve them.
- The whole ideas of the initiative is based on four fundamental principle, viz., Life is non-negotiable, human are fallible, tolerable limits are defined by human physical resistance, people are entitle to safe workplace.

7.9. HUMAN DEVELOPMENT REPORT 2016

Why in news?

The latest Human Development Report, 2016 was released in March 2017 by United Nation Development Program (UNDP).

Background

- First Human Development report was published in 1990.
- This approach was developed by economist **Mahbub Ul Haq** and Nobel Laureate **Amartya Sen**.
- It introduced a new approach called **Human Development Approach** which is about expanding the richness of human life (**focus on their health, education, etc**) rather than simply the richness of the economy (GDP) in which human beings live.

What is Human Development Report?

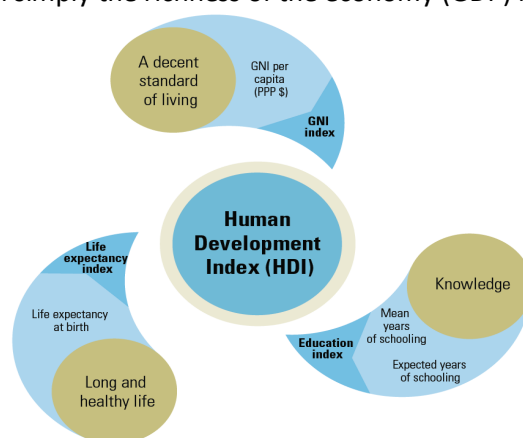
- It is an annual report released by UNDP.
- It provides an annual ranking of countries based on the Human Development Index.

Three dimensions of Human Development

- First is **Decent Standard of Living** which is calculated through the **Gross National Income Per Capita**.
- Second is **Long and healthy life** which is calculated through **Life Expectancy at Birth**.
- Third is **Access to Knowledge** which is calculated through **mean years of education among the adult population** and **expected years of schooling for children**.

HDR report also includes four other indices

- Inequality Adjusted HDI:** It adjusts the Human Development Index (HDI) for inequality.
- Gender Development Index:** measures gender gaps disparities between women and men in three dimension of human development namely **health, knowledge and living standards**.
- Gender Inequality Index:** It was introduced in **2010**. It is index for measurement of gender disparity using three dimensions
 - ✓ **Reproductive health for women:** It uses **maternal mortality rate** and **adolescent birth rate**.



- ✓ **Empowerment:** It uses **proportion of parliamentary** seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education.
- ✓ **Economic status:** It is measured by **labour force participation** rate of female and male populations aged 15 years and older.
- **Multidimensional Poverty Index:** It also measures deprivations across the three dimensions as used for HDI namely **health, knowledge and living standards**.

Major Highlights of the report

- **Norway** is ranked 1st (score: 0.949) in HDR 2016 report followed by **Australia** at 2nd (score: 0.939) and **Switzerland** at 3rd (score: 0.939).
- As per the report **1.5 billion** people still lives in multidimensional poverty. **54%** of them are concentrated in South Asia only and **34%** in Sub-Saharan Africa.
- Moreover **South Asia** has the **highest level of malnutrition** in the world (**38%**) and **lowest public health expenditure** in the world as a percentage of GDP (**1.6%**).
- Even the largest **gender disparity** in development was in **South Asia**, where the female HDI value is 20% lower than the male value.

India related Facts

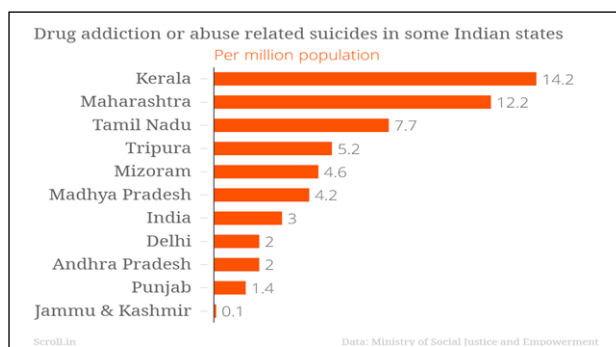
- HDI: With HDI value of **0.624**, India is ranked at **131st/188** countries. In 1990 India's HDI value was **0.428** (witness an increase of **45.8%** over 25 years). This improvement is **second** among BRICS countries after china (Improvement of 48%). Last year India was ranked at **130th position**.
- It is placed in "**medium human development**" category alongside countries such as **Congo, Namibia and Pakistan, Bangladesh, Myanmar, Kenya, etc.**
- Among the **SAARC countries**, India is behind **Sri Lanka (ranked 73rd)** and the **Maldives (ranked 105th)**, both of which figure in the "**high human development**" category.
- **Inequality:** When India's HDI is adjusted for inequality its value drops by 27%, from 0.624 to 0.454.
- **Health:** India's life expectancy at birth is **68.3 years**. For very high human development countries average life expectancy at birth is **79.4 years**.
- **Education:**
 - ✓ India's expected years of schooling is **11.7 years** while the very high human development countries have an average of **16.4 years**.
 - ✓ India's Mean years of schooling is **6.3 years** while the very high human development countries have an average of **12.2 years**.
- **Gender:**
 - ✓ India's **Gender Development Index** value is **0.819** and it is ranked below Bangladesh (0.927), Nepal (0.925), Bhutan (0.900).
 - ✓ India's **Gender Inequality Index** value is **0.530** (ranked 125th) again falling behind Bangladesh, Nepal and Bhutan among others.
- **Multidimensional Poverty Index:** Its value is **0.282**.
- **Maternal Mortality Rate** for India is **174** (deaths per 100,000 livebirths). For very high human development countries average is **14**.
- **Infant Mortality Rate** for India is **37.9** (per 1000 live births) while for very high development countries have an average IMR of just **5.4**.
- Overall Between 1990 and 2015, India's **life expectancy at birth** increased by **10.4 years**, mean years of schooling increased by **3.3 years**, expected years of schooling increased by **4.1 years** and **Gross National Income per capita** increased by about **223.4%**.
- HDR report applauded India's progressive laws, especially **Right to Information, National Food Security, and Right to Education Act**.
- The report also praised **India's reservation policy** though it could not eradicate **caste based exclusions**.
- It even commended the Indian grassroots group **Mazdoor Kisan Shakti Sangathan** for popularising **social audits** of government schemes.

