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At a Glance & In Depth.

Polity and Social Issues
Economy
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News @ a glance

Polity and social issues

No rise in working women

Details of the report:

Laborious task

Rise in literacy has not translated into jobs for women. The tables show percentage of women out of the labour force in various education levels in the age group of 30 and above; and the gross enrolment ratio

Education	2013-14	2015-16
Not literate	67.6	70.1
Below primary	72.9	74
Primary	72.4	74.2
Middle/ Secondary/HS	77	77
Graduate and above	62.7	62.7

Gross enrolment ratio (2014-15)	Male	Female
Higher education (18-23)years	25.3	23.2
IX-XII (14-17) years	64.9	65.8
XI-XII (16-17) years	54.6	53.8
IX-X (14-15) years	78.1	78.9

Source: Working Paper 368, The Anomaly of Women's Work and Education in India, Indian Council for Research on International Economic Relations

- A study published by the Indian Council for Research on International Economic Relations (ICRIER) has cited the Labour Bureau's employment figures, to show that there is a **rise in the percentage of women out of labour force between 2011-2012 and 2015-2016** across all levels of education and age group.
- A rise in literacy levels among women has failed to translate into an increase in the number of working women due to a combination of socio-economic factors.
- The age group 30 years and above shows that the percentage of women with graduate degrees and above who are not in the labour force has increased from 62.7% to 65.2%.
- At the same time, the percentage of illiterate women out of the labour force too increased from 67.6% to 70.1%.
- This is an indicator that despite one's educational attainment there has been a decline in the incentive for women to participate in the labour force.
- This has happened even though there is gender parity in attainment of education.
- The gross enrolment ratio shows that there are equal numbers of boys and girls at secondary level and women remain in education longer.

Four factors:

- The research paper attributes this trend to four major factors: the role education plays in marriage markets, social norms, poor condition for educated women and quality of education.

Social norms:

- Social norms also ensure that higher prestige or social status is associated with families which keep their women out of the workforce.
- At the same time, the growth in formal sector jobs has not kept pace with the supply of educated women, which may have led to "**crowding out of females**" from the workforce.

Behavioural changes:

- The research study recommends that government policies should focus on behavioural changes that make female employment more acceptable in the society, communication programmes on gender equality in secondary education to help students imbibe equitable gender norms as well as programmes that acknowledge child care as the responsibility of both parents.

Executive Magistrate

Who is an executive magistrate?

- An Executive Magistrate is an officer of the Executive branch(as opposed to the Judicial branch) who is invested with specific powers under both the Criminal Procedure Code (CrPC) and the Indian Penal Code (IPC).
- It includes posts like DM (District Magistrate), ADM (Additional District Magistrate) and SDM(Sub-divisional District Magistrate).

What's the issue?

- An executive magistrate has no power under the Code of Criminal Procedure(CrPC) to direct the police to register an FIR on a private complaint filed before him, the Supreme Court has ruled.
- The recent judgment concerned a direction passed by the Unnao Sub-Divisional Magistrate to file an FIR on a private complaint from a student who alleged that she was cheated into taking admission to a three-year law course at an unrecognised institute.
- The police filed a case of cheating and misrepresentation against the institute management.
- After the Allahabad High Court refused to quash the FIR, the institute managers moved the Supreme Court.
- However, the court said it was up to the complainant to lodge her grievance with the jurisdictional magistrate under Section 200 of the CrPC.

Assault on boys punishable by death

Salient features of the POCSO Act:

- "Children" according to the Act are individuals aged below 18 years. **The Act is gender neutral.**
- Different forms of sexual abuse, including penetrative and non-penetrative assault, as well as sexual harassment and pornography are defined in the Act.
- Sexual assault is deemed to be "aggravated" under certain circumstances such as, when the child is mentally ill. Also when the abuse is committed by the person in a position of trust such as doctor, teacher, policeman, family member.
- Adequate provisions are made to avoid re-victimization of the Child at the hands of judicial system. The Act assigns a policeman in the role of child protector during the investigation process.
- The Act stipulates that such steps must be taken which makes the investigation process as child-friendly as possible and the case is disposed off within one year from the date of reporting of the offence.
- The Act provides for establishment of Special Courts for trial of such offences and matters related to it.
- Under section 45 of the Act, the power to make rules lies with the central government.
- To monitor the implementation of the Act, the National Commission for the Protection of Child Rights (NCPCR) and State Commissions for the Protection of Child Rights (SCPCRs) have been made the designated authority. Both being statutory bodies.
- Section 42A of the Act provides that in case of inconsistency with provisions of any other law, POCSO Act shall override such provisions.
- The Act calls for mandatory reporting of sexual offences. A false complaint with intent to defame a person is punishable under the Act.

Amendment to POSCO Act:

- The government approved amendments to the Protection of Children from Sexual Offences (POCSO) Act, 2012, **to bring punishments for sexual assaults on boys on a par with those against girls.**
- These include the provision of death penalty when the child is under 12 years and when a penetrative sexual assault is committed by a relative.
- There are changes to Section 6 of the POCSO Act, which deals with punishments for aggravated penetrative sexual assault, enhancing the punishment of 10 years to life imprisonment and 20 years to imprisonment for remainder of a person's natural life or with death.

Why in news?

- The government made amendments to the (POCSO) Act, 2012, to bring punishments for sexual assaults on boys on a par with those against girls.

Draft Bill on Indian medicine

Salient features of National Commission for Indian System of Medicine Bill, 2018:

- The draft bill provides for the constitution of a National Commission with four autonomous boards entrusted with conducting overall education of Ayurveda, Unani, Siddha and Sowarigpa.
- The bill seeks to **replace the existing regulator Central Council for Indian Medicine (CCIM) with a new body to ensure transparency.**
- There are two common Boards namely, **Board of assessment and rating** to assess and grant permission to educational institutions of Indian systems of Medicine and **Board of ethics and registration of**

practitioners of Indian systems of medicine to maintain National Register and ethical issues relating to practice under the National Commission for Indian Medicine.

- It also proposes a **common entrance exam and an exit exam**, which all graduates will have to clear to get practicing licenses.
- Further, a teacher's eligibility test has been proposed in the Bill to assess the standard of teachers before appointment and promotions.
- The draft bill is aimed at bringing reforms in the **medical education of Indian medicine sector in lines with the National Medical Commission proposed for setting up for Allopathy system of medicine.**
- The proposed regulatory structure will enable transparency and accountability for protecting the interest of the general public.
- The NCIM will promote availability of affordable healthcare services in all parts of the country.

Central Council of Indian Medicine (CCIM):

- Central Council of Indian Medicine (CCIM) is a statutory body created under the Indian Medicine Central Council (IMCC) Act, 1970.
- CCIM comes under the administrative control of the Ministry of AYUSH.
- It is one of the Professional councils under University Grants Commission (UGC) to monitor higher education in Indian systems of medicine, including Ayurveda, Siddha and Unani.
- CCIM was set up to suggest the benchmarks and practices to be followed in Indian medicinal systems

Why in news?

- The Union Cabinet has approved the draft National Commission for Indian System of Medicine Bill, 2018.

National Commission for Homoeopathy (NCH) Bill, 2018

Salient features of the bill:

- The draft National Commission for Homoeopathy, Bill, 2018, which seeks to replace the existing regulator Central Council for Homoeopathy (CCH) with a new body to ensure transparency.
- The draft bill provides for the constitution of a National Commission with three autonomous boards entrusted with conducting overall education of Homoeopathy by Homoeopathy Education Board.
- The Board of assessment and rating to assess and grant permission to educational institutions of Homoeopathy and Board of ethics and registration of practitioners of Homoeopathy to maintain National Register and ethical issues relating to practice are under the National Commission for Homoeopathy.
- It also proposes a common entrance exam and an exit exam which all graduates will have to clear to get practicing licenses. Further, a teacher's eligibility test has been proposed to assess the standard of teachers before appointment and promotions.
- It further aims at bringing reforms in the medical education of Homoeopathy in lines with the National Medical Commission proposed for setting up for Allopathy system of medicine.

About Central Council of Homeopathy(CCH):

- Central Council of Homeopathy (CCH) is a statutory apex body under the Ministry of AYUSH, Govt. of India.
- It was set up by the Government of India in 1973, and part of the Professional Councils of University Grants Commission (UGC), formed to monitor higher education in the field of Homeopathy India.
- Any institution desiring to grant a qualification in homeopathy is required to apply to the Council, which prescribes course curriculum and maintains central registers of homeopaths.

Why in news?

- The Union Cabinet chaired by Prime Minister Shri Narendra Modi has approved the draft National Commission for Homoeopathy, Bill, 2018, which seeks to replace the existing regulator Central Council for Homoeopathy (CCH) with a new body to ensure transparency.

Separate High Court for AP

Constitutional provisions related to High Court in India:

- **Article 214** provides that every State shall have a High Court, however, **Article 231** states that Article 214 shall not be a bar for

constituting a common high court for two or more States.

- **Only Parliament may by law establish a Common High Court for two or more States**.
- This means that, unless Parliament by law establishes a Common High Court for two or more States, every State has to have a High Court, i.e., upon formation of a new State, a new High Court is also formed.

Separate high courts

- With the enactment of the Andhra Pradesh Reorganisation Act, 2014, Andhra Pradesh was bifurcated into two States, viz., State of Andhra Pradesh and State of Telangana.
- The Act, which had come into effect from June 2, 2014 has also a provision for separate high courts for State of Telangana and State of Andhra Pradesh.
- The new High Court for Andhra Pradesh will be the 25th High Court in the country. The new Andhra HC is expected to function from a temporary structure in Amaravati till a permanent building is set up at the 'Justice City' being planned in Amaravati.

Why in news?

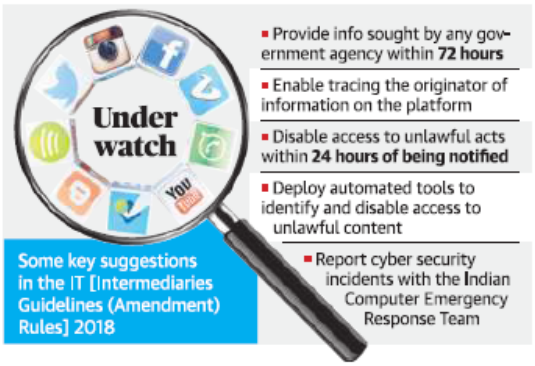
- In pursuance of article 214 of the Constitution and the Order issued by the Supreme Court of India and in exercise of powers conferred the Andhra Pradesh Reorganisation Act, 2014, the President has constituted a separate High Court for the State of Andhra Pradesh, namely, the High Court of Andhra Pradesh, from the 1st day of January, 2019 with the principal seat of such High Court at Amaravati in the State of Andhra Pradesh and the High Court of Judicature at Hyderabad shall become the High Court for the State of Telangana.

Draft rules to regulate social media

About the draft Information Technology (Intermediaries Guidelines) Amendment Rules, 2018:

The Government seeks to make it mandatory for platforms such as WhatsApp, Facebook and Twitter to trace "originator" of "unlawful" information, while also removing such content within 24 hours after being notified.

- The proposed amendments to rules **under Section 79 of the Information Technology (IT) Act** make it mandatory for online platforms to "proactively" deploy technology, which would enable searching of content seen as "unlawful".
  - They also require **end-to-end encryption to be broken** so that the origin of messages can be traced.
  - The intermediary will be any **platform that has more than "50 lakh users in India or is in the list of intermediary specified notified by the government**".
- The decision was taken due to increase in the number of lynching incidents in 2018 mostly owing to fake news being circulated through WhatsApp and other social media sites.
- The content needs to be removed if Government notifies the online platforms for the following domains like "interests of the sovereignty and integrity of India, the security of the state, friendly relations with foreign states, public order, decency or morality, or in relation to contempt of court, defamation or incitement to an offence, on its computer resource without vitiating the evidence in any manner"
- The intermediary is also expected to preserve such information and associated **records for at least 180 days for investigation purposes as against 90 days now.**
- The Centre's draft rules include setting up of proactive monitoring tools for auto deletion of unlawful content by deploying AI-based tools, deployment of trusted flaggers for identifying and deletion, setting up of a 24/7 mechanism for requisitions of law enforcement agencies, appointment of India-based contact officers, (with name, designation, email, mobile number), and prompt disposal of requisitions of law enforcement agencies to remove unlawful content.



SC order:

- On October 22,2018 Centre submitted to the SC that, it has already prepared a Standard Operating Procedure (SOP) "for taking action by the security/law enforcement agencies under Section 79(3)(b) of the Information Technology Act.
- Subsequently, on December 11,2018 the SC ordered the Centre to frame the necessary guidelines/ SOP and implement them within two weeks to "eliminate child pornography, rape and gang rape imagery, videos and sites in content hosting platforms and other applications".
- The court then listed the case for February 2019. The draft rules have come within two weeks of the Supreme Court order.

Why in news?

- The Government is introducing changes in the Information Technology (Intermediary Guidelines [Amendment] Rules), 2018, where social media platforms will soon have to end the complete encryption system and remove any 'unlawful content' for the sake of the country's security.

Triple talaq bill passed

Key provisions of the Bill:

- ***The Bill makes all declaration of talaq, including in written or electronic form, to be void (i.e. not enforceable in law) and illegal***.
- ***Definition:*** It defines talaq as talaq-e-biddat or any other similar form of talaq pronounced by a Muslim man resulting in instant and irrevocable divorce. Talaq-e-biddat refers to the practice under Muslim personal laws where pronouncement of the word 'talaq' thrice in one sitting by a Muslim man to his wife results in an instant and irrevocable divorce.
- ***Offence and penalty:*** The Bill makes declaration of talaq a cognizable offence, attracting up to three years' imprisonment with a fine. (A cognizable offence is one for which a police officer may arrest an accused person without warrant.) The offence will be cognizable only if information relating to the offence is given by: (i) the married woman (against whom talaq has been declared), or (ii) any person related to her by blood or marriage.
- ***The Bill provides that the Magistrate may grant bail to the accused***. The bail may be granted only after hearing the woman (against whom talaq has been pronounced), and if the Magistrate is satisfied that there are reasonable grounds for granting bail.
- ***The offence may be compounded by the Magistrate upon the request of the woman (against whom talaq has been declared)***. Compounding refers to the procedure where the two sides agree to stop legal proceedings, and settle the dispute. The terms and conditions of the compounding of the offence will be determined by the Magistrate.
- ***Allowance:*** A Muslim woman against whom talaq has been declared, is entitled to seek subsistence allowance from her husband for herself and for her dependent children. The amount of the allowance will be determined by the Magistrate.
- ***Custody:*** A Muslim woman against whom such talaq has been declared, is entitled to seek custody of her minor children. The manner of custody will be determined by the Magistrate.

Why in news?

- The Lok Sabha has passed the Muslim Women (Protection of Rights on Marriage) Bill, 2018, also known as, Triple Talaq Bill amidst protest by many parties.
- The Bill makes instant triple talaq void and illegal. It seeks to make the practice of instant triple talaq a punishable offence with imprisonment of up to three years.