7.10. DRUG ADDICTION

Why in news?

As per the recent data, compiled by **National Crime Records Bureau** and tabled in **Rajya Sabha**, **Drug Abuse problem** is not restricted to North Indian States only.

Highlights of the report



- As per the report India, witness on an average **10 suicides** per day due to drug abuse.
- There were **3,647** such suicide cases in India in 2014. In 2012 more than **4000 cases** were reported while in 2013 it was more than **4500**.
- However, going against the popular belief Punjab witnessed just **1.4 suicides per million** as compared to Kerala which had **14.2 suicides per million**.
- Though Maharashtra reported the highest suicides (1372/3647), Kerala topped the list in terms of incidence rate. Delhi reported **2 cases of suicides** per million people.
- As per the **NCRB** more than **25,000 people** committed suicides due to drug abuse last 10 years.

Factors responsible for drugs abuse?

- **Social factors:** Easy availability of drugs; Unstable home environment like regular fighting among parents resulting in child getting detached with parents; inadequate parents supervision – both parents either ignorant/working spending less time with their children; use of drugs by peer groups/friends. Sometimes teenagers consider it cool to use drugs as it will enhance their prestige among their peer groups. Lastly, highly competitive environment in schools and colleges makes teenagers more susceptible towards drug abuse.
- **Economic factors:** Poverty and unemployment (lack of other viable employment opportunities) also sometimes push an individual towards drug addiction.
- **Political factors:** Drug business is very lucrative. Hence even political leaders are involved with drugs mafia in providing drugs to susceptible group especially young generations. This is what is happening in Punjab where political leaders themselves were involved in drugs business.
- **Other factors:** Sometimes people resort to drug abuse to overcome various problems like stress, anxiety disorders, physical ailment or even other form of mental disorder. Also pain relieving **opioids** and **sedatives** are easily available from chemists without prescriptions.

Impact

- **Social**
 - ✓ Drug abuse results in **family violence, divorces, abuses** and related problems.
 - ✓ On a larger scale it is a threat to **social fabric of society** as it results in increase in crime rate. For example drug abusers indulge in various kinds of crimes: petty crimes (like snatching money for buying drugs) or even heinous crimes (rape, murder under the influence of drugs).
 - ✓ Patients including their family members go through mental trauma, feel stigmatized and often are ostracized by the society.
 - ✓ Lucrative nature of drug trafficking fuels crime as rival drug gangs fight for control of the drugs business.
- **Economic**

- ✓ One of the most important is the **cost of government drug enforcement policies**. This money could have been used for various social welfare programs.
- ✓ It also results in **lost human productivity**, such as lost wages and decreased production that results from illnesses and premature deaths related to drug abuse.
- ✓ Family member has to **spend a lot of resources** including time and money for rehabilitation of their beloved ones.
- **Physiological**
 - ✓ Physiological effects of drug abuse vary by the **type of drugs**.
 - ✓ Drugs like **Amphetamines**, though elevate a person's mood, but high amounts can cause deely in sleep, nervousness and anxiety in the user.
 - ✓ With prolonged use of some drugs, especially **narcotics** such as **opium or heroin**, the user body build a tolerance towards it. Now over the time, the body requires higher doses to maintain the same effect causing vicious cycle of drug abuse.
 - ✓ If abuser stops taking the drug, the body experiences **withdrawal symptoms**, such as feeling **weak, sick, getting hyper and aggressive**.

Solutions

- Youths are the asset of the country and no nation cannot afford to see them falling to drug abuse. Hence strict **multi-pronged strategy** is required to curb this menace.
- Following **integrated approach** at **De-addiction centre** by providing treatment using not only through **allopathy** but also through **homeopathy, Ayurveda, acupuncture**.
- Effective and affordable rehabilitation centres should be open up across the country especially in states with high prevalence incidence of drug abuse.
- Focus on high-prevalence drug groups such as **sex workers, transportation workers** and **street children** and focus on their rehabilitation.
- **Creating awareness** among various stakeholders through workshops, conference, nukkad naatak, especially among **parents, school students, other susceptible groups** about the ill effects of drug abuse, prevention methods, that it can be cured through regular de-addiction counseling and monitoring, etc.
- Including a **subject** in school curriculum about **ill effects of drug abuse and preventive methods** will go a long way in solving this issue.
- Maintaining a strict vigil at **major transit route on international border** in lucrative drug smuggling trade. Like easily availability of drugs in Punjab is because it shares border with Pakistan and Afghanistan.
- A **zero-tolerance policy** towards drug cartels, syndicates and peddlers.
- Lastly common people must understand that anybody can become drug abuser. Hence society must **not ostracize and abuse** drug abusers, rather they must intervene positively by atleast bringing the patient to de-addiction centre.

7.11. NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS ELIMINATION 2017-2025

Why in news?

- On the World TB day (24 March, 2017), Union Minister of Health and Family Welfare announced the National Strategic Plan for Tuberculosis Elimination 2017-2025.

Background

- TB accounts for more than 4.8 million deaths per year in India. Moreover, more than 1.2 million cases of TB are reported in studies every year that are not notified by government and most of them remain either undiagnosed
- Nearly 75,000 cases of **Multi drug-resistance (MDR)** have been reported annually during the treatment stage.
- Of the total MDR cases, 1.5% is related to more dangerous **extensively drug-resistant TB (X-DR TB)**.
- Moreover, the increasing density of population and growing urban environment facilitates the transmission of TB cutting across all economic strata, which is perpetuating the age-old cycle of transmission and risk.

Why needed a new strategy?

- Joint Management Mission Report of 2015, finds out that despite increasing expenditure under Revised National Tuberculosis Control Programme (RNTCP), there was a gap between the allocation of funds and the minimum investment required to reach the goals of the Plan.
- The existing TB surveillance system lacks the capacity to count the large pool of privately diagnosed and treated TB cases.
- Within the public sector, there is heavy dependence on an insensitive diagnostic test (heavily relied on sputum test) and incompetence to diagnose drug resistance cases.
- There has been limited progress in the form of special action plans for tribal populations.
- In the urban areas, however, there is no established health structure owing to the slow progress of the National Health Mission in the urban areas.

Features of National Strategic Plan

- The action plan aims to achieve active case finding of TB to 100% by 2020 and complete elimination of TB by 2025.
- The aim of this Action Plan is to do away with the earlier strategy of self-reporting where few patients get themselves tested; and rather, focus on detecting more cases, both drug-sensitive and drug-resistant, by government itself reaching out to patients.
- The requirements for moving towards TB elimination have been integrated into the four strategic pillars of “**Detect – Treat – Prevent – Build**” (DTPB).
- It is a vision document designed to address co-morbidity of TB with HIV by strengthening care such as joint management of TB/HIV co-infected patients, TB/DM management etc.
- Implementation will be a combined effort of all stakeholders such as NGOs, local governments, state welfare schemes and machinery working towards the same goals.
- For the first time, the TB control programme talks about having in place patient-friendly systems to provide treatment and **social support**, which would encompass the reducing out of pocket expenditure such as; cost of treatment, cost of travels, cost of diagnosis and wage loss.
- The plan conceives a shift from regulatory approach to partnership approach (Synergy) with the largely unorganized and unregulated private sector.

DTPB Pillars

- **Detect:** Find all the drugs sensitive and drugs resistant patients by:
 - Scale-up free, high sensitivity diagnostic tests and algorithms.
 - Scale-up effective private provider engagement approaches.
 - Universal testing for drug-resistant TB.
 - Systematic screening of high risk populations.
- **Treat:** Initiate and sustain all patients on appropriate anti-TB treatment with:
 - Free TB drugs for all TB cases.
 - Patient-friendly adherence, monitoring and social support to sustain TB treatment.
 - Elimination of catastrophic costs by linkages of eligible TB patients with social welfare schemes including nutritional support.
- **Prevent:** Emergence of TB in susceptible population through:
 - Scale up air-borne infection control measures at health care facilities.
 - Treatment for latent TB infection in contacts of bacteriologically-confirmed cases.
 - Address social determinants of TB through inter-sectorial approach.
- **Build:** To build and strengthen enabling policies, empowered institution and human resources with enhanced capacity such as:
 - By establishing National TB Elimination Board and National TB Policy and Act.
 - Restructure RNTCP management structure and institutional arrangement (National State and District level).
 - Scale up Technical Assistance at national and state levels by organising a dedicated staff for TB surveillance network in the country.
 - Better synergy with other health related programme so that duplication of efforts can be avoided.

Synergy with Private Sector Health Care

- Increase Private Health Provider Engagement.
- Decentralized drug resistant TB services.
- Free drugs and diagnostic tests to TB patients in private sector.
- Increasing support for patients seeking care in the private sector.
- Enhance Surveillance and Quality improvement.
- Expand ICT support and Build management capacity.

What is Swasth E-Gurukul?

- Swasth-e-gurukul is an e-learning initiative of World Health Organization.
- It is a single repository for training material for all disease programmes such as TB, AIDS, leprosy, malaria, diabetes etc.
- The Initiative provides information to all health care providers.