Free Diagnostic Facilities at AIIMS

About the facilities:

- In AIIMS Hospital, lifesaving & emergency drugs including crystalloids as well as Investigation and Diagnostic Procedures are being provided free to all patients attending the casualty.
- As regards hospitalized inpatients, all medicines & surgical consumables are provided free of cost in case of BPL patients, for the duration they are admitted.
- The poor patients who do not hold a valid BPL card also provided all medicines & surgical consumables required for their treatment from the hospital without any charges on case to case basis, on recommendation of treating doctors and as ascertained by the Medical Social Service Officers.

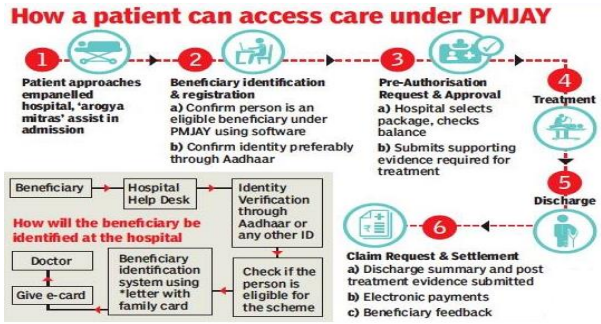
- All diagnostic and therapeutic facilities are being provided to the entitled patients as per the approved packages under Ayushman Bharat PM-JAY (Pradhan Mantri Jan Arogya Yojana).

Pradhan Mantri Jan Arogya Yojana (PMJAY):

- PMJAY is government-sponsored health insurance scheme, that will provide free coverage of up to Rs 5 lakh per family per year in any government or empanelled private hospitals all over India.
- It will cover beneficiaries families identified on the basis of Socio Economic Caste Survey (SECC) 2011 in 444 districts of 30 states/Union Territories.
- National Health Agency (NHA) is the apex body for implementing this scheme.
- States will be required to form State Health Agency (SHA) to implement scheme and at the district level also structure for its implementation will be set up.
- There will be no cap on family size and age under this scheme.
- The benefit cover under it also includes pre and post-hospitalisation expenses.
- **Aadhaar is not mandatory.** Beneficiaries will be given letters having QR codes which will be scanned for identification and verification.

Why in news?

- The Minister of State (Health and Family Welfare), Ashwini Kumar Choubey stated these facilities in a written reply in the Lok Sabha.



New broadcasting rules

What are the new rules?

- The new framework on broadcasting and cable rules, which comes into force from December 29,2018, allows consumers to select and pay only for the channels they wish to view, and requires the TV broadcasters to disclose maximum retail price of channels individually as well as of bouquets.
- Keeping in view the interest of the subscribers and to enable a smooth transition, the Authority is preparing a detailed Migration Plan for all the existing subscribers.
- The migration plan will provide ample opportunity to each and every subscriber for making an informed choice.
- The framework stipulates a network capacity fee with upper ceiling of ₹130 for 100 channels. Network capacity fee for 100 channels includes Free to Air channels or Pay channel or combination of both.
- Any subscriber who opts for more than 100 channels a rare choice of less than 10-15 % consumers, according to TRAI can choose additional channels in each slab of 25 channels with at a maximum price of ₹20 per slab.
- The Authority maintained that the cost to consumers will not increase.

Why such a move?

- TRAI has reasoned that after digitization of cable TV networks in March 2017, there was an urgent need to improve transparency as many stakeholders were not providing choice to consumers.
- It said the consumer becomes the real decision-maker now, by choosing the channels they want.
- The new framework stipulates that the subscribers will not be pushed with unwanted channels; rather she/ he will have freedom to choose only those TV channels that they want to see and pay accordingly.

Why in news?

- TRAI has announced new broadcasting and cable rules to ensure transparency in the sector.

The Consumer Protection Bill, 2018

Key points about the Consumer Protection Bill, 2018

- The Consumer Disputes Redressal Commissions will be set up at District, State and National levels as per the bill passed.
- The District Commissions will have the mandate to hear complaints having claim worth one crore rupees. In the Consumer Protection Act, 1986 this limit was 20 lakh rupees.
- The limit of the Commissions' at the State level enhanced from 1 crore rupees to 15 crore rupees.

- Complaints above 15 crore rupees worth of claim will be settled by the National Commission.
- The Consumer Protection Bill, 2018 has provisions for stringent punishments in the matters of food adulterations.
- The Bill has the provisions to protect those consumers who use new digital technologies likes e-commerce and online shopping.
- The Bill seeks to establish a central consumer protection authority (CCPA) which will be tasked with promoting, protecting and enforcing consumer rights.

Why in news?

- The Lok Sabha has passed the Consumer Protection Bill, 2018 on 20th December 2018, which will replace the Consumer Protection Act, 1986.
- The Bill seeks to enforce consumer rights and to offer a mechanism for complaint redressal related to the deficiencies in goods and services.
- The bill will now move to Rajya Sabha for passage.

Second Delta Ranking

NITI Aayog second delta ranking:

- The government think tank, Niti Ayog has released the second Delta Ranking of the Aspirational Districts Programme.
- The second delta ranking measures the incremental progress made by 111 Aspirational Districts between June 1, 2018, and October 31, 2018, across six developmental areas of health and nutrition, education, agriculture and water resources, financial inclusion, skill development, and basic infrastructure.
- Only 111 of the 115 Aspirational Districts participated in the survey.
- Three Aspirational Districts from West Bengal did not participate, and one district of Kerala could not take part because of floods.

Findings of the Ranking

The important findings of the second Delta Ranking of the Aspirational Districts Programme are:

- Aspirational districts which have shown most improvements in education are Virudhunagar (Tamil Nadu), Nuapada (Odisha) and Gumla (Jharkhand) while least improved three districts are Pakur (Jharkhand),

Yadgir(Karnataka) and Malkangiri (Odisha).

- Aspirational districts which have shown most improvements in health and nutrition are Chitrakoot (Uttar Pradesh), Barwani (Madhya Pradesh) and Vidisha (Madhya Pradesh), while the least improved three districts are Chatra (Jharkhand), Pakur (Jharkhand) and Hazaribagh (Jharkhand).
- Aspirational districts which have shown most improvements in agriculture and water resources are Sitamarhi (Bihar), Gajapati (Odisha) and Dhalal (Tripura) while the least improved three districts are Giridih (Jharkhand), Hailakandi (Assam) and Begusarai (Bihar).
- The five districts which have shown most improvements are Virudhunagar (Tamil Nadu), Nuapada (Odisha), Siddharthnagar (Uttar Pradesh), Aurangabad (Bihar) and Koraput, Odisha
- Under the category of Fast movers which includes districts that have significantly increased the pace of their improvement since the previous delta ranking, Kupwara (Jammu & Kashmir), which ranked at 108 in June moved to 7 in October.
- Ranchi (Jharkhand) moved from 106 in June to 10 in October, Siddharthnagar (Uttar Pradesh) went from 101 to 3, Jamui (Bihar) from 99 to 9. Fatehpur (Uttar Pradesh) moved up to 25 from its previous ranking of 82 have shown great progress.

Delta rankings

- The Delta rankings aim to spur a sense of competition among dynamic teams in Aspirational Districts. The rankings provide for a quantitative tool to identify sectors and indicate specific challenges so that Team India, which is driving Transformation of Aspirational Districts programme can take immediate corrective measures.
- The Delta Ranking also goes a step further and looks into specific aspects of Sustainable Development Goals (SDGs) and analyses how these districts have performed across important sectors. The findings from this ranking will aid District Magistrates or Collectors to focus more on

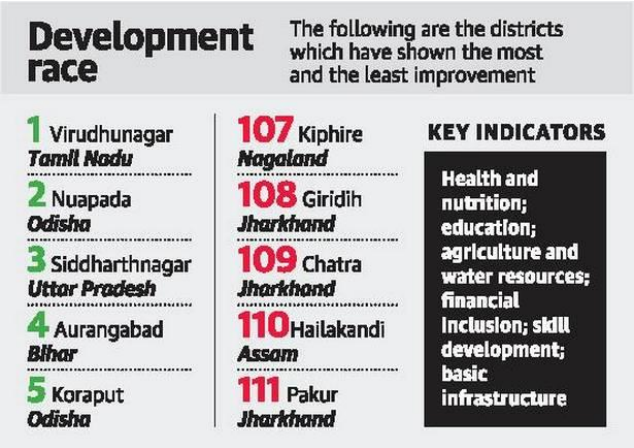
these sectors and improve their ranking in future.

Aspirational Districts programme:

- The Transformation of Aspirational Districts programme launched in January 2018 aims to quickly and effectively transform the most underdeveloped districts of the country.
- The programme envisages rapid development of selected districts on basis of a composite index based on six parameters of health and nutrition, education, financial inclusion, skill development, agriculture and water resources and basic the infrastructure.
- The programme promotes Convergence of Central and State Schemes, Collaboration of Central, State level 'Prabhari' Officers and District Collectors and Competition among districts driven by Mass Movement or Jan Andolan.

Why in news?

- NITI Aayog has launched the second delta ranking that ranks the districts based on the incremental progress made by the 111 Aspirational Districts.



Economy

E-Commerce Regulation

Introduction

- The Department of Industrial Policy & Promotion has issued a clarification to the existing rules pertaining to Foreign Direct Investment in e-commerce companies.
    - From February 1, 2019, Vendors that have **any stake** owned by an e-commerce company cannot sell their products on that e-commerce company's portal.
    - Any vendor who purchases **25% or more** of its inventory from an e-commerce group company will be considered to be controlled by that e-commerce company, and thereby barred from selling on its portal.
    - The e-commerce firm will not be allowed to influence the price of a product sold on its portal by giving incentives to particular vendors.
    - No seller can sell its products **exclusively** on any marketplace platform, and all vendors on the e-commerce platform should be provided services in a fair and non-discriminatory manner. Services include fulfilment, logistics, warehousing, advertisement, payments, and financing among others.

Context for these changes

- E-commerce companies can operate under two different models in India.
    - ***Marketplace based model*** where the e-commerce firm simply acts as a platform that connects buyers and sellers. FDI is allowed in e-commerce companies in this model.
    - ***Inventory based model*** where the inventory of goods sold on the portal is owned or controlled by the e-commerce company and is sold to the consumers directly. FDI is not allowed under this model.
- ***(Note***: As for retail policy governing brick-and-mortar stores, while 100% FDI is allowed in single-brand retailing through the automatic route, in multi-brand retailing, up to 51% of FDI is permitted, subject to government approval. Only in the trading — including through e-commerce — of locally produced food products, is up to 100% FDI allowed with government permission)
- What has been happening is that large e-commerce companies such as Amazon and Flipkart, while not owning inventory themselves, have been providing a platform for their group companies such as CloudTail and WS Retail respectively.
- Some see this as skewing the playing field, especially if these vendors enjoyed special incentives from the e-commerce firm, over others. These controlled or owned vendors may then be able to offer discounts to customers that competitors may not be able to match.

Who benefits?

- The thrust of the DIPP policy is directed at protecting small vendors on e-commerce websites. It seeks to ensure small players selling on the portals are not discriminated against in favour of vendors in which e-commerce companies have a stake.
- The Confederation of All India Traders welcomed this move as it feels the new set up will ensure a level playing field for all vendors looking to sell on the e-commerce portals.
- Traders running traditional brick-and-mortar stores, who now find it difficult to compete with the large e-commerce retailers with deep pockets, could gain.

Who will be affected?

- These clarifications will have a major impact on the major e-commerce players like Amazon and Flipkart since most of them primarily source goods from sellers who are primarily relevant to such e-commerce players. Now, they will not be able to sell them on their platforms if they hold equity in the company manufacturing them.
- The provision may hurt start-ups as well since many of these will be barred from selling due to minor equity stakes being held by the e-commerce companies.

Is it the end of discounts?

- E-commerce firms can still promote their own portals by offering cashback offers and vouchers, but these will have to apply to purchases from all vendors. Earlier,

Amazon used to give discounts through CloudTail, but now it would have to give discounts through other sellers as well.

- That is, e-commerce firms will have to ensure a level playing-field among their vendors.

Will it affect Ease of Doing Business?

- The clarifications could end up scuttling investor interest in the sector that has attracted large foreign players and generated thousands of jobs. The fresh restrictions could reinforce investor complaints about India being unpredictable in terms of policies.
- The policy, to kick in from February 1, 2019, could require a major overhaul in the business model and shareholding structures of major players.
- Any specialised back-end support for some sellers must now be extended to all vendors, while discounts, cash-backs and preferential subscription services have been made far trickier to implement.

Conclusion

- The government could have waited for the recommendations of a **National e-commerce policy task force** set up in April 2018. That task force could trigger more policy shifts.
- Globally, India has been taking on protectionism, and the Finance Minister has recently said free trade is essential so consumers get the best deal everywhere. The same consumer focus and non-protectionist tenets must be applied for internal trade.

Fiscal deficit Breaches target

What's in the News?

- According to the latest government data, India's **fiscal deficit** has exceeded 114 per cent of the Budget estimate over the first eight months of the current fiscal.

  (Fiscal deficit = Total Expenditure – Total Receipts except borrowings)

- The fiscal deficit stood at Rs 7.16 lakh crore at the end of November compared to the Budget estimate of Rs 6.24 lakh crore. **It is mainly on account of lower revenue collection**.
- However, some experts pointed out that, the expenditure begins from April 1, while revenue picks up only during the second half of the fiscal. Once the revenue picks up, it helps close the gap between earning and expenditure, in the remaining four months of the fiscal.
- The Finance Ministry is also confident in limiting the deficit to the Budget estimate, which is about **3.3 % of the GDP** (Rs 6.24 lakh crore).

Centre's fiscal health

	Budget estimates 2018-19 (₹ crore)	Actuals (up to Nov 2018) (₹ crore)	% of actual to Budget estimates 2018-19	2017-18
Total receipts	18,17,937	8,96,583	49.3	54.2
Total expenditure	24,42,213	16,13,208	66.1	68.9
Fiscal deficit	6,24,275	7,16,625	114.8	112

Prompt corrective action

Prompt Corrective Action (PCA)

- The PCA framework specifies the trigger points or the level in which the RBI will intervene with corrective action if a commercial bank's financial condition worsens below a mark. It is to ensure that banks don't go bust.
- The parameters that invite corrective action from the central bank are:
  - Capital to Risk weighted Asset Ratio (CRAR)
  - Net Non-Performing Assets (NPA)
  - Return on Assets (RoA)
- Currently, RBI has placed 11 state-run banks under prompt corrective action.

What will happen when a bank brought under PCA?

- When these parameters reach the set trigger points for a bank, the RBI will initiate certain structured and discretionary actions for the bank including
  - Restriction on dividend distribution/remittance of profits;
  - Requirement on promoters/owners/parents to bring in more capital;
  - Restrictions on branch expansion;
  - Higher provisioning requirement; and,
  - Restrictions on management compensation.

Applicability

- The PCA framework is applicable only to commercial banks and not extended to co-operative banks, non-banking financial companies (NBFCs) and Financial Market Infrastructure (FMI). *(The term FMI generally refers to systemically important payment systems, Central Securities Depositories (CSDs), Securities Settlement Systems (SSSs), Central Counter Parties (CCPs), and Trade Repositories (TRs) that facilitate the clearing, settlement, and recording of financial transactions).*

What is the issue?