- It seeks to make the daily regimen universal by moving away from the thrice weekly regimen, followed by RNTCP.
- Moreover, new **anti-TB drug Bedaquiline** has been introduced under Conditional Access Programme (CAP).
- Under the '**Make in India**' thrust of the Government of India, it is proposed to explore the possibility of developing capacity to produce first-line drugs for RNTCP in the public sector.
- IT based **E-Nikshay platform** has been made user friendly so that Private Doctors find it easy to notify.
- **Swasth E-Gurukul TB** and myriad TB Awareness Media Campaigns would not only focus on awareness but also on fighting stigma and discrimination prevalent against the TB patients.
- The strategic plan envisions a TB Corpus Fund maintained by Bharat Kshay Niyamtran Pratishthan' (India TB Control Foundation).
- Furthermore, this document calls for effective linkages between Central Tuberculosis Division, AADHAR, Social Welfare Scheme, Pradhan Mantri Jan Dhan Yojana and Nikshay Platform.

What is NIKSHAY?

- It is an IT tool which facilitates monitoring of universal access to TB patients database.
- Developed jointly by the Central TB Division of the Ministry of Health and Family Welfare and National Informatics Centre (NIC).
- Implemented at national, state, district and Tuberculosis Unit (TU) levels.
- Utilises SMS technology for communication with TB patients and grassroots level healthcare services providers as well as health and family welfare policy makers.
- Moreover, the tool establishes a correlation between TB & HIV, leading to outcome analysis of treatment.

Way ahead

- National Strategic Plan for Tuberculosis Elimination 2017-2025, is the need of the hour, when we are racing against time in front of growing bacterium resistance against health problems.
- India has managed to scale up basic TB services in the public health system. However, the rate of decline in TB cases and treatment of more than 10 Million TB patients is too slow to meet the 2030 Sustainable Development Goals (SDG) and World Health Organization's (WHO) End TB Strategy.

7.12. PARTHA MUKHOPADHYAY WORKING GROUP ON MIGRATION

Why in news?

- The Working Group on Migration (headed by Partha Mukhopadhyay) set-up by the Ministry of Housing and Urban Poverty Alleviation (HUPA) in 2015, submitted its report to the government by recommending various policy matters for social welfare measures and administrative actions for the development of migrants.

Issue Involve

- Economic Survey 2016, pointed out that there are 9 million people annually migrate within the country, whereas Census 2011 and National Sample Survey Organisation has highlighted that migrants constitute 30 percent of national population as well as total working force.
- In order to exercise the constitutional right of freedom of movement, migrants could not get the benefits of welfare schemes if they migrate to other states for example around 45 percent of total migrants exclude from PDS (Public Distribution System), financial inclusion, and Sarva Shiksha Abhiyan

Recommendation of the working Group

- Caste based enumeration of migrants should be adopted, so that they can avail the attendant benefits in the States to which migration takes place. For example, a migrant of Scheduled Tribe community of Arunachal Pradesh can avail the intended benefits in Punjab and Haryana by interstate operability of PDS
- States should move away from the requirement of domicile status to prevent any discrimination in work and employment for the migrants.
- The vast network of the Post Offices, banking system and Payment Banks, need to be strengthened in order to reduce the cost of transfer of money and to avoid informal remittances channels.
- To achieve the financial inclusion goals, banks must simplify the documentation procedure and follow the guideline of RBI with regards to Know Your Customer norms (KYC).

- Furthermore, underutilised **Construction Workers Welfare Cess Fund** should be used to promote rental housing, working Women Hostels for the benefits of migrants.

Construction Worker Welfare Cess Fund

- This fund is maintained by Construction Workers welfare Boards under Construction Workers Welfare Cess Act, 1996, for which a welfare board was created by Central and state government concern.
- The major source of the fund to the Board is collection of cess @ one percent of the cost of construction incurred by the employer under the act.
- The construction workers are basically unskilled, migrant, socially backward, uneducated with low bargaining power. Moreover, their work has inherent risk of life and health. Thus the fund is for the various welfare measure of workers.

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8. CULTURE

8.1. SIDI RITUALS

Why in news?

- A controversy broke out after a section of Dalit families that has been taking part in the risky ritual of Sidi during the annual fair at Hariharapur in Holenarsipur taluk has refused to do so this year.

About Sidi ritual

- Once every two years, Sidi is part of the annual Udusalamma temple festival held every March in honour of the devi, an incarnation of Durga in Hassan district, Karnataka.
- The ritual involves men being tied to a wooden pole with hooks inserted in their bodies and women walking with their mouths locked with iron hooks
- Those playing Sidi have to be on fast for at least five days before the festival as it believed to help in piercing the iron hook into their skin.

Origin

- The origins of Sidi are lost in time but the legend is that it is a voluntary punishment that the Dalits have taken upon themselves down the ages.
- The Dalits believe that their forefathers stole paddy from a rich farmer's house and were saved from his wrath by deity Udusalamma. They believe the deity saved them after they promised to take part in the ritual

8.2. ASSAM'S ANCIENT INK (MAHI)

Background

- Demystifying the science behind Assam's ancient herbal ink Mahi, researchers are planning to recreate the lost techniques of manuscript writing, which is linked to the marketing of heritage tourism and the development of eco-friendly technologies in the digital age.

About Ink

- It is made up by natural substances, the technique involves extracting 'mahi' using cow urine from a cocktail of fruit pulp and tree bark such as haritaki, amla, bibhitakhi or bhomora, mango and jamun infused with the blood of eels or catfish. Rust from iron tools or nails were also added for an intense black hue colour.
- 'Mahi' was used in early and medieval Assam for writing on 'sancipat' (folios made of the bark of the sanci tree) manuscripts. Few of them was gifted by Kumar Bhaskar Barman, the then King of Pragjyotishpura (ancient Assam) to Harshavardhana, an emperor who ruled north India from 606 to 647 C.E., a testimony to the period of use.
- There is no loss of text due to its antifungal character and endurance because of its herbal ingredients in contrast to acidic iron gall ink which was used during same time in Europe.

8.3. SANKARAM ON UNESCO WORLD HERITAGE SITE

Why in news?

- The Buddhist Heritage sites at Salihundam (Srikakulam district) and Sankaram near Anakapalle in Visakhapatnam district, in addition to Lepakshi (Anantapur district) and the Nagarjunakonda International Museum (Guntur district) are likely to find a place in the list of Unesco World Heritage Sites.

About

- **Salihundam in Srikakulam district-**
 - Situated at south bank of River vamsadhara, stupas and shrines were built between 2nd to 12th century reflecting Theravada, Mahayana and Vajrayana phases.
 - Stone images of 'Marichi' (the Goddess of dawn) and 'Tara' (a Yogini of Buddhist era) were excavated along with a few gold coins of later Satavahana period.

- **Lepakshi Temple in Anantapur district**
 - It is the location of shrines dedicated to Shiva, Vishnu and Veerabhadra which were built during the Vijayanagara Kings' period (1336–1646)
 - The temples are the finest example of mural paintings on the walls of Shiva temple and Vijayanagar architectural style of the temple building
 - Large granite Nandi bull and a hanging pillar(it does not touch the ground) among all 70 pillars of Veerabhadra temple built by the brothers, Virupanna and Veeranna in 1583 who were initially in the service of the Vijayanagar kings, is special feature.
- **Nagarjunakonda International Museum**
 - Situated on an island in Nagarjunasagar dam, named after great Buddhist scholar Acharya Nagarjuna. Nagarjunakonda “the place” was a great religious center promoting Brahmanical and Buddhist faiths,
 - It was an extensive Buddhist establishment nourishing several sects of Buddhism that culminated into the full-fledged Mahayana pantheon.
 - The museum established to collect, preserve and exhibit the antiquities retrieved from the excavations and is housed in a spacious structure similar to a Buddhist Vihara.

8.4. UNESCO ASIA-PACIFIC HERITAGE AWARDS 2016

Why in news?

- It was announced by chair of jury and chief of UNESCO’s Bangkok culture unit, Duong Bich Hanh, in Bangkok.
- Total six countries- Australia, China, India, Iran, Japan and Pakistan have been recognized in this year’s Heritage Awards.

About

- Among Heritage awards there were 4 in conservation category - Award of Excellence, Award of Merit, Honourable Mention, Award of Distinction, and 1 in New Design heritage context.
- **Award of Distinction-** The St Olav’s Church, West Bengal, 210-year-old church lies in the former Danish colony of West Bengal's Serampore.
- **Award of Merit:** For repairs and restoration to the Cama Building, Mumbai Central and restoration of Fortification of Walls & Bastions of Mahidpur Fort, Madhya Pradesh
- **Honourable Mention:** Restoration of the Main Building Doon School, Dehradun
- Award of Excellence won by Japan for restoration of Sanro-Den Hall at Sukunahikona Shrine in Ozu City And New Design in Heritage Contexts by Australia for The Brewery Yard, Central Park, Chippendale.

8.5. WOMEN’S INDIAN ASSOCIATION

Why in News?

- President Pranab Mukherjee recently inaugurated the centenary celebrations of Women’s Indian Association at Adyar, Chennai.

About Women Indian Association

- It was the **first organization to create an overall awakening among women**. Its functions were-
 - To train women to be responsible to give public services.
 - To bind women together for mutual service and the good of the country.
 - To influence government policy on women’s suffrage and issues of educational and social reforms. E.g. It sent representation in Montagu reforms (1917) for women suffrage.
 - To promote compulsory primary education for girls and Hindu women’s inheritance laws.
- Its role is recognized for enactment and implementation of –
 - **Child Marriage Restraint Act/Sarda Act-** To raise the minimum age for marriage of women
 - For **abolishing the Devadasi system** especially in Tamil Nadu.
- Its official monthly publication was **Stri-Dharma** published in English. It had news related to women and articles on women’s condition.

About Annie Besant

- She was a member and later the head of Theosophical Society which later shifted its headquarters to Adyar, Chennai.
- Her propaganda in England for a self-government to Indians made way for formation of **Home Rule League in London**. Home rule was chosen instead of Swaraj because English people did not understand that more. It had divisions in:
 - India- To educate Indians about implications of Home rule Movement
 - England- To educate British public about political conditions of India.
- **As a crusader of education**, she established **Central Hindu College at Banares in 1897**. She also opened schools and colleges for girls like Central Hindu Girls School at Banares, Madanapalli High school and College and Adayar National College.
- In 1911 she organized the **“order of the Rising Star”** for the protection of the good and destruction of evils.
- In 1912 Mrs. Besant organized a **band of public workers called “The Brothers of Service”** under Indian National congress to promote workers’ union in the spiritual, educational and political fields.
- Through Home rule she wanted to help Indians to get **self- knowledge, self-respect and self-government**. According to home rule Indians would be free to determine their domestic issues.
- Her weekly newspapers were **Commonweal** (focusing on people’s problems) and **New India**.
- In 1917, she started **Indian Boys Scout Association** for her movement.
- In 1917 only she became the **first woman president of the Indian National Congress** and also introduced the tri-colour flag for the Congress party.