- The 11 public sector banks under the PCA are facing restrictions on lending while their deposit mobilisation has been healthy. Many banks under PCA are holding an average cash surplus of about Rs 20,000 crore to Rs 25,000 crore.
- While there is no restriction on them to get deposits, they face constraints on lending. So, they are investing the resources in government bonds, which has resulted in high statutory liquidity ratio (SLR) holding. *(SLR is the proportion of funds that banks have to maintain as cash or government securities out of the total deposits that they hold)*
- The bank's SLR was about 27-28%, much higher than the RBI mandated 19.5%.
- Investments in government bonds is the most risk-free avenue to park funds which is known as **'lazy banking.'** While 'lazy banking' refers to the risk averse nature of banks, here, the situation is different as they have no other options.
- Though NBFCs are facing liquidity shortage of around Rs 1 lakh crore following the IL&FS crisis in October, banks under PCA are not able to lend their surplus deposits because of the restrictions. *(liquidity shortage - situation where a business entity is unable to gather enough cash to meet its payment obligations to lenders)*

Government's move

- Recently, the government had sought Parliament's approval to provide Rs 41,000 crore to PSBs in the current fiscal.
- This move will help banks come out of the PCA framework gradually so that lending activity can get a boost.

Recapitalisation Bonds

What are recapitalisation bonds?

- A government bond is an instrument to raise money from the market with a promise to repay the face value on the maturity date and a periodic interest.
- A bond issued for the purpose of recapitalisation (*injection of capital by the government to financially strengthen banks)* is called recapitalisation bonds.

How will recapitalisation bonds work?

- The government will issue recapitalisation bonds, which banks will subscribe and enter it as an investment in their books. The banks will lend money to the government for subscribing the bonds.
- This money raised by the government through these bonds will go back to banks as capital.
- This will immediately strengthen the balance-sheet of the banks and show capital-adequacy. The funds can be used to write-off the bad loans and help banks to resume lending.

How will it impact India's fiscal deficit?

- Under International Monetary Fund conventions, recapitalisation bonds are not added to the accounting of the fiscal deficit, because they are offset by buying shares in banks.
- In India, however, they have in the past been taken into account, since the government will have to pay interest on the bonds and eventually repay the entire amount.
- Earlier, Finance Minister has said that the question of whether they will add to the deficit will depend on who is issuing the bonds and what their nature is, so this question is yet to be answered.

Why in News?

- The government is planning to infuse Rs 28,615 crore into seven public sector banks (PSBs) through recapitalisation bonds by the end of December 2018.
- The amount infused will help the banks meet regulatory capital requirement.
- Finance Minister Arun Jaitley had said that recapitalisation would enhance the lending capacity of PSBs and help them exit the RBI's Prompt Corrective Action framework.

NPAs decline

What are NPA's?

- NPAs are loans made by a bank or finance company on which repayments or interest payments are not being made on time.

- The loan is considered to be an NPA once the borrower fails to make interest or principal payments for 90 days. In case of Agriculture/Farm Loans, the NPA varies for of Short duration crop loan (interest not paid for 2 crop seasons), Long Duration Crops (interest not paid for 1 Crop season).
- India is ranked 5th in the world in terms of countries with the highest number of NPAs, with the highest among BRICS nations.

What is Special Mention Accounts?

- The classification of Special Mention Accounts (SMA) was introduced by the RBI, to identify those accounts that has the potential to become an NPA. An early identification will help to tackle the problem better.
- The Special Mention Accounts are usually categorized in terms of duration.

SMA categories	Basis for classification – Principal or interest payment or any other amount wholly or partly overdue between
SMA-0	1-30 days
SMA-1	31-60 days
SMA-2	61-90 days

Why in News?

- Various initiatives taken by the government have yielded results, with the bad loans of public sector banks (PSBs) declining by over Rs. 23,000 crore from a peak of Rs. 9.62 lakh crore in March 2018.
- At the same time, PSBs have also made a record recovery of Rs. 60,726 crore in the first half of the current financial year, which is more than double the amount recovered in the corresponding period last year.
- The non-NPA accounts overdue by 31 to 90 days (**Special Mention Accounts 1 & 2**) of PSBs have declined by 61% over five successive quarters — from Rs. 2.25 lakh crore as of June 2017 to Rs. 0.87 lakh crore in September 2018.

Merchandise Exports from India Scheme (MEIS)

Merchandise Exports from India Scheme (MEIS)

- The scheme was launched under Foreign Trade Policy of India (FTP) 2015-20 to offset infrastructural inefficiencies and associated costs involved in export of goods and products, which are produced and manufactured in India.
- It seeks to enhance India's export competitiveness of these goods and products having high export intensity, employment potential.
- Notified goods exported are given MEIS **duty-free scrips** which can be used while paying a number of duties like customs, excise etc.

Why in News?

- The Centre has doubled the incentive granted for the export of onions under the MEIS to 10% from 5% in a measure to stabilise the slumping price of the commodity.
- The recent fall in the price of onions has forced farmers to sell below cost. The incentive will encourage exports of onions and result in a better price for onion in domestic markets.

31st meeting of the GST council

- During its 31st meeting, the GST council has reduced tax rates on 23 goods and services, including movie tickets, TV and monitor screens and power banks, and exempted frozen and preserved vegetables from the levy. The reduced rates are likely to come into effect from January 1, 2019.
- Of the 23 goods and services on which rates have been slashed, the tax rate on seven items in the 28 per cent slab has been brought down. With this, only 28 goods are left in the highest 28 per cent tax bracket.
- The goods on which GST has been lowered to 18 per cent from 28 per cent at present include pulleys, transmission shafts and cranks, gearboxes, rethreaded or used tyres, power banks of lithium-ion batteries, digital cameras, video camera recorders and video game consoles.
- The 28 per cent slab is now restricted to only luxury and sin goods apart from auto-parts and cement.
- Services supplied by banks to Basic Savings Bank Deposit account holders under the Jan Dhan Yojana will not attract GST.
- Air travel of pilgrims by non-scheduled/charter operations being facilitated by the government under bilateral arrangements will attract a lower GST rate of 5 per cent.

97.5% of items are now in 18% or lower GST bracket: Arun Jaitley

- Union Finance Minister Arun Jaitley has said that about 97.5% of the goods are already in the 18% or lower GST bracket.
- He said that India will eventually have a standard tax rate, which can be created by merging 12% and 18% tax rates, for commonly used goods.
- However, this does not mean a single GST rate. Essential items will continue to be taxed at 0% and 5%, while luxury, sin and demerit goods will attract a higher tax rate.

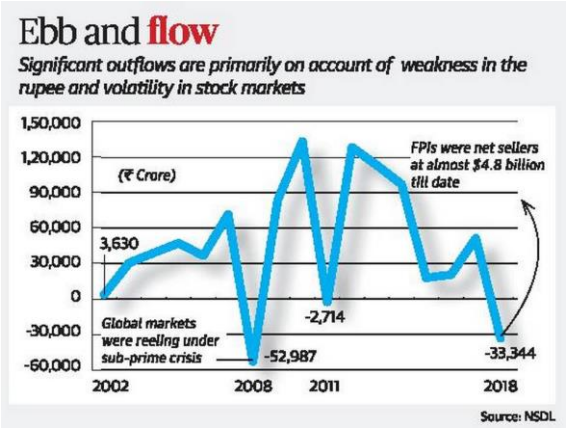
Foreign fund outflows

Who are Foreign portfolio investors?

- FPIs are non-residents who invest in Indian securities including shares, government bonds, corporate bonds, convertible securities, infrastructure securities etc.

Why are FPIs important for Indian markets?

- FPIs are among the major sources of liquidity for the Indian markets.
- If FPIs are investing huge amounts in the Indian stock exchanges then it reflects their high confidence and a healthy investor sentiment for our markets.



Why in News?

- For the Indian equity markets, year 2018 end as the worst in terms of foreign money outflows since 2008. Foreign investors have been **net sellers** at almost $4.8 billion or Rs 33,344 crore during the current calendar year.
- 2018 is only the third such year in the last decade when FPIs would end a calendar year as net sellers of Indian shares.

Why investors are moving out of India?

- The outflows were primarily on account of the **weakness in the rupee**. Rupee fluctuated from around 64 level to 74 against the dollar during the year.
- Another major reason is the **volatility of the stock markets** that saw the benchmark Sensex touching an all-time high of 38,989 in August only to lose more than 9% or more than 3,500 points since then.
- There was also heightened volatility globally due to the concerns related to the **trade war** between U.S. and China that made investors stay away from the emerging market pack, including India.

Domestic support

- Meanwhile, potential losses this year have been largely mitigated due to the strong buying support from domestic institutional investors such as mutual funds and the Life Insurance Corporation (LIC).
- Strong buying by domestic investors also helped the Indian stock markets overtake Germany for the first time ever in terms of market capitalisation.
- According to data from the **World Federation of Exchanges** (WFE), the market capitalisation of India was pegged at $2.06 trillion in December, slightly higher than Germany's $1.9 trillion.

Improvement in Bank's health

Trends and Progress of Banking in 2017-18 report

- The RBI has released its annual **'Trends and Progress of Banking in 2017-18'** report.

Highlights of the report

- The report pointed out to the **revival in credit growth** in the first half of current financial year, and said there is an overall improvement in the health of the banks.
- The stressed assets of banks had begun to stabilise. While gross NPA ratio of PSBs reached 14.6% in 2017-18, there was a significant decline in fresh slippages across bank groups during the first half of 2018-19.
- The balance sheet expansion of commercial banks between 2012-13 and 2017-18 had been slow due to an increase in stressed assets but during the first half of the FY19 'growth returned to the balance sheet bolstered by recovery in loan books.
- The **recapitalisation** of public sector banks for 2018-19, which was enhanced to Rs 1,06,000 crore from Rs 65,000 crore, was aimed at meeting regulatory capital requirements.

- Banks under the **PCA framework** have shown improvement in the share of current and savings account deposits and increased recoveries from NPAs, while reducing riskiness of assets. They have also shown lower growth in gross NPAs, relative to non-PCA PSBs.
- These developments augur well for the banks and other financial intermediaries in the economy as they struggle to regain the momentum lost in the preceding six years.

Conflict of interest

- Observing that the presence of RBI officials in the boards of public sector banks leads to serious conflict of interest, the central bank said there is a need to bring in legislative changes to do away with the requirement of nominating RBI officials as nominee directors on the boards of PSBs.

Capital requirement issue

- The central bank reiterated its stand that relaxing capital requirements was not in the best interests of the economy as current levels of provisions maintained by banks may not be enough to cover expected losses.
- Capital to Risk weighted Asset Ratio (CRAR) or Capital Adequacy Ratio (CAR) is the ratio which protects banks against excess leverage, insolvency and keeps them out of difficulty.
- It is defined as the ratio of banks capital in relation to its current liabilities and risk weighted assets.
- Currently, RBI has prescribed CRAR at 9%. However, the government wants the RBI to bring down CRAR to 8%, in line with BASEL III norms.

The lure of monthly instalment

Overview

- EMI or Equated Monthly Instalment is one part of the equally divided monthly outgoes to clear off an outstanding loan within a stipulated time frame.
- In India, initially EMI was available only to offline retail products.
- But after the advent of e-commerce giants such as Amazon, Flipkart into the online retail trade in India, the EMI policy is extended to online trade also.
- The EMI option for online payments is increasingly appealing to the aspirational Indian, since it allows her to buy products she wouldn't have otherwise been able to afford.
- However, this easy manner of consumption could also be leading the charge in loan defaults.

Advantages of EMI

- It benefits the customer by staggering the payments over a period of time, at no extra cost.
- The variety of products to which zero cost EMI is offered has been drastically increased over the years, giving great basket to select for the customers.
- The merchant also pushes for EMI option because he wants the transactions, which are more likely because the customers feel they are paying a smaller amount using the EMI option
- It also benefits the lender as they are getting a customer on their books to whom they can then try to sell other products.

Issues

- However, with such easy access to credit for consumption, people often get carried away and begin to default on their payments.
- This problem could be addressed if a **credit rating system** is created to measure the online behaviour of customers.
- Currently the credit bureaus only look at the credit card and loan repayments behaviour of a customer. But, online purchase activity has evolved and requires a new approach.

International Relations

Indian Ocean Region

Indian Ocean Region

- Indian Ocean carries about half of world's container shipment.
- Indian Ocean carries 90% of India's trade by volume.
- It is rich in resources such as resources such as fishing, aquaculture, minerals etc.
- India is also involved in deep sea mineral exploration in Central Indian Ocean with help from South Korea.
- Indian Ocean gives India access to the South-Asia, South East Asia, Africa and West Asia which are important from the point of view of energy, economic trade and security.
- Several challenges such as Piracy, Drug and human trafficking had been increasing in this region.

Monitoring IOR

- Information Fusion Centre – Indian Ocean Region (IFC-IOR) at the Information Management and Analysis Centre (IMAC) has been inaugurated in Gurugram.
- The main objective of this centre is to monitor the vast Indian Ocean Region (IOR) with the aid of other countries.
- It will give real time view of almost 75000 km long vast coastline.
- The 21 countries which form the Indian Ocean Rim association are also the partner for the monitoring process.
- The countries will monitor the allocated regions and send regular updates to the centre.
- This could create open and accessible Indian ocean region for the world countries.

Information Management and Analysis Centre IMAC

- It is a joint initiative of Indian Navy, Coast Guard and Bharat Electronics Ltd
- It is created to improve coastal surveillance and to provide coastal security to avert incidents like the 26/11 terror attack on Mumbai.
- Apart from coastal radars and optical sensors, it also draws information from automatic identification systems fitted on merchant ships and has a comprehensive shipping database of world registers of shipping for analysis of traffic.

Why in news?

- The Defence Minister of India formally inaugurated the Information Fusion Centre – Indian Ocean Region (IFC-IOR) at the Information Management and Analysis Centre (IMAC) in Gurugram on 22nd December 2018.

India-Bhutan Relations

Background

- Both the countries share cultural heritage from historical past.
- Bhutan was the first country to recognize India's independence in 1947.
- India-Bhutan Treaty of Friendship and Cooperation was signed in 1949. This treaty was updated in 2007.
- Diplomatic relations between the two countries were officially established in 1968 after the appointment of a Indian representative as a resident in Thimphu, the capital of Bhutan.
- India Bhutan Trade and Commerce Agreement was signed in 1972. It provided for free trade and commerce between the two countries.
- The two countries have various agreements in sectors of hydropower, security, bureaucracy etc.

Recent Developments

- Prime Minister Narendra Modi has announced a Rs 4,500 crore financial assistance to Bhutan for its 12th five-year plan.
- The new five-year plan of Bhutan began in 2018 and will continue till 2022.
- This was announced after the discussion with Bhutan Prime Minister.
- Bhutan's Prime Minister Dr. Tshering had arrived in New Delhi on December 27, 2018
- It is his first foreign visit after taking charge as Prime Minister of the Bhutan in November 2018.
- His visit took place during the Golden Jubilee year of the establishment of formal diplomatic relations between the two countries.

Why in news?

- Bhutan's Prime Minister Dr. Tshering had visited New Delhi on December 27, 2018.