8.6. RUSSIAN REVOLUTION

Why in News?

- This year marks the centenary celebrations of the Russian Revolution that happened in 1917.

Background

- The causes of Russian Revolution in the first place were -
 - **Despotic and tyrant leadership** of Czar Nicholas II (Romanov dynasty).
 - Rampant government **corruption**
 - The **backward economy of Russia** because of inefficient state controlled enterprises and isolation to private participation, thus hurting the economic competitiveness.
 - The agriculture was also inefficient causing **food scarcity**.
 - **Repeated dissolution of the Duma** (the Russian parliament established after the 1905 revolution) when it opposed Czar Nicholas’ will.
 - **Immediate cause-** Russia’s involvement in World War I (1914-18) where it’s military had no match to industrialized Germany and it drained state wealth.
- Because of this moderates joined Russian radical elements to overthrow of the czar and this led to **February Revolution—the first phase of the Russian Revolution**. They established a provisional government.
- After the provisional government decided to continue Russian participation in the WWI, they faced opposition from the **Soviet – a conservative group of workers and military personnel from Petrograd**.
- Provisional government **failed to abide by their promises to give ‘Peace, Bread and Land’**.
- This led to a **leftist revolution under Vladimir Lenin** in October replacing the government by a coup. This was called **October Revolution of 1917**.

Impact

- **Economic Impact:**
 - End to Private property and change of ownership to state.
 - Control of workers over the Industries.
 - The Decree of Land led to immediate abolition of landed estates (including crown and church lands) and transfer to the peasantry for hereditary use.
- **Social Impact:**

- It destroyed the roots of social inequality and led to the foundations of a classless society on the basis of equality and justice.
- Worker rights like an eight-hour working day and insurance against unemployment were established.
- Women freedom expanded with right to property, equality in Constitution etc.
- Religion was separated from politics and it became a private affair.
- **Political Impact:**
 - It established the dictatorship of the proletariat.
 - It marked the rise of socialism and a decline of imperialism.

Significance

- The February revolution led to **end of autocracy** and establishment of a provisional government by Bolsheviks.
- Soviet **economic planning emerged with a socialistic bent** – development of proletariat, common good of the society and securing the rights of the individuals.
- **Indian freedom struggle** especially by the revolutionaries was heavily influenced by the Russian revolution of 1917.
- After the revolution, Russian economy was built upon Five year plans. This was an influence to the **Indian planning structure too**.

Aftermath

- **Lenin became the leader of the first Marxist type state in the world.** He made peace with Germany, nationalized industry and distributed land among farmers.
- Communist government became **the root cause of the Cold War** – an ideological fight between two power blocs - Capitalism of the west and Communism of Russia.

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9. ETHICS

9.1. ETHICAL ISSUES OF ARTIFICIAL INTELLIGENCE

Why in News?

- Recently companies like Foxconn technology and Ford has announced to replace 60000 human jobs by robots powered by artificial intelligence.

Deep Learning

- It is technology of artificial intelligence (the science and engineering of making intelligent machines) which uses a brain-like processing architecture to recognize patterns in large data sets.

Need of artificial intelligence

- To **manage large amounts of data** being generated on online social media and the internet, artificial intelligence becomes the need of the hour.
- Companies use this technology to **achieve economies of scale** in their respective fields. Eg. Automobile industry
- Governments globally use this technology to promote national **security and to protect the sovereignty and integrity** of the country.

Ethical Issues involved	What ought to be done?
<p>1. Artificial intelligence based on deep learning is becoming responsible for increasing automation that is causing large scale retrenchment of workers.</p> <ul style="list-style-type: none"> Therefore economic benefit from better automation is dominating over social benefits. This may also increase socio-economic inequalities. 	<ul style="list-style-type: none"> There needs to be create a balance between the usage of artificial intelligence and manual labour. Labour should only be done away with when the alternatives to using artificial intelligence are absent.
<p>2. Increasing complexity of computer systems also creates privacy and security concerns.</p>	<ul style="list-style-type: none"> Privacy is a part of a dignified life and it ought not to be overlooked unless public interest is served.
<p>3. As and when the robots become more lifelike with the use of artificial intelligence, there are concerns of legal rights of such artificial machines.</p>	<ul style="list-style-type: none"> The machines ought to be defined within a law to prevent them from getting misused.

Significance

- Artificial intelligence is today being used in a variety of dimensions:
 - Robotics:**
 - It is improving the field of robotics by making **humanoid robots** reality: ones which can think and act like humans.
 - Artificial intelligence also helps to make **assembly line robots** to help in improving the efficiency of monotonous works in industries.
 - Big data:**
 - Artificial intelligence enables **collating and dissemination of vast amount of information** in sectors like banking, finance, aviation etc.
 - Miscellaneous:**
 - Artificial Intelligence can use data from GIS and satellites to promote **exploration of minerals and other valuable products.**
 - Language assistants** like Siri and Google Assistant are examples of artificial intelligence given in smart phones which increase customer satisfaction.

Challenges

- Better artificial intelligence increases the risks of **snooping activities** by government thus violating privacy.
- Increasing reliance on digital realm also increases **the risks of cyber security.**
- Despite technological advancements, the **cost** of artificial intelligence systems still remains high.
- Loss of livelihoods due to artificial intelligence may also lead some dire social consequences like **impact on mental health, social relations** etc.

Way forward

- Right to privacy is indirectly granted as a fundamental right. There is a **need for better scrutiny and regulation of artificially intelligent** systems. Eg. A consortium of Facebook, Google and Amazon have launched a platform to promote ethical use of artificial intelligence.
- Alternative livelihood should be created for the displaced workers.
- Government should also come with a **comprehensive policy which can delineate** the regulatory procedure for artificial intelligence and also determine the ways and goals for which it would be used.

(For Big Data and Artificial Intelligence, Please refer to the VISION IAS Mains 365 Science and Technology module)

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10. ALSO IN NEWS

10.1. WORLD HAPPINESS REPORT 2017

Why in news?

- As per recently released **World Happiness Report 2017**, India has been ranked at **122nd/155** countries. In **2016** report India was ranked at **118th** position.
- Norway** is ranked **1st** followed by the **Denmark, Iceland** and **Switzerland**.
- Central African Republic, Burundi** and **Tanzania** are ranked as last 3 nations.
- Among **BRICS** group, **Brazil** was ranked at **22nd**, **Russia** at **49th** **China** at **79th** and **South Africa** at **101**.
- As per the report “**having a job**” is an overwhelming factor contributing to **Happiness**. Rising unemployment negatively affects everyone even those who are unemployed.

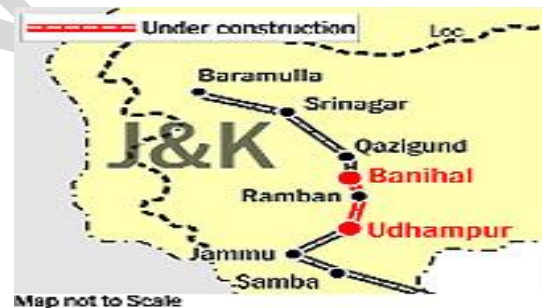
World happiness day is celebrated on **20th** March of every year.

World Happiness Index, 2017

- It is an **annual report** published **since 2012** by **Sustainable Development Solutions Network (SDSN)**, a global initiative of United Nations. **2017 report** is **5th** in the series.
- The happiness rankings are based on **6 criteria** namely: **GDP per capita, Healthy years of life expectancy, Social support** (as measured by having someone to count on in times of trouble), **Trust** (as measured by a perceived absence of corruption in government and business); **Perceived freedom to make life decisions**, and **Generosity** (as measured by recent donations).

10.2. INDIA'S LONGEST ROAD TUNNEL

- India's longest road tunnel called **Chenani-Nashri tunnel** (also known as **Patnitop tunnel**) measuring **9.2 kms** connecting **Udhampur** with **Ramban** on **Jammu-Srinagar highway (NH-44)** has been commissioned. It is single tunnel with **two lane** road.
- It will reduce existing distance between **Chenani** and **Nashri** them by more than **30 kms**.
- Yet another **8.45 km** road tunnel between **Quazigund** and **Banihal** on the **same corridor (NH-44)** is scheduled for completion by **March 2018**. It will be twin tunnel with **four lane** roads.
- Both the above tunnel will shorten the combined distance the between **Jammu** and **Kashmir** by more than **50 kms**, provide all weather connectivity and ease traffic on **NH-44 (earlier known as NH-1A)** thereby facilitating seamless ride.



10.3. NATIONAL FOUNDATION FOR CORPORATE GOVERNANCE (NFCG)

Why in news?

- Recently **National Foundation for Corporate Governance (NFCG)** has given accreditation to **44** premier Indian Institutions/Organizations such as **IIT's, IIM's, National Law University, etc.** as national centres for Corporate Governance.

About National Foundation for Corporate Governance (NFCG)

- It was set up in the year **2003** by the **Ministry of Corporate Affairs (MCA)**, in partnership with **Confederation of Indian Industry (CII), Institute of Company Secretaries of India (ICSI)** and **Institute of Chartered Accountants of India (ICAI)**.
- Its main aim is to promote **good Corporate Governance practices** both at the level of individual corporates and Industry as a whole.

10.4. RIGHTS UNDER FRA

Why in news?

- With India emerging as a fast developing global economy, competitive demand for land and natural resources is putting immense pressure on forests.

- Simultaneously, there are growing demands from forest dependent communities for increased autonomy in forest management.

Rights under FRA

- **Title Rights**- ownership of land being framed by Gram Sabha.
- **Forest management rights**- to protect forests and wildlife.
- **Use rights**- for minor forest produce, grazing, etc.
- **Rehabilitation**- in case of illegal eviction or forced displacement.
- **Development Rights**- to have basic amenities such as health, education, etc.