Issues with Bhutan

- The Motor Vehicles Agreement that was signed in 2015 involving Bangladesh, Bhutan, India and Nepal (BBIN) was blocked by Bhutan's upper house citing environmental concerns.
- There has been reports that China claims Doklam Plateau and other parts of Chumbi valley (they legally belong to Bhutan) as its own territory.
- The Chumbi valley is close to Indian state of Sikkim and Chicken's neck (the passage between mainland India and North eastern States which is also known as Siliguri corridor). This poses security concerns for India.

Nepal's Currency Blockade

India-Nepal relations

- India and Nepal began their formal relationship with the 1950 Indo-Nepal treaty of Peace and Friendship.
- Nepal's geographical location is unique such that it is a natural buffer between India and China
- Since Nepal is a landlocked country it greatly depends on India for its interaction with the outside world.
- Relation between India and Nepal was on a downward since 2015 when Nepal put out its draft constitution which was against the madhesi community and alleged economic blockade by India.

Currency blockade

- The Nepalese government in recent times is taking various actions against use of Indian currency in Nepal.
- Nepal has banned the use of Indian currency notes of Rs 2,000, Rs 500 and Rs 200 denominations.
- Now the Nepal Rastra Bank (NRB) announced that Nepali citizens will be not able to purchase good and services in India for more than Rs 1 lakh per month using Indian currency.
- It is applicable to prepaid, credit and debit cards of Nepali banks.
- These steps are mainly due to the demonetisation step of Indian government, which impacted Nepal in large scale.
- Growing problem of current account deficit and the balance of payment crisis are also main reasons for this blockade against Indian currency.

Why in news?

- Nepal has imposed a monthly limit on the amount of Indian currency its citizen can spend in India.

USA leaving Syria

The Syrian Issue

- Syria is a west Asian Country bordering Lebanon, Turkey, Iraq, Jordan, and Israel.
- The devastating drought between 2006 to 2011, caused much resentment among the people due to poverty and unemployment.
- The largest religious group in Syria is the Sunni Muslims who were not happy with the administration of President Basher-Al-Assad who was more inclined to Shia Muslims.
- The Peaceful demonstrations started in 2011, turned violent after the brutal counter attack by the government.
- The Sunni-dominated opposition had of support from countries such as Turkey, Saudi Arabia, Qatar, and Jordan, along with the US, UK, and France.
- The US and its allies' support to the rebels in Syria to topple the Assad regime, led to the rise of the terrorist outfit ISIS (Islamic State of Iraq and Syria) which established in Sunni Provinces of Iraq and eastern provinces of Syria.
- There had been continuous air strikes by Russia in support of Assad government.
- UN-mediated peace talks – known as the **Geneva II process** – since 2014 have shown little progress.
- The UN Security Council has called for the implementation of the 2012 Geneva Communique, which envisages a transitional governing body "formed on the basis of mutual consent"

US out of league

- US President Donald Trump has called back the forces in Syria.
- This has started the end to global policeman ship of United States in various international issues such as Afghanistan war, India-Pakistan etc.
- It has been done mainly due to the "America First" policy that has been followed by Trump.

Why in news?

- US president trump has withdrawn the US forces from Syria.

India-Syria

- India has had good relations with Syria historically, but India has always taken a neutral stand to Assad's regime.
- India has a substantial interest in the field of trade and investment, Diaspora, remittances, and energy security in the region.
- Due to the Syrian Crisis, India had to abandon its oil investments in Syria.
- Though India has not much dependency on Syria for her energy needs, the political stability in the entire West Asian region is very important for India.
- India abstained from voting on a United Nations General Assembly resolution demanding an immediate ceasefire in Syria.

China-Pakistan relations

Overview

- The China-Pakistan Economic Corridor (CPEC) is a part of China's ambitious One Belt One Road (OBOR) Initiative to link China with Europe.
- Started in 2013, the CPEC is a developmental project between Pakistan and its all-weather friend China.
- It is 60-billion-dollar project which will connect Kashgar in Xinjiang province of China, with Gwadar port in Baluchistan.

Recent Issue

- A US media report alleged that China has a secret plan to build fighter jets and other military hardware in Pakistan as part of CPEC project.
- This has been dismissed by china saying there is no truth in it.
- Pakistan has also said that these are unwanted allegations on CPEC project which is purely an economic project, which does not affect any other country.

Why in news?

- Foreign Office of Pakistan confirmed that CPEC is an economic project and has no military dimensions.

Friend in hand

- A Chinese-built seaport and special economic zone in the Pakistani town of Gwadar gives Beijing a strategic card to play against India and the U.S.
- Pakistan is the only other country that has been granted access to the Chinese military service, allowing more precise guidance for missiles, ships and aircraft.
- Pakistan is the first country to use Chinese navigation service called as beidou navigation system.

Science & Technology

A step closer to detecting krait venom

Background

- In India, there are about 50,000 deaths every year due to snake bites.
- We do not have effective diagnostics test. The current methods uses symptoms associated with snake bites and blood coagulation tests. These methods have their shortcomings.
- As there is no proper diagnostic test, large quantity of anti-vemon that is effective against cobra, krait, Russell's viper and saw scaled viper venom is administered.
- However use of polyvalent anti-venom leads to mild to severe adverse reactions. Polyvalent is a medicine which is active against several toxins or strains of pathogen.

About the research

- DNA aptamer is used to detect the toxin of Bungarus multicinctus krait snake. This snake is found in China and Taiwan.
- DNA aptamer is a small, single-stranded DNA molecule that binds to a specific target molecule. Aptamers can be from DNA or RNA. It is used in affinity reagents, bioimaging probes, biosensing, therapeutics etc.
- Researchers have made use of this aptamer to develop the shorter DNA aptamer to detect toxins in the venom of Bungarus caeruleus. It is the most common krait species found in India.
- The shorter aptamer was able to diagnose the toxin in venom. It showed greater affinity and binding to the toxin, high specificity and ability to detect toxin even when very little of venom is present.
- The original aptamer could detect the venom only when 8 nanogram was available but the truncated version could detect the toxin when 2 nanogram of the venom was present
- The researchers are also developing aptamers for detecting the venom of other poisonous snakes such as cobra, Russell's viper and saw-scaled vipers.

Why in news?

- Researchers from Translational Health Science and Technology Institute (THSTI), Faridabad , AIIMS, Delhi, and IIT Indore found a DNA aptamer for reliable detection of krait snake species — Bungarus caeruleus.

Avangard missile

About the missile

- Avangard is a hypersonic glider, developed by Russia.
- It can deliver both nuclear and conventional weapons.
- The hypersonic glide vehicle is carried to the exo-atmosphere by an intercontinental range ballistic missile (ICBM). Then the hypersonic glide vehicle descends and manoeuvres in the upper atmosphere to its target.
- The unique feature of Avangard is its manoeuvrability as the vehicle constantly changes its course and altitude while it flies through the atmosphere. Thus making it impossible to detect its location.
- It is likely to be deployed in 2020.

Hypersonic missile

- A hypersonic missile is a missile that travels at Mach 5 or higher, which is at least five times faster than the speed of sound.
- There are two types-hypersonic cruise missiles and hypersonic glide vehicles
- The hypersonic cruise missiles are powered all the way to their targets using a scramjet engine. It can fly at altitudes upto 100,000 feet.
- Hypersonic glide vehicles are placed on top of rockets and launched. It uses aerodynamic forces to maintain stability to fly and maneuver.

Scramjet

- "Scramjet" or Supersonic Combustion Ramjet is a different propulsion system in which the oxygen needed by the engine to combust is taken from the atmosphere passing through the vehicle, instead of from a tank onboard.

Why in news?

- Russia has conducted another successful test of its ship–based hypersonic missile, a weapon the United States is currently unable to defend against.

Gaganyaan

Background

- The Prime Minister had announced in August 2018 that India's first Indian human mission will be launched by Indian Space Research Organisation (ISRO) by 2022.
- ISRO has developed some critical technologies like re-entry mission capability, crew escape system, crew module configuration, thermal protection system, deceleration and floatation system, sub-systems of life support system etc. required for this programme
- Some of these technologies have been demonstrated successfully through the Space Capsule Recovery Experiment (SRE-2007), Crew module Atmospheric Re-entry Experiment (CARE-2014) and Pad Abort Test (2018).
- GSLV Mk-III launch vehicle, which has the necessary payload capability for this mission, will be used to launch Gaganyaan

About the mission

- Two unmanned Gaganyaan missions will be undertaken prior to sending humans.
- The mission will aim to send a three-member crew to space for a period of five to seven days
- The spacecraft will be placed in a low earth orbit of 300-400km.
- The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission after USA, Russia and China.

Why in news?

- The cabinet has approved the Indian Human Space Flight programme.

Virtual tumour

What's in news?

- Scientists from Cambridge have developed a virtual reality (VR) 3D model of cancer.
- With this technology tumour can be observed from every detail from different angles.
- It helps us to understand cancer better and develop new treatments for it.

Virtual Reality

- Virtual reality is the term used to describe a three-dimensional, computer generated environment which can be explored and interacted with by a person.
- It incorporates mainly auditory and visual feedback, but may also allow other types of sensory feedback
- VR is most commonly used in entertainment applications such as gaming and 3D cinema.
- It also finds application in other fields such as medicine, military training, education, simulation etc.

Reclaimed Asphalt Pavement

About the research

- The researchers used reclaimed asphalt pavement (RAP)to lay roads and it was tested along state highway in Andhra Pradesh.
- Reclaimed asphalt concrete has been strengthened by the addition of limestone and industrial wastes such as fly ash.
- The fly ash was treated with sodium hydroxide before adding it to RAP in order to convert fly ash into a geopolymer that binds the RAP material thereby making it stronger.
- The material in 80:20 ratio of reclaimed to virgin asphalt with 40% fly ash met the standards of Indian Road Congress.

Advantages

- Reduces cost
- Eco-friendly
- Stronger than asphalt roads
- Reduces the use of virgin asphalt by 30%
- Less permeability to water
- High structural stability for longer duration

Reclaimed asphalt pavement (RAP)

- Reclaimed asphalt pavement (RAP) is defined as removed pavement materials containing asphalt and aggregates.
- RAP is a mix of fly ash and reclaimed asphalt concrete.
- These materials are generated when asphalt pavements are removed for reconstruction, resurfacing, or to obtain access to buried utilities.
- When properly crushed and screened, RAP consists of high-quality, well-graded aggregates coated by asphalt cement

Fly ash

- Fly ash is a by-product from burning pulverized coal in electric power generating plants.
- During combustion, mineral impurities in the coal fuse in suspension and float out of the combustion chamber with the exhaust gases.

- The fused material rises, it cools and solidifies into spherical glassy particles called fly ash
- Fly ash is collected from the exhaust gases by electrostatic precipitators or bag filters.

Applications

- Concrete production, as a substitute material for Portland cement and sand
- Embankments and other structural fills (usually for road construction)
- Grout and Flowable fill production
- Waste stabilization and solidification
- Cement clinkers production - (as a substitute material for clay)
- Mine reclamation
- Stabilization of soft soils
- Road sub base construction
- As Aggregate substitute material (e.g. for brick production)
- Mineral filler in asphaltic concrete
- Agricultural uses: soil amendment, fertilizer, cattle feeders, soil stabilization in stock feed yards, and agricultural stakes
- Loose application on rivers to melt ice
- Loose application on roads and parking lots for ice control

Why in news?

- Researchers from IIT Hyderabad have come up with an innovative material to lay roads using reclaimed asphalt pavement (RAP).

Hydrological Response Assessment Tool

About the tool

- The tool has been developed by the Indian Meteorological Department (IMD) and IIT-Delhi and will be operational from next monsoon.
- It will assist the state government to minutely monitor the impact of rainfall
- This tool is used to assess runoff generated by rainfall and rise of water level in rivers and reservoirs
- It will help in continuous monitoring, generating forecast 3-4 days in advance thereby giving authorities enough time to scale down intensity of floods
- It will help authorities to make decisions on release of water from dams in scientific manner and prevent floods
- At present, rainfall forecast is being done based on previous years' rainfall in that region
- It uses a combination of weather parameters like rainfall, soil moisture and evaporation

Portulaca plant

About the discovery

- The two new plant species discovered are Portulaca badami and Portulaca laxminarasimhania. It was found at Badami Hills.

Portulaca badami

- 5-15cm long
- Tap root system
- 4-7 leaves with under white hair
- Bright yellow flowers and bluish seeds
- IUCN status : data deficient

Portulaca laxminarasimhania

- 50-70cm long
- Branched woody stem
- IUCN status : critically endangered

Significance

- These plants grow in semi-arid region in rain shadow areas of Western Ghats
- This drought resistant property of these plants can be isolated using biotechnology and used in crop improvement of major crops

Other rare plants at Badami

- Barleria stocksii, Iphigenia hysorensis and Commiphora berryi

Why in news?

- Botanists from the Shivaji University, Kohlapur have discovered two new plant species in Badami Hills, Karnataka.

Environment

Pokkali paddy

Why in news?

- When the devastating floods in August 2018 submerged large tracts of farmland across Kerala, the Pokkali paddy variety, which grows to a height of up to 2 m, survived the rising waters.

About Pokkali Paddy:

- It is a **saltwater-tolerant** paddy grown in the coastal fields of Alappuzha, Ernakulam and Thrissur districts(Kerala).
- It is known for its taste and high protein content.
- It has been awarded with **GI tag**.
- Many **medicinal properties** are also attributed to this rice.

Cropping Season:

- Paddy is grown during **June to October** (120 days maturity period) followed by shrimp farming during November to April.
- **After the harvest, the paddy stubble in the fields acts as food and shelter for shrimp and small fish.**
- Fish excreta and scales, along with the decomposed stubble, provide excellent natural manure for another season of Pokkali.
- So Pokkali farming is a system in which paddy and shrimp are grown alternately in the same field.

Present scenario:

- The variety is now grown in, only over 5,000 hectares, a drop from over 25,000 hectares a few decades ago, due to high labour cost and poor returns.
- **Large amount of manual labour is required** since no specialised equipment or machinery is available for this.
- Various reasons such as lack of labour, costly manpower, pollution from nearby industries contaminating the pokkali fields, widespread attack of viral infection to the shrimps are some of the problems.

Kuno Wildlife Sanctuary

Why in news?

- Kuno Wildlife Sanctuary in **Madhya Pradesh** notified as 'national park'.
- The state government has declared **Kuno National Park** with the inclusion of an area spread along 404.0758 sq.km in addition to the earlier notified area of 344.686 sq km making a total of 748.7618 sq km area.
- Madhya Pradesh forest department was waiting for a change of government to notify Kuno as a 'national park' in compliance with the last condition imposed by a Supreme Court-appointed six-member committee for the much awaited 'translocation of **Asiatic lions(Endangered)** from Gir in Gujarat.'

Kuno Wildlife Sanctuary:

- It is part of the Kathiawar-Gir **dry deciduous forests ecoregion.**
- The Kuno Wildlife Sanctuary was selected as the reintroduction site for the endangered Asiatic lion because it is in the former range of the lions before it was hunted into extinction in about 1873.
- The lions are to be reintroduced from **Gir Wildlife Sanctuary** in the neighboring Indian state of **Gujarat** where they are currently overpopulated.
- This has involved the displacement of twenty-four villages of the Sahariya tribe, which had lived in the remote core area set aside for the reintroduction of the Asiatic lions, who agreed to move out.

Gir Wildlife Sanctuary:

- Also known as Sasan Gir.
- The seven major perennial rivers of the Gir region are **Hiran, Shetrunji, Datardi, Shingoda, Machhundri, Godavari and Raval.**
- The four reservoirs of the area are at four dams, one each on Hiran, Machhundri, Raval and Shingoda rivers, including the biggest reservoir in the area, the **Kamleshwar Dam**, dubbed **'the lifeline of Gir'**.

Olive ridley

Why in news?

- **Odisha** forest department has proposed a new site for Olive Ridley mass nesting on **Bahuda river** beach in Ganjam district.
- The Bahuda rookery is located around 20 km to the south of Rushikulya rookery coast, a major mass nesting site of Olive Ridleys on the Indian coastline.

About Olive Ridley Turtle:

- The Olive Ridley sea turtle has been listed on **Schedule – I of the Indian Wildlife (Protection) Act, 1972.**
- The Olive Ridley turtles are the smallest and most abundant of all sea turtles found in the world, inhabiting warm waters of the **Pacific, Atlantic and Indian oceans.**
- It is **closely related to the Kemp's Ridley**, with the primary distinction being that olive Ridleys are found only in warmer waters, including the southern Atlantic, Pacific and Indian Oceans.
- Along with Kemp's Ridleys, Olive Ridleys are the only sea turtle's species to exhibit synchronous mass nesting, termed **Arribadas**. During the Arribadas (Arrival), tens of thousands of female turtles nest during the same 3-7-day period once a month.
- Along with Kemp's Ridleys, and, to a lesser extent, flatbacks, **olive Ridleys are the only sea turtle species to commonly nest during the day.**
- The Olive Ridley is classified as **vulnerable** according to the International Union for Conservation of Nature and Natural Resources (**IUCN**), and is listed in **Appendix I of CITES.**
- The Convention on Migratory Species and the Inter-American Convention for the Protection and Conservation of Sea Turtles have also provided Olive Ridleys with protection, leading to increased conservation and management for this marine turtle.
- Some important nesting sites in India – **Hope Island of Coringa Wildlife Sanctuary (Andhra Pradesh**), **Gahirmatha beach (Odisha**), **Astaranga coast (Odisha),** Beach of Rushikulya River.
- The coast of Odisha in India is the largest mass nesting site for the Olive Ridley, followed by the coasts of **Mexico** and **Costa Rica**.
- The most severe threat they face is the **accidental killing of adult turtles through entanglement in trawl nets and gill nets due to uncontrolled fishing** during their mating season around nesting beaches.
- To reduce accidental killing in India, the Orissa government has made it **mandatory for trawls to use Turtle Excluder Devices (TEDs)**, a net specially designed with an exit cover which allows the turtles to escape while retaining the catch.

Yamuna rejuvenation

About the project:

- The Yamuna rejuvenation project that aims to develop the sewerage infrastructure at various stages of implementation, are taken up under the Namami Gange programme, with an aim to conserve the River Yamuna in Delhi.
- The projects are undertaken under the Yamuna Action Plan.

Yamuna Action Plan:

- Yamuna Action Plan is one of the largest river restoration projects in India.
- Yamuna Action Plan is a bilateral project between the Government of India and Japan.
- The Japanese Bank for International Cooperation (JBIC) is providing the financial aid to carry out the project and is being implemented by the National River Conservation Directorate, the Ministry of Environment and Forests, and the Government of India.

Namami Ganga:

- Namami Gange Programme integrates the efforts to clean and protect the River Ganga in a comprehensive manner. The programme was initiated in 2015 with a budget outlay of Rs. 20,000 over 5 years.
- The programme focuses on pollution abatement interventions namely Interception, diversion & treatment of wastewater flowing through the open drains through bio-remediation, appropriate in-situ treatment, use of innovative technologies, treatment plants (STPs), effluent treatment plant (ETPs), rehabilitation and augmentation of existing STPs and immediate short-term measures for arresting pollution at exit points on riverfront to prevent inflow of sewage etc.

- The programme also focuses on improved coordination mechanisms between various Ministries/Agencies of Central and State governments.

Why in news?

- Union Minister for Water Resources, River Development and Ganga Rejuvenation, Road Transport & Highways and Shipping, Nitin Gadkari laid foundation stone for eleven projects for Yamuna Rejuvenation under Namami Gange Programme in New Delhi.

International Whaling Commission

Why in news?

- **Japan** has decided to **withdraw** from the International Whaling Commission to resume commercial whaling in **2019**.

Important Facts:

- Japan has decided to withdraw from the International Whaling Commission, which it's been a part of since 1951, to resume commercial whaling in 2019. However, it will continue to participate in talks as an observer.
- After the withdrawal comes into effect the Japan will conduct commercial whaling within Japan's territorial sea and its exclusive economic zone.
- **Exit from IWC doesn't mean Japan will be operating outside the law**, as such, and the country will still conduct its hunts in accordance with international laws and limits calculated by the IWC.
- Japan has justified its annual Antarctic whale hunt in the name of scientific research, which it says is necessary to evaluate global populations of whale species.
- However, that argument was rejected in 2014 by the International Court of Justice, which ruled that Japan's Antarctic hunt had no scientific basis.
- The announcement drew criticisms: Australia said it was "extremely disappointed" and New Zealand said it regretted the resumption of the "outdated and unnecessary" commercial killing of the ocean mammals.

Impact:

- By leaving the IWC, Japan is rejecting multilateralism and setting a very bad precedent for conservation, which will likely have very serious negative consequences for the world's whales.
- Japan may recruit other pro-whaling nations to leave the IWC.
- Conservationists argue that whale stocks have not recovered sufficiently from past overhunting and are hard to assess, easy to deplete and slow to rebuild.
- Marine mammals also face mounting existential threats from climate change and marine pollution, including plastics, chemicals and noise.

About IWC:

- **IWC is** an international body set up under International Convention for the Regulation of Whaling (ICRW) which was signed in Washington DC on 1946**.**
- Headquarters: **Impington, near Cambridge, England.**
- In 1986, it adopted a moratorium on commercial whaling**. This ban still continues.**
- **In 1994, it created** the Southern Ocean Whale Sanctuary **surrounding the continent of Antarctica. Here, the IWC has banned all types of commercial whaling.**
- Only two such sanctuaries have been designated by IWC till date**. Another is** Indian Ocean Whale Sanctuary **by the tiny island nation of the Seychelles.**
- The IWC meets **annually** and adopts regulations on catch limits, whaling methods and protected areas, on the basis of a three-quarters majority vote.

Legalising Marijuana

Why in news?

- **Thailand** becomes the1st South East Asian nation to legalize medical marijuana and kratom.

Cannabis:

- Cannabis, also known as marijuana among other names, is a **psychoactive drug** from the Cannabis plant **used for medical or recreational purposes.**
- The main psychoactive part of cannabis is tetrahydrocannabinol (THC).
- Cannabis is mostly used for recreation or as a medicinal drug, although it may also be used for spiritual purposes**.**

Tsunami in Indonesia

Why in news?

- On 22nd December 2018, Indonesia was hit by a Tsunami. As the giant tsunami waves crashed into coastal towns on the islands of

Sumatra and Java, at least 281 people were killed and 1,016 were injured.

Cause of the tsunami:

- The Tsunami which Indonesia witnessed on 22nd December is attributed to the **collapse in the west-southwest flank of the Anak Krakatau volcano.**
- The collapse resulted in millions of tonnes of rocky debris plunging into the sea.
- This resulted in the displacement of large volumes of water resulting in Tsunami waves.

Anak Krakatau:

- **Indonesia lies on the Pacific ring of fire**. This makes Indonesia vulnerable to earthquakes. Indonesia also houses 127 active volcanoes and one of these volcanoes is the Anak Krakatau.
- Anak Krakatau is a volcanic island formed in 1927 after the Krakatoa volcano eruption. The Anak Krakatau was erupting from June 2018.
- The authorities have warned that there can be an eruption again and have advised people to stay away from the coast for a while.

About Tsunami:

- Tsunami refers to a series of waves in a water body caused by the displacement of large volume of water, generally in an ocean or large lake.
- **Tsunamis are different from the normal sea waves and tides.**
- Normal waves are generated due to the **wind** and tides are generated due to the **gravitational pull of of the Moon and the Sun**, whereas Tsunami is generated by an **abrupt movement on the ocean floor** due to the triggering points like Earthquakes, volcanic eruptions, underwater explosions, landslides, glacier calving or meteorite impacts.

Restricted Area Permit

Why in new?

- Relaxing the **Restricted Area Permit (RAP)** for foreigners visiting the Andaman and Nicobar Islands had "nothing to do with the killing of U.S. national John Allen Chau, the Ministry of Home Affairs said in a response in Parliament.
- The RAP is mandatory for foreign nationals visiting certain areas, including Andaman and Nicobar Islands.

Background:

- Chau was allegedly killed when he landed on North Sentinel Island in November. According to reports, fishermen who took the U.S. national to the island saw him being hit by arrows allegedly shot by members of Sentinalese tribes inhabiting the island.
- After the incident came to light, some activists raised a question as to why RAP norms to the island, including the North Sentinel Island, were relaxed.
- 30 islets in the Union Territory of Andaman & Nicobar Island, including North Sentinel Island were excluded from the Restricted Area Permit (RAP) regime subject to certain conditions.
- However, separate approvals of the appropriate competent authorities would continue to be required for visiting Reserved Forests, Wildlife sanctuaries and Tribal reserves as is the case at present.

What is Restricted Area Permit (RAP) regime?

- RAP regime was notified **under the Foreigners (Restricted Areas) Order, 1963.**
- Under it, **foreign nationals are not normally allowed to visit protected or restricted area unless Government is satisfied that there are extra-ordinary reasons to justify their visit.**
- Every foreigner, except citizen of Bhutan, who desires to enter and stay in protected or restricted area, is required to obtain special permit from competent authority having power to issue such permits to foreigner, seeking it.
- Citizens of Afghanistan, China and Pakistan and foreign nationals of Pakistani origin are exception and are not allowed to enter such areas.

Who are the Sentinelese?

- The Sentinelese, a negrito tribe who live on the **North Sentinel Island of the Andamans,** have not faced incursions and remain hostile to outsiders.
- The inhabitants are connected to the **Jarawas** on the basis of physical, as well as linguistic similarities, researchers say.

- Based on carbon dating of kitchen middens *(kitchen middens is an old dump for domestic waste which may consist of animal bone, human excrement, botanical material, etc..*) by the Anthropological Survey of India, Sentinelese presence was confirmed in the islands to 2,000 years ago.
- Genome studies indicate that the Andaman tribes could have been on the islands even 30,000 years ago.
- The Govt. of India issued the Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Regulation, 1956 to declare the traditional areas occupied by the tribes as reserves, and prohibited entry of all persons except those with authorisation.
- **Photographing or filming the tribe members is also an offence**. The rules were amended later to enhance penalties. But restricted area permits were relaxed for some islands recently.

Alien species

Why in news?

- A recent study which analysed over 250 tropical and subtropical islands has pointed out that being isolated does not protect islands from alien species.
- Rather, remote islands are more susceptible to alien invasion, be it from plants or mammals, the study found.
- With the increase in anthropogenic activities like trade and transport, the biogeographical borders are broken down and the human-aided introduction of alien species has been on the rise.

Invasive Alien Species:

- Alien species become 'invasive' when they are introduced deliberately or accidentally outside their natural areas, where they out-compete the native species and upset the ecological balance.
- Invasive animal species pose a threat to biodiversity and human well-being.
- Common characteristics of invasive species include rapid reproduction and growth, high dispersal ability, phenotypic plasticity (ability to adapt physiologically to new conditions), and ability to survive on various food types and in a wide range of environmental conditions.
- Invasive alien species have invaded and affected native biota in almost every ecosystem type on Earth, and have affected all major taxonomic groups.
- In economic terms, the costs of invasive alien species are significant. Total annual costs, including losses to crops, pastures and forests, as well as environmental damages and control costs, have been conservatively estimated to be in the hundreds of billions of dollars and possibly more than one trillion.
- This does not include valuation of species extinctions, losses in biodiversity, ecosystem services and aesthetics.

Subhash Chandra Bose Aapda Prabandhan Puraskar

Why in news?

- The Government of India invites nominations for the "Subhash Chandra Bose Aapda Prabandhan Puraskar" for excellence in the **field of disaster management.**
- The winners will be declared on 23rd January 2019, on the occasion of the birth anniversary of Netaji Subhash Chandra Bose.

About the award:

- Three eligible institutions and individuals will be given the 'Subhash Chandra Bose Aapda Prabandhan Puraskaar' every year with cash rewards ranging from Rs 5 lakh to Rs 51 lakh.
- If the **awardee is an institution**, it will be given a **certificate and a cash prize** of Rs 51 lakh and the prize money will be utilised for disaster management-related activities only.
- If the **awardee is an individual**, the person shall receive a **certificate and a cash prize of Rs 5 lakh.**
- An application by an institution does not debar any individual from that institution to apply for the award in his individual capacity.

Eligibility:

- **Only Indian nationals and Indian institutions can apply for the award.**
- For institutional awards, voluntary organisations, corporate entities, academic, research institutions, response, uniformed forces or any other institution may apply for the award.

- The applicant must have worked in the area of disaster management like prevention, mitigation, preparedness, rescue, response, relief, rehabilitation, research, innovation or early warning related work in India.
- The application must be accompanied by details of the work done in disaster management and must highlight achievements in any one or more of the areas like saving human lives, reduction in impact of disasters on lives, livestock, livelihoods, property, society, economy, or environment.
- Mobilisation and provision of resources for effective response during disasters, immediate relief work in disaster hit areas and communities, effective and innovative use of technology in any field of disaster management and disaster mitigation initiatives in hazard prone areas are some of the other criteria.

Sikkim's highest forest

Why in news?

- The cold climes on high-altitude mountain tops make it usually difficult for trees to grow above the timberline (the last canopy forests on the mountains).
- Though global warming is changing this in many of the world's high mountains and causing timberlines to move upward, the eastern Himalaya may be an exception.
- The zone of uppermost canopy forests here are unlikely to shift upwards but will get denser, suggests a **study in PLOS ONE.**

Findings:

- Timberlines, the uppermost limit of canopy forests that gradually gives way to the treeline (beyond which trees do not grow) are limited by climate: factors including low temperatures and high winds on mountain tops prevent woody tree growth higher up. **Timberlines**, therefore, serve as **indicators of climate change.**
- To find out if a similar pattern exists in the eastern Himalaya, scientists studied the composition and regeneration of woody trees in the timberline **ecotone (transition zone)** between the timberline and treeline, of **Khangchendzonga National Park.**
- Across nine contiguous sites in the Park, the team studied tree composition in this ecotone which lay between 3,787 and 3,989 metres above sea level. Among the 20 woody tree species they recorded here, the Bhutan fir Abies densa, the woolly rhododendron Rhododendron lanatumand the small-leaf rowan Sorbus microphylla dominated the vegetation.
- Environmental factors such as **elevation, slope and humus played a role in this species composition.**
- The density of trees in the timberline ecotone was significantly higher than that of its western Himalayan counterparts.
- To study regeneration of the dominant timberline species in the ecotone, the researchers recorded seedlings, saplings and trees in this zone.
- Bhutan fir seedlings regenerated well here and elevation (along with humus and slope) played a role in this regeneration too. The zone contained high numbers of seedlings and saplings.
- According to the authors, this indicates that the ecotone could become denser in the near future. However, there were no tree seedlings or saplings beyond the treeline.

2nd Biennial Update Report

Why in news?

- The Union Cabinet chaired by Prime Minister Narendra Modi has approved Submission of India's second Biennial Update Report (BUR) to the United Nations Framework Convention on Climate Change (UNFCCC) towards the fulfilment of the reporting obligation under the Convention.

Background:

- India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC).
- The Convention, in accordance with its Article 4.1 and 12.1, enjoins upon all Parties, **both developed country parties and developing country parties to furnish information, in the form of a national communication regarding the implementation of the convention.**
- The Conference of Parties to the UNFCCC in its sixteenth session decided that developing countries, consistent with their capabilities and the level of support provided for reporting, should also submit biennial update reports containing updates of national greenhouse gas inventories and information on mitigation actions, needs and support received.

Key Features of second BUR:

- The **second biennial update report aims to provide an update to India's first biennial report to the United Nation's body on climate change.**
- The report contains **five major components** including national circumstances, national greenhouse gas inventory, mitigation actions, finance, technology and capacity building needs and support received and domestic monitoring, reporting and verification arrangements.
- The report has been prepared based on a range of studies conducted at the national level. It has undergone a multitier review process, through peer review, review by Technical Advisory Committee of Experts chaired by Additional Secretary (Climate Change) and by National Steering Committee chaired by Secretary.
- The biennial report was finalised after addressing all the relevant comments and modifications as per the multi-tier review process.

INDC- India's proposed targets:

- Reduce emissions intensity **of its GDP by 33 to 35% by 2030 from 2005 level.**
- Achieve about 40% electric power installed capacity from non-fossil fuel based energy resources **by 2030 with help of transfer of technology and low cost international finance.**
- Create an additional carbon sink **of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.**

About UNFCCC:

- The UNFCCC was adopted in 1992 at the Rio Earth Summit**, which marked the beginning of the international community's first concerted effort to confront the problem of climate change.**
- Known also as the Rio Convention**, the UNFCCC established a framework for action to stabilise concentrations of** greenhouse gases in the earth's atmosphere**.**
- **The UNFCCC entered into force in 1994, and nearly all of the world's nations a total of 195—have now signed on.**

Culture

Atal Bihari Vajpayee

What's in news?

- The government has released a commemorative Rs.100 coin with the image of the former Prime Minister.
- 'Sadaiv Atal', a Samadhi was built by the government with funds from the Atal Smriti Nyas Society.

About

- Atal Bihari Vajpayee was a writer, poet and best known for his oratorical skills.
- Vajpayee was elected as the Prime Minister of India twice in 1996 and 1999
- He was awarded the Padma Vibushan in 1992 and Bharat Ratna in 2014.
- Some of the achievements during his tenure are Pokhran 2 nuclear test, peace process with Pakistan by introducing Delhi-Lahore bus service.
- Kargil war (1999), 2001 parliament attack and Gujarat riots (2002) were some of the lows during his tenure.
- Important schemes introduced during his tenure are National highway Development Project, Pradhan Mantri Gram Sadak Yojana and Sarva Shiksha Abhiyan

Madan Mohan Malaviya

About

- Pandit Madan Mohan Malaviya was an Indian scholar, educational reformer, and a leader of the Indian nationalist movement. He was also called as Mahamana (*one which has purest/greatest of thoughts*).
- He became the Indian National Congress President four times.
- Malaviya also served on the Imperial Legislative Council (1909–20).
- He was the principal founder in 1916 of the Banaras Hindu University in Varanasi. He was also the founder of Hindu Mahasabha.
- He also founded a highly influential, English-newspaper, The Leader.
- Abhyudaya, hindi weekly and Maryada, hindi monthly was launched by him.
- In 2014, he was awarded the Bharat Ratna.

Why in news?

- The Prime Minister of India paid tributes to Madan Mohan Malaviya on his death anniversary on 25th December.

Sri Satguru Ram Singhji

About Sri Satguru Ram Singhji

- Sri Satguru Ram Singh was a great spiritual guru, a thinker, a seer, philosopher, social reformer, and a freedom fighter
- The birth (Prakash) of Satguru Ram Singhji took place in 1816 in village Raiyan in district of Ludhiana in Punjab
- He spearheaded the Namdhari sect to free the country.
- He started Kuka Movement and advocated boycott of the British merchandise and services.
- The Satguru was a great social reformer and preached against killing the girl child in infancy and stood firmly against the Sati Pratha and urged people to remarry the widow to maintain her status in the society.
- He started a new mass marriage system wherein the marriages were performed by spending a rupee and twenty five paisa only.
- The dowry was totally banned in any kind.

Namdhari sect

- Namdhari also called as kuka is a sect within Sikhism
- The Namdhari movement was founded by Balak Singh. He did not believe in any religious ritual other than the repetition of God's name
- Ram Singh was his successor and introduced the sect's distinctive style of wearing the turban and of dressing only in clothing made from white handwoven cloth.
- Under Ram Singh's leadership, the Namdharis sought a resurgence of Sikh rule in the Punjab.
- They launched a civil disobedience movement against British called Kuka Movement.
- A group of 66 Namdhari Sikhs were blown up by a canon in 1872 for protesting against the British and Ram Singh was exiled to Rangoon, Burma.
- Namdharis are different from the Sikh faith in following a living guru, vegetarianism, a distinct white dress code and turbans.

Kuka movement

- The Kuka Movement marked the first major reaction of the people in the Punjab

to the new political order initiated by the British after 1849.

- It aimed at overthrowing the British rule.
- The Namdharis were also known as "Kukas" because of their trademark style of reciting the Gurbani"
- This style was in a high-pitched voice called "Kook" in Punjabi. Thus, the Namdharis were also called "Kukas".
- Baba Ram Singh became a secular chief of Kukas.
- The Kuka Movement made the people aware of their serfdom and bondage.
- It evoked the feelings of self-respect and sacrifice for the country.
- The Kuka followers actively propagated the civil disobedience.

Why in news?

- An international seminar was organised by the Ministry of Culture to commemorate the 200th birth anniversary of Sri Satguru Ram Singhji

Buddhist site museum at Lalitgiri

About Lalitgiri

- Lalitgiri is one of the earliest Buddhist settlements in Odisha where many ancient seals and inscriptions have been found.
- The remains of four monasteries, from post-Mauryan period till 13th century have been found.
- Caskets with the relics of Buddha have been found.
- The central gallery is designed after a Buddha Mandala with a colossal Buddha image at the centre and six Bodhisattva images surrounding it.
- Lalitgiri is part of a diamond triangle of Buddhism in Odisha along with Ratnagiri and Udaygiri.

Why in news?

- The Prime Minister has opened Buddhist site museum at Lalitgiri, Odisha.

Miscellaneous

Solo trek across Antarctica

What's in news?

- An American, Colin O'Brady crossed the entire Antarctica coast to coast covering nearly 1600km in 54 days.
- He is the first person to complete a solo trek across Antarctica without assistance of any kind.
- Borge Ousland, a Norwegian polar explorer made the first solo crossing of Antarctica but he was wind-aided by kites on his voyage in 1996-97.
- Lieutenant Colonel Henry Worsley, an English army officer died while trying to complete an unassisted solo crossing of Antarctica in 2016.

Bogibeel Bridge

About the bridge

- The 4.94km double-decker Bogibeel bridge has two railway lines on the lower deck and a three-lane road on the upper deck.
- It will connect Dibrugarh and Dhemaji.
- It is the fourth rail-road bridge being built on the Brahmaptra. Others are Pandu Saraighat, Kolia-Bjumuraguri and Narayan Setu.
- The Bogibeel bridge project was a part of the 1985 Assam Accord and was sanctioned in 1997-98.
- The bridge will also link two existing National Highways – NH-37 on the South Bank and NH-52 on the North Bank.
- The country's longest road bridge, the Bhupen Hazarika Bridge at Sadia in Assam was opened in 2017.

Features

- The Bogibeel Bridge, which will have a serviceable period of around 120 years, is India's only fully welded bridge adhering to European welding standards for the first time in the country.
- The structure is India's first fully-welded bridge, which will protect it from harsh weather.
- It does not have any nut or bolt which require periodic replacement.
- The bridge has seismic restrainers that can withstand earthquakes of 7 magnitudes.

Challenges

- There was difficulty in finding welders who were qualified as per European codes and welding standards.
- The skilled manpower had to be convinced to work in hostile conditions of Upper Assam.

Outcome

- The most significant beneficiary will be the Army and the bridge will help in quicker supply of logistical support from Assam to their posts at Kibithoo, Wallong, and Chaglagam on the Arunachal-China border.
- It will help reduce the distance between Assam and Arunachal Pradesh by 600 km and travel time by 4 hours.

99-year-old man trekked Himalayas

What's in news?

- Chitran Namboodirippad, a 99 year old resident of Kerala trekked in the Himalayas for the 29th time.
- He is planning to make his 30th trek to Himalayas in 2019 when he will be 100 years old.
- He is a former Additional Director of the Kerala Education Department and National Award-winning educationist

PM's chartered flights cost

What's in news?

- Prime Minister Narendra Modi has made 48 foreign trips since the time he assumed office in 2014.
- Rs. 429.28 crore is the bill for chartered flights with three bills still not received for trips to Nepal, Rwanda, Uganda and South Africa and Maldives.
- Former Prime Minister Dr. Manmohan Singh has made 38 trips during his tenure costing Rs. 493.22 crore. But Modi would surpass it as three bills are yet to be received.
- Aircraft maintenance during Modi's tenure cost Rs. 1574.18 whereas during Manmohan's tenure it costed Rs.842.6 crore.

News in-depth

General Studies-1

Water woes

Introduction:

- The BJP's poor performance in the recent Assembly elections underscores the extent of India's agrarian distress and the political cost of failing to address it.
- The root cause of the Indian farmer's woes is water shortage. Yet, barring policy interventions, this problem will only worsen to the point that, it will become far more serious than a mere political liability.

India's looming water crisis:

- Earlier this year, a sobering NITI Aayog report laid bare the seriousness of India's water crisis: 600 million people face acute water shortage and 200,000 die each year because they have no access to clean water.
- By 2020, 21 cities will run out of groundwater. Just over a decade from now, water woes could cause a 6% loss in GDP.
- India can't afford to ignore its water crisis. Neither can South Asia or the world.
- Water scarcity is a clear and present danger, not a distant threat, and global warming heightens this threat.
- This month, international researchers from the U.S. and South and Central Asia released new research on major river basins at the Woodrow Wilson Centre in Washington.
- Their findings reveal that snowmelt accounts for nearly three-quarters of the water in two of India's key basins, the Brahmaputra and Indus and nearly half of the water in the Ganga, the country's largest river basin.
- In the coming years, global warming will lead to higher temperatures and less snow, resulting in dramatic supply reductions in key Indian water lifelines.
- With rising demand for and consumption of water, and longstanding mismanagement of precious existing resources, fuelled by state failures to embrace water-saving technologies, the implications for economic growth and public health are high.
- The water crisis is not just a domestic problem. Pakistan and China face similar water woes.
- Increasing water stress heightens prospects for hydro-related tensions and conflict, particularly given the absence of robust trans-boundary water agreements. The exception is the Indus Waters Treaty; yet that arrangement too has come under increasing strain.

Solution to water crisis:

- Mandatory tree plantations.
- Making Rainwater Harvesting compulsory for all the buildings.
- Setting up plants to recycle water across all the cities in the country.
- Central and state governments should empower local groups with knowledge, understanding, and real-time information on the status of groundwater so as to manage extraction in a cooperative way.
- The government should strengthen state pollution control boards to enforce effluent standards. The technical and human resources currently available to the boards are inadequate to effectively monitor activities, enforce regulations, and convict violators.
- A rational water pricing policy impacting uncontrolled wastage of water.
- Water free urinals at least in cities.

Conclusion:

- Today, with India in campaign mode due to upcoming Lok Sabha election, the issue of water scarcity will also play an important role in shaping the electoral behaviour of our citizens.
- When water becomes a more serious concern, it will be impossible to ignore, not just as an election issue, but as an existential issue.

Gandhi and the audacity of hope

Introduction:

- A sharp symmetry between violence and non-violence has surfaced this year in the murder of Saudi Arabian dissident journalist Jamal Khashoggi on Mahatma Gandhi's 149th birth anniversary, i.e. October 2.
- The United Nations has named this day as the International Day of Non-Violence.
- That is the day when over a dozen men were reportedly flown from Riyadh to Istanbul to kill one journalist.
- Khashoggi's killers reportedly dissolved his body parts in acid. The mode of killing, the venue and the manner in which the journalist's body was disposed of mark a new normal in the history of violence.

An ignored synchronicity:

- If suppressing a writer's voice was the motive of the killing, its success and the reluctant response it received are worthy of inclusion in the records of modernity.
- India which is a country, known for upholding democracy and human rights value, chose to remain silent on the issue because of its business interests with Saudi.

Gandhi's relevance:

- Gandhi's Hind Swaraj portrays the omnipresent culture of violence that propels the pursuit of material prosperity at the expense of human bonds and dignity.
- From Gandhi's point of view, we are in a mess of our own making. Our hatred for rural distress and alienation from vernacular life are silently catching up with us as a nation and causing violence through different channels.
- Politics is one such channel where hatred and bigotry (intolerance towards those who hold different opinions from oneself) have now gained social sanction.

Conclusion:

- As Mahatma Gandhi said, "I object violence because when it appears to do good, the good it does is only temporary and the evil it does is permanent".
- Killing of a human by any nation to silence the opinion is a direct threat to humanity and has to be condemned at all cost.

Many miles to Mecca

Introduction:

- The Central government has proposed to ferry (*A ferry is a merchant vessel used to carry passengers, and sometimes vehicles and cargo, across a body of water*) the Haj pilgrims between Mumbai and Jeddah *(a Saudi Arabian port city on the Red Sea).*
- This move of the government has received a negative response from the Haj pilgrimages, as the Haj subsidy was also stopped recently.

About Haj Subsidy:

- The Haj subsidy was a subsidy that was given to Indian Muslim Hajj pilgrims by the Government of India in form of **discounted Air fares** on Indian Government owned Air India.
- The program has its origins in British colonial era. In post-colonial era, the Government of India expanded the program in 1959 with the Hajj Act.
- In May 2012, the Supreme Court of India, ordered the government to end the practice by 2022."We direct the Central government to progressively reduce the amount of subsidy so as to completely eliminate it within a period of 10 years from today".
- On 16 January 2018, Union minister for minority affairs said that the Hajj subsidy has been completely taken off (Rs 700crore) and this amount will be made used for educational purposes of the children belonging to minority.

The Existing Arrangement :

- The current arrangement for the Haj pilgrimage by the Haj Committee of India has worked well ever since sea voyages were phased out in 1995 and the Haj administration was decentralised. Flights from 21 cities in India take pilgrims to Jeddah in 6-8 hours.
- Pilgrims have to spend a maximum of six days in and around Mecca to carry out the core rituals of the Haj. Most pilgrims also stay for 10 days in Medina, the Prophet's adopted city. The Haj Committee schedule stretches across 40 days.

Why opposition to the ferry service?

- According to the new proposal, since the voyage is going to be from Mumbai, pilgrims have to travel to Mumbai from their point of origin.
- The most modern vessels travel at a speed of 20 nautical miles an hour. Given this speed, the journey between Mumbai and

Jeddah (2,400 nautical miles) would require at least five days, if weather conditions are favourable. Unfavourable weather conditions will prolong the duration of the journey further.

Way forward

- The authorities need to assess the cumbersome formalities involved in introducing sea voyages.
- In Malaysia and Indonesia, Haj Boards mobilise savings, invest them in profitable ventures, constantly add dividends to deposits, and charter flights through open bidding.
- Such measures could be thought of as alternatives to sea travel, which has outlived its utility.

Trolls are still winning

Introduction:

- Officially, Twitter has strong rules against abuse and hate speech on its platform, yet nothing much seems to happen once the abuse has been reported. The attacks continue, and victims are silenced.
- In March 2018, Amnesty International released a report titled 'Toxic Twitter'. Based on research conducted over a 16-month period, it concluded that Twitter was failing in its responsibility to protect the users.

Toxic Twitter report:

- The report says that women from ethnic or religious minorities, lesbian, bisexual or transgender women as well as non-binary individuals and women with disabilities are the most affected by the online violence and abuse.
- Black women were 84% more likely than white women to be the target of an abusive or problematic tweet.
- The report says that there is lack of effective deterrence on Twitter against abuse of vulnerable groups in general and women in particular.
- As a response to these findings, in its latest Transparency Report, covering January to June 2018, Twitter revealed that around 6.2 million 'unique' accounts were reported for possible violations of its rules.
- Of these, 2.8 million were reported for abuse, nearly 2.7 million for hate speech, and about 1.3 million for violent threats. These are mind-boggling numbers.
- Twitter claims to have acted against 250,000 accounts for abuse, 285,000 for hate speech, and nearly 43,000 for violent threats.
- These numbers are however, just a fraction of the millions that it says were reported. Does this then mean that most of the complaints of abuse, hate speech and threats were false? Twitter offers no credible explanation for the enormous gap between the number of reported accounts and the number of accounts against which action was taken.

Conclusion:

- This gives us the view that Twitter has good intentions but is genuinely clueless.
- If that is the case, it should heed Amnesty's recommendation to share with the public the raw data on its content moderation and rule enforcement processes, so that users can see for themselves the chain of actions, if any, set off by their complaints.
- That is the least it can do to reassure the public that their complaints are taken seriously, and that the platform is doing its best to offer a safe space for women and vulnerable groups.

Sex workers, lawyers seek to amend language of anti-trafficking Bill

Introduction:

- The National Network of Sex Workers (NNSW) has raised concerns over the Trafficking of Persons (Prevention, Protection and Rehabilitation), 2018, Bill.
- The proposed law aims to criminalise all adult sex work.
- It doesn't make any clear distinction between the victims of sexual exploitation or human trafficking and persons who voluntarily opt to provide sex to make a living.

Trafficking of Persons (Prevention, Protection and Rehabilitation) Bill, 2018:

- It takes into consideration **aggravated forms of trafficking**.
- It includes trafficking for purpose of forced labour, begging, trafficking of a woman or child for the purpose of marriage or under the pretext of marriage or after marriage, trafficking by administering chemical substance or hormones on a person for the purpose of early sexual maturity etc

- It prescribes **punishment for promoting and facilitating trafficking** of person. It includes producing, printing, issuing or distributing unissued, tampered or fake certificates, registration or stickers as proof of compliance with Government requirements, or commits fraud for procuring or facilitating acquisition of clearances and necessary documents from Government agencies.
- It deals with **confidentiality of victims and witnesses** and complainants by not disclosing their identity. It will be maintained by recording their statement through video conferencing (it will help trans-border and inter-State crimes).
- It has provision for **time bound trial and repatriation of the victims**. It will be within a period of 1 year from taking into cognizance. It provides immediate protection of rescued victims and their rehabilitation. The victims will be entitled to interim relief immediately within 30 days to address their physical, mental trauma etc. and further appropriate relief within 60 days from the date of filing of charge sheet.
- It creates **Rehabilitation Fund** for the first time. It will be used for physical, psychological and social well-being of victim including education, skill development, health care and psychological support, legal aid, safe accommodation etc. It mandates designation of courts in each district for the speedy trial of the cases.
- It creates **dedicated institutional mechanisms** at District, State and Central level. They will be responsible for prevention, protection, investigation and rehabilitation work related to trafficking. The tasks of Anti-Trafficking Bureau at the national level will be performed by National Investigation Agency (NIA).
- The **punishment prescribed** under it ranges from rigorous minimum 10 years to life and fine not less than Rs. 1 lakh. In order to break the organized nexus, both at national and international level, it mandates for attachment & forfeiture of property and also proceeds for crime.
- It comprehensively addresses **transnational nature of the crime**. It entrusts National Anti-Trafficking Bureau (NATB) to perform functions of international coordination with authorities in foreign countries and international organizations.
- **State Anti-Trafficking Officers:** The Bill mandates state government to appoint State Nodal Officer. The officer will be responsible for follow up action as per provisions of Bill and as per instructions of State Anti-Trafficking Committee and provide relief and rehabilitation services. It also mandates state government to appoint Police Nodal Officer at state and district levels. The state government will also designate Anti-Trafficking Police Officers for each district to deal with all matters related to trafficking in the district.
- **Anti-Trafficking Units:** The Bill provides setting up of Anti-Trafficking Units (ATUs) at district level. They will deal with prevention, rescue and protection of victims and witnesses and for investigation and prosecution of trafficking offences. In districts where ATU is not functional, this responsibility will be taken up by local police station.
- **Anti-Trafficking Relief and Rehabilitation Committee:** The Bill provides for establishment of these committees (ATCs) at all three levels viz. national, state, and district levels. These committees will be responsible for providing compensation, repatriation and re-integration of victims in society, among others.
- **Search and rescue:** The Bill empowers Anti-Trafficking Police Officer or ATU to rescue persons, if they are in imminent danger. They will be produced before Child Welfare Committee or Magistrate for medical examination. The district ATC will provide relief and rehabilitation services to rescued persons.
- **Penalties:** The Bill specifies penalties for various offences including for promoting trafficking, trafficking of persons, disclosing identity of victim and aggravated trafficking such as trafficking for bonded labour and begging. For trafficking it prescribes rigorous imprisonment of 10 years up to life imprisonment, along with minimum fine of Rs. 1 lakh. For publishing of any material it prescribes imprisonment between 5 to 10 years, and fine between Rs 50,000 to Rs.1 lakh.

Concerns of the sex workers:

- Voluntary adult sex work is not illegal in India under certain circumstances, such as when a woman provides the service in her own home without any solicitation.
- The primary law on trafficking for the purpose of sexual exploitation, the Immoral Traffic (Prevention) Act (ITPA), 1986, punishes offences including procuring a person for the purpose of prostitution, living on the earnings of prostitution of another person and keeping or using a brothel.
- But enforcement agencies often conflate trafficking with voluntary sex work and abuse the provisions of the law to evict sex workers from their houses.
- It is this experience that has stoked fears among sex workers about the new Bill, which is aimed at curbing "physical and other forms of trafficking"; they are urging lawmakers to revisit the language used in the Bill and to ensure that the legislation provides built-in safeguards.
- Sex workers also demand that the consent of a person rescued from trafficking should be a mandatory requirement before a decision is taken to send him or her to a rehabilitation centre. Clause 4 in Section 17 of the Bill, which allows the dismissal of a victim's application for release "if the Magistrate is of the opinion that such application has not been made voluntarily" has been viewed as a denial of the right to liberty.
- The Bill also doesn't provide a mechanism to ensure monitoring and accountability of shelter homes or revocation of licences or punishment for those running the centres in case of non-compliance.

Way forward:

- The country's largest red-light district of Shonagachi in West Bengal where a self-regulatory body of sex workers work along with the anti-trafficking activists since 2001 helps in tracking entry of minors and in identifying traffickers has been successful in combating trafficking in those area.
- Such models can be adopted and wider consultation with the sex workers and the activists will go a long way in successful implementation of the true intention of the bill.

30 mn newborns cry out for help

Introduction:

- According to UNICEF-WHO report "**SURVIVE and THRIVE Transforming care for every small and sick newborn**", India witnesses 25.4 newborn deaths per 1000 births.

Major Findings of the Report:

- India witnesses **25.4 newborn deaths per 1,000 births and 64 million annually**. The Sustainable Development Goal for neonatal deaths (death during the first 28 days of life) requires all countries to bring down the figure to 12 deaths or less per 1,000 births by 2030.
- It points out that nearly 2.5 million newborns died during the first 28 days of life in 2017, of which approximately 80% had low birth weight and more than 65% were born prematurely.
- An additional **5 million small and sick newborns survive each year, with a long-term disability**, including cerebral palsy and cognitive delays.
- **Newborns who are born too soon or too small, or who become sick, are at the greatest risk of death** and disability.
- The **family members of small and sick newborns are at high risk of long-term psychological and financial problems**. These, in turn, can have additional detrimental effects on a newborn's developmental, social and cognitive growth.
- Neonatal mortality rates (NMRs) vary significantly between countries, from 1 to 44 deaths per 1000 live births. **Almost all neonatal deaths (98%) occur in low and middle-income countries**, with 78% in Southern Asia and sub-Saharan Africa. A newborn's chances of surviving and thriving largely depend on where she or he is born.

- It underlines that universal access to quality care could prevent 1.7 million neonatal deaths, or 68% of the deaths that will otherwise occur in 2030
- Low and middle income countries will be able to avert two out of three neonatal deaths by 2030 if they increase investment by $0.20 per capita.

Challenges:

- The challenges facing small and sick newborns and their families include scarce services, barriers to care-seeking (such as a lack of awareness, transportation or finances) and discrimination.
- The right to survive and thrive – Articles 6 and 24 of the **Convention on the Rights of the Child** (CRC) emphasize the right of every newborn to the highest attainable standard of health and health care.
- Unfortunately, these rights are not respected or protected in far too many places. This is particularly true for the most at-risk newborns and for those who are members of marginalized groups or living in crisis or conflict settings
- The SDG target to end preventable neonatal deaths obliges all countries to reduce the neonatal mortality rate to 12 deaths or less per 1000 live births by 2030. It is an essential part of SDG 3 (to ensure healthy lives and promote wellbeing for all at all ages). Unfortunately, some countries are currently making little progress to meet this target.

To save newborns, the report recommends:

- Providing round-the-clock inpatient care for newborns seven days a week.
- Training nurses to provide hands-on care working in partnership with families.
- Harnessing the power of parents and families by teaching them how to become expert caregivers and care for their babies, which can reduce stress, help babies gain weight and allow their brains to develop properly.
- Providing good quality of care should be a part of a country's policies, and a lifelong investment for those who are born small or sick.

General Studies-2

The case against surveillance

Introduction:

- The Ministry of Home Affairs (MHA) notification authorising 10 Central agencies(including RAW,CBI and CBDT) to intercept, monitor, and decrypt online communications and data, has caused resentment in both Parliament and the wider civil society.
- The notification was described as an incremental step towards a surveillance state.
- The government responded that the notification created no new powers of surveillance. It was only issued under the sec 69A Information Technology Rules,2009.

What is Section 69A of Information Technology Act,2000?

- It which empowers the Central Government/State Government/its authorized agency to intercept, monitor or decrypt any information generated, transmitted, received or stored in any computer resource **if it is necessary or expedient (***expedient is an action convenient and practical although possibly improper or immoral***) to do so in the interest of the sovereignty or integrity of India.**

Why sec 69 A is violative of Right to privacy?

- The nine-judge bench in **K.S. Puttaswamy** declared that there is a fundamental right to privacy flowing from inter alia Articles 19 and 21 of the Constitution.
- Sec 69A has potential to be used against Freedom of speech and expression, as it allows mass surveillance.
- It is considered to be against the principle of natural justice.
- *Natural justice is identified with the two constituents : the rule against bias and the right of fair hearing.*

Why is the notification a cause of concern?

- The first reason is that the rules are **complex and confusing**: The telephone surveillance is sanctioned under the 1885 Telegraph Act, while electronic surveillance is authorised under the 2000 Information Technology Act.
- The procedure in both cases is broadly similar, and flows from a **1997 Supreme Court judgment: surveillance requests have to be signed off by an official who is at least at the level of a Joint Secretary.** How these rules are going to be implemented is still not known.
- Second, the **procedure is highly bureaucratised**. Decisions about surveillance are taken by the executive branch (including the review process), with no parliamentary or judicial supervision.
- Indeed, the fact that an individual will almost never know that he/she is being under surveillance means that finding out about surveillance, and then challenging it before a court, is a near-impossibility.
- Third, **the surveillance regime is vague, ambiguous and opaque**. There is almost no information available about the bases on which surveillance decisions are taken, and how the legal standards are applied.

Way forward:

- There is little doubt that on the three counts described above its bureaucratic character, its vagueness, and its opacity the existing surveillance framework is unconstitutional, and must be reconsidered.
- Proper checks and balance to ensure that surveillance for national security does not extend to the extent of encroaching the fundamental right has to be ensured.

A solution in search of a problem

Introduction:

- NITI Aayog in its 'Strategy for New India@75', mooted the creation of an All India Judicial Service (AIJS) for making appointments to the lower judiciary through an all India judicial services examination conducted by the Union Public Service Commission (UPSC) in order to maintain "high standards" in the judiciary.
- But will the creation of All India Judicial Service (AIJS) solve all the problem is an issue that needs to analysed.

What is the history of All-India Judicial Services (AIJS)?

- The proposal for an All-India Judicial Service (AIJS) in lines of All-India Services was proposed as early as 1950.

- The **idea was first mooted by the Law Commission in the 1950s** to have an All-India Judicial Services.
- The **Constitution of India was amended in 1977** to provide for an All-India Judicial Services under Article 312.
- The **Chief Justices conferences in 1961, 1963, and 1965 favoured** creation of All-India Judicial Services and even the Law Commissions (1st, 8th and 11th, 116th) had suggested the creation of the service.
- However, each time it was faced with opposition. The proposal was again floated by the ruling UPA government in **2012** but the draft bill was done away with after **opposition from High Court Chief Justices who labelled this an infringement of their rights.**
- Most recently, the Central Government after holding a meeting presided over by the Law Minister Ravi Shankar Prasad had sought the advice of its two top law officers – Attorney General Mukul Rohtagi and Solicitor General Ranjit Kumar – on the question of constituting All-India Judicial Services just on the lines of All-India Civil Services.

What is the proposal for selection into AIJS?

- Under this, the **district judges will be recruited centrally through an all-India examination**.
- They will then be **allocated to each State along the lines of the All-India Services**.

Arguments in favour of All-India Judicial Services:

- **Efficiency and efficacy** of judiciary would be increased.
- **Transparent and efficient method** of recruitment would be followed.
- The pendency and issue of **delay of cases would be done away** with.
- **Corruption, nepotism etc would be strongly dealt with**.
- Best legal talent across the country would be selected on the **basis of merit**.
- **Public faith** in the judiciary would be restored.
- The Supreme Court is not averse to the idea of AIJS as in its 2 judgments of 1991 and1993 it supported the idea of AIJS.

Arguments against All-India Judicial Services:

- There will be an **issue of local laws differences**.
- **Local languages and dialects** would be a problem.
- **Nine High courts are against this proposal** and hence disapproving this proposal.
- **The conflict between Centre and State** would start.
- The status of **legal education in India is very much mismanaged**. Except for a few national law schools, others do not prioritize the legal education too much. Law is taken as the last report who do not get into medicine, IITs etc.
- **Unremunerative pay** is a big issue. Despite an effort by the Supreme Court to ensure uniformity in pay scales across States in the All India Judges' Association case, it is still very low.
- Also, the **judiciary has fewer avenues for growth**, promotion and limited avenues for career advancement.
- There is **low district judge representation in the High Courts**, as less than a third of seats in the High Courts are filled by judges from the district cadre. The rest are appointed directly from the Bar.
- It will be **difficult for the less privileged background to enter the profession**.
- Again, **coaching institutes** would flourish and **education would be commercialized**.
- Currently, the judges of subordinate courts are appointed by the governor in consultation with the High Court which will not be so if AIJS is implemented. Hence it **will be against the Independence of Judiciary as some other body will have a control in appointment and integration** because in the judiciary, higher level controls and evaluates lower level.
- Both the decentralized approach of each High Court conducting its own appointment and a centralized one seem to have roughly the same efficacy in filling up the vacancy.

Conclusion:

- The lower judiciary was created to ensure that people get justice at the grass root level. Centralisation of the service will not serve the purpose. Instead a common exam or eligibility test can be conducted to ensure efficiency.

Implementing NOTA in the right spirit

Introduction:

- In the ***People's Union For Civil Liberties v. Union Of India*** (September 27, 2013), the Supreme Court had ruled that a None of the Above (NOTA) option "may be provided in EVMs" so that voters are able to exercise their "right not to vote while maintaining their right of secrecy".
- Further, on October 29, 2013, the Election Commission of India (ECI) said that if a situation arose where the number of NOTA votes exceeded the number of votes polled by any of the candidates, the candidate with the highest number of votes would be declared winner. This, it said, was in accordance with Rule 64 of the Conduct of Elections Rules, 1961.
- Experts opine that this provision made the NOTA option almost redundant.
- While it ensured confidentiality for a voter who did not want to choose any of the candidates and yet wished to exercise her franchise, the provision clarified that a NOTA vote would not have any impact on the election result.

What the court intended:

- The ECI seemed to have completely overlooked the spirit of the judgment,: "For democracy to survive, it is essential that the best available men should be chosen as people's representatives."
- This can be best achieved through men of high moral and ethical values, who win the elections on a positive vote.
- Thus, in a vibrant democracy, the voter must be given an opportunity to choose NOTA, which will compel the political parties to nominate a sound candidate.
- The political parties will realize that a large number of people are expressing their disapproval with the candidates, there will be a systemic change and the political parties will be forced to accept the will of the people and field candidates who are known for their integrity.

Two reasoned orders:

- **The State Election Commission (SEC) of Maharashtra** was the first to understand the spirit of the judgment. It issued a reasoned order on June 13,2018 saying, "If it is noticed while counting, that NOTA has received highest number of valid votes, then the said election for that particular seat shall be countermanded and fresh elections shall be held for such post."
- This was commendable, but it stopped short of giving NOTA the teeth that the court wanted. It meant that the same candidates could contest the new election, which meant that the result could be the same as earlier.
- **The SEC of Haryana**, in an order dated November 22,2018, stated that if "all the contesting candidates individually receive lesser votes than NOTA," then not only would "none of the contesting candidates be declared as elected," but "all such contesting candidates who secured less votes than NOTA shall not be eligible to re-file the nomination/contest the re-election."

Does SEC have the power to do so?

The two SECs are within the ambit of the Constitution and various Supreme Court judgments to issue these orders for various reasons:

- They have powers identical to the ECI for elections that take place in their jurisdictions.
- They have plenary powers to issue directions in areas related to the conduct of elections where there is no specific legislation, till such time as Parliament or the State Assembly enacts such legislation.
- And there is no specific legislation pertaining to NOTA.

Way forward:

- With two SECs showing the way, the remaining SECs and the ECI should follow suit so that political parties are compelled to nominate sound candidates, and are forced to accept the will of the people, as desired by the highest court in the land.

Being a good neighbour

Introduction:

- **If South Asia is one of the world's least integrated regions, India is one of the world's least regionally-integrated major powers**.
- While there indeed are structural impediments (posed by both India and its neighbours) in fostering regional integration, the most significant handicap is New Delhi's ideational(*referring to ideas or thoughts*) disinclination towards its neighbourhood.

- Seldom have India's policies displayed a sense of belonging to the region or a desire to work with the neighbourhood for greater integration and cooperation.
- Today, we have become even more transactional, impatient and small-minded towards our neighbourhood which has, as a result, restricted our space in the regional geopolitical scheme of things.

At a critical juncture:

- India's neighbourhood policy is at a critical juncture: while its past policies have ensured a steady decline in its influence and goodwill in the region, the persistent absence of a coherent and well-planned regional policy will most definitely ensure that it eventually slips out of India's sphere of influence.
- India's foreign policy planners therefore need to reimagine the country's neighbourhood policy before it is too late.
- The Narendra Modi government's neighbourhood policy began exceptionally well with Mr. Modi reaching out to the regional capitals and making grand foreign policy commitments.
- But almost immediately, it seemed to lose a sense of diplomatic balance, for instance, when it tried to interfere with the Constitution-making process in Nepal and was accused of trying to influence electoral outcomes in Sri Lanka.
- While India's refugee policy went against its own traditional practices, it was found severely wanting on the Rohingya question, and seemed clueless on how to deal with the political crisis in the Maldives.
- But towards the end of the year 2018 some positive developments has happened, which includes pro-India government in Maldives, Sri Lanka and the countries like Nepal, Bhutan and Bangladesh has moved closer to India.
- What this then means is that New Delhi has a real opportunity today to recalibrate its neighbourhood relations.

Lessons from the past:

- First, while dealing with the sensitive neighbourhood, India must shed its aggression and deal with tricky situations with far more diplomatic way.
- Second, it must be kept in mind that meddling in the domestic politics of neighbour countries is a recipe for disaster.
- Third, New Delhi must not fail to follow up on its promises to its neighbours.
- Fourth, there is no point in competing with China where China is at an advantage over India. This is especially true of regional infrastructure projects.

Looking for convergence:

- Finally, while reimagining its neighbourhood policy, New Delhi must also look for convergence of interests with China in the Southern Asian region spanning from Afghanistan to Nepal to Sri Lanka.
- There are several possible areas of convergence, including counter terrorism, regional trade and infrastructure development.
- China and India's engagement of the South Asian region needn't be based on zero-sum calculations. For example, any non-military infrastructure constructed by China in the region can also be beneficial to India while it trades with those countries.
- A road or a rail line built by China in Bangladesh or Nepal can be used by India in trading with those countries.

Way forward:

- There needs to be better regional trading arrangements. The reason why South Asia is the least integrated region in the world is because the economic linkages are shockingly weak among the countries of the region.
- India's border States have the capacity to engage in trading arrangements with neighbouring counties. This should be made easier by the government by way of constructing border infrastructure and easing restrictions on such border trade.
- India prefers bilateral engagements in the region rather than deal with neighbours on multilateral forums. However, there is only so much that can be gained from bilateral arrangements, and there should be more attempts at forging multilateral arrangements, including by resurrecting the South Asian Association for Regional Cooperation(SAARC).
- India must have a coherent and long-term vision for the neighbourhood devoid of empty rhetoric and spectacular visits without follow up.
- We must ask ourselves, as the biggest country in the South Asian neighbourhood, what kind of a region we want to be

situated in, and work towards enabling that.

Chabahar tidings: on Indian taking over port operations in Iran

Introduction:

- The opening of the first office of Indian Ports Global Limited at Iran's Chabahar and the takeover of operations of the Shahid Beheshti port, Iran(It is the first phase of Chabahar Port) is a milestone in India's regional connectivity and trade game plan.
- As India takes over operations in the Iranian port, the possibilities and challenges are huge.

Advantages:

- Chabahar port opens up a permanent alternative route for trade with Afghanistan and Central Asia, given the hurdles in the direct route through Pakistan.
- **It facilitates India's role in Afghanistan's development** through infrastructure and education projects.
- And it gives **India's bilateral ties with Iran, a major oil supplier and potential trade market for India**, a big fillip.
- It will be important to **operationalise the port quickly** and smoothen the route to Afghanistan. The decision by India, Afghanistan and Iran to hold an international event in February 2019 to promote Chabahar and to study ways to make the route more attractive and decrease logistic costs is timely.
- About 500 companies have registered with the **Free Trade Zone** authority there. While keeping timelines and delivery of New Delhi's commitments will be key to the port becoming a regional hub for transit trade, steel and petrochemicals, it will be necessary to encourage Afghan companies to use the route more, in line with President Ashraf Ghani's desire to have a commercial fleet under the Afghan flag setting sail from Chabahar.

Challenges:

- Visions of Chabahar's immense potential as a game-changer for prosperity and stability in the region must, however, necessarily be tempered by the reality of geopolitical challenges.
- The Chabahar port has received a waiver from the U.S. sanctions on Iran for the moment, but these concessions could be withdrawn any time, given the constant upheaval in the administration.
- The possibility of the withdrawal of U.S. troops from Afghanistan, after the pull out from Syria, will add to security concerns for Afghanistan and impact on the Chabahar route as well.
- Meanwhile, the reconciliation process with the Afghan Taliban is likely to see the regional powers, the U.S. and Russia engaging Pakistan more. This could give Islamabad space to play spoiler in Chabahar, which is seen as a rival warm water port to Pakistan's Gwadar.
- That the Afghanistan government is hedging its bets on trade via Chabahar too is clear: in recent months, special cargo corridors have been opened with China, Kazakhstan, Turkey, Europe, Russia, the UAE, and Saudi Arabia, with more trade diverted through them than with traditional partners Pakistan and India.

Conclusion:

- With Chabahar, India has done well to keep a place in the intricate connectivity network of the region. Given all the competing interests that criss-cross over Chabahar, it will require sustained and nuanced diplomacy to stay ahead in this game.

General Studies 3

Course correction?

Introduction

- During its 31st meeting, the GST council has reduced tax rates on 23 goods and services, including movie tickets, TV and monitor screens and power banks, and exempted frozen and preserved vegetables from the levy. The reduced rates are likely to come into effect from January 1, 2019.
- Of the 23 goods and services on which rates have been slashed, the tax rate on seven items in the 28 per cent slab has been brought down. With this, only 28 goods are left in the highest 28 per cent tax bracket.
- Services supplied by banks to Basic Savings Bank Deposit account holders under the Jan Dhan Yojana will not attract GST.
- Air travel of pilgrims by non-scheduled/charter operations being facilitated by the government under bilateral arrangements will attract a lower GST rate of 5 per cent.

What does it mean for consumers?

- For consumers, the peak tax rate of 28% levied on cinema tickets above Rs 100, large screen television sets or monitors, digital cameras and lithium ion batteries, among others, was brought down to 18%.

What does it mean for Business?

- For businesses still coping with compliance issues, more time has been granted for filing this year's annual returns.
- The council has promised a simpler return filing system.
- A single, fungible e-cash ledger has been proposed to replace the present system in which credits available under Central GST cannot be set off against State GST dues.

Ministerial group to look into state's concerns

- Concerns expressed by several States about revenue trends since the GST introduction in 2017 have been taken on board, and a ministerial group will be tasked with assessing the structural patterns affecting revenue collections in some States.

What else needs to be done?

- GST rationalisation is still a work in progress. It has long been clear that traders need a simpler filing system, faster refunds and other mechanisms to ease their cash flows.
- Consumers are yet to get a clear definition of what qualifies as a good or service for the 'sin' category. From over 200 items that were initially kept in the 28% 'sin' goods rate bracket, it is now down to just 28 items, which include cement and auto components.
- Since cement yields Rs 13,000 crore in GST and auto parts another Rs 20,000 crore, the Council has resisted rate cuts on these items for now.
- This gives an impression that revenue and optics considerations have a greater role in rate setting than the nature of the goods or services to be taxed.

Conclusion

- The country should move towards a predictable, simple and stable tax regime while taking into considerations of the concerns of states to maintain the federal nature of the GST council.

A year of disruptions for the banking sector

Introduction

- The year 2018 has been one of disruption for the banking industry.
- The sector witnessed a tough loan default classification rule by the RBI, the IL&FS crisis and the spat between the government and the central bank.

Feb 12 circular

- In February, the RBI made it mandatory for banks to classify even a day's delay in the payment of loan dues as default and report the same to the central bank. The move elicited strong reactions from the corporate world.
- Earlier, accounts overdue by 90 days were classified as NPAs. Bankers would typically start following up on overdue payments only close to the 90-day mark to prevent an account being tagged as NPA.

- Post circular, Banks saw a sharp rise in accounts classified in the first category of special mention accounts (SMA-0). An account is identified as an SMA-0 account if the payment is delayed even by one day.
- Reporting such accounts to the Central Repository for Information on Large Credits (CRILC) on a weekly basis becomes mandatory for accounts where outstanding loans are more than Rs 5 crore. For cases where the exposure goes beyond Rs 2,000 crore, banks are expected to initiate rectification or restructuring procedures immediately. Banks have 180 days to complete this restructuring before they refer the account for insolvency proceedings.
- Though the rule has managed to force defaulters in the corporate world to rush in to pay up, Banks and many experts raised 'reputational risks' involved in the rule with cascading consequences for future borrowings.

IL&FS crisis

- The crisis in IL&FS, a leading NBFC, started with a series of loan defaults in August and September of 2018 by the company and some of its subsidiaries.
- The IL&FS Group is facing tremendous debt pressure and struggling to service around Rs. 91,000 crores the outcome of its mismanaged borrowings in the past.
- Following rise in bad loans in the last few years and the RBI's tightening norms on restructuring, banks became extremely cautious in lending, particularly for infrastructure projects. This made IL&FS face a liquidity crunch to continue with ongoing projects leading to loan defaults.
- The loan defaults of the IL&FS has led to widespread panic over risks in the entire non-banking financial sector. The defaults also jeopardised hundreds of investors, banks and mutual funds associated with IL&FS. The situation has created a liquidity shortage across the NBFC system of close to Rs 1 lakh crore.
- The IL&FS story is a reiteration of the need for a well-oiled **long-term debt market**.

RBI vs Govt

- The situation was made worse by the open quarrel between the government and the central bank.
- This has seen the government demanding its right to enforce its will on the central bank and the RBI stoutly defending its known stand vis-a-vis sharing its reserves and accommodating the government on other issues.
- The situation led to the resignation of RBI Governor Urjit Patel, albeit citing personal