10.5. NEW WI-FI SYSTEM TO OFFER SUPER-FAST CONNECTIVITY

- Researchers and scientists of Edinburg University have recently developed a Wi-Fi technology based on **Infrared rays**.
- The current Wi-Fi technology uses radio signals with a frequency of 2.5 or 5 gigahertz. The new system uses infrared light with wavelengths of 1,500 nanometres and higher.
- The new technology has the potential to transfer data with more than 40 Gigabits per second (Gbit/s), which is 100 times faster than the existing Wi-Fi technology.

10.6. ADARSH STATION SCHEME

Why in news?

- Out of **1253** railway stations, **1017** stations have been developed as **Adarsh stations** under **Adarsh Station Scheme**. Remaining railway stations are planned to be developed by **2017-18**.
- **Adarsh Stations Scheme**, started in 2009-10, is mainly envisioned to **develop/modernize** the facilities in all railways stations across India.
- These railway stations will have facilities such as **Toilets, Drinkig water, Catering services, Waiting rooms, lights, etc.**
- All expenditures incurred in development of stations under this scheme are funded under **Plan Head - "Passenger Amenities"**.
- Progress for development of stations under this scheme is monitored regularly at various levels like **zonal railway level** and **Railway Board level**.

Additional Information

- **Indian** railway has recently launched "**Yatri Mitra Sewa**" for differently-abled, elderly and ailing travellers by providing them access to wheelchair, battery operated cars and porter services.

10.7. SHAHPUR KANDI DAM

- Punjab and Jammu and Kashmir agreed to resume work on stalled Shahpur Kandi Dam project, which is to be built on the river **Ravi**.
- The 55.5 high **gravity dam**, , will help in providing **irrigation facility** to 5000 hectares of land in Punjab and 32173 hectares in J&K **besides generation of 206 MW power**.
- Located in Gurdaspur district of Punjab, it will help India utilise **its rights over eastern rivers of the basin under Indus Water Treaty**.

10.8. ICEGOV 2017

- ICEGOV 2017 was the 10th edition of International Conference on Theory and Practice of Electronic Governance (ICEGOV).
- The **key objective** of ICEGOV2017 was to explore how Digital Government can lead to Digital Empowerment by local knowledge.
- Theme of ICEGOV 2017 was **Building Knowledge Societies: From Digital Government to Digital Empowerment**.
- It was hosted in India for the first time in collaboration with United Nations University and UNESCO.

- **Thematic tracks** for paper submission included : Digitization; Transformation; Engagement; Contextualization; Information ethics; Open government; Digital citizenship; Digital Culture and Inclusion; Digital Healthcare and Education; Smart Cities, Villages and Regions; Policy, Research and Innovation; Emerging Topics.

10.9. IRENA

Why in News?

- International Renewable Energy Agency (IRENA) at the Berlin Energy Transition Dialogue (BETD2017), held on March 20, 2017 estimated that global carbon emissions can be reduced by 70% by 2050 and completely phased out by 2060.

What is International Renewable Energy Agency (IRENA)?

- It is an intergovernmental organization, principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.
- Promotes the widespread adoption of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy.
- India is a member country of IRENA.

10.10. JALYUKT SHIVIR YOJANA

Why in News?

- A field study conducted by South Asia Network on Dams, Rivers and People (SANDRP) says that **Jalyukt Shivar Yojana** is promoting indiscriminate digging of farm ponds and has accelerated the rate of groundwater extraction.

About the scheme

- It is a scheme to make Maharashtra a drought free state by 2019.
- It was launched in 2014 **to harvest rainwater and enhance groundwater levels.**
- Its aim was to provide small scale irrigation facility at the farmer's disposal.
- The components of Yojana are –
 - Deepening and widening of streams
 - Construction of cement and earthen stop dams
 - Work on nullahs
 - Digging of farm ponds
- It also has the provision for Magel Tyala Shet Tale (**Farm Pond on Demand scheme**).

10.11. NEW DRONES TO BE USED FOR MONITORING TIGERS

- Conservation drones will soon hover over select tiger reserves of the country, marking the beginning of significant technological intervention in wildlife conservation.
- Drones would collect and transmit visual data on animal movements, poaching activities and instances of forest fire from inaccessible forest terrains on a real-time basis.
- The drones could be used for the management of habitats and species.
- In April 2013, the test flight of a small aircraft, Maja, was undertaken in Kaziranga Tiger Reserve. Later, in January 2014, three other drones were tested in Panna Tiger Reserve.
- The two institutions, NTCA and WII, are now in the process of scaling up the project in 10 tiger reserves across the country.

10.12. GRADING OF COAL INDIA MINES

- The Coal Controller's Organisation, a Coal Ministry outfit, has been tasked with grading and notifying the mines of Coal India Ltd. from April 2017.
- Until now, the grading was done by the coal-producing subsidiaries of CIL (internal grading by Coal India) and was vetted by the CCO.

Why this move?

- The change has been triggered by a new thrust on quality following recurring complaints on coal quality and grade mismatch by coal consumers in both the power and the non-power sectors.
- While CIL had geared itself up to produce coal as per demand, quality still remained an issue.

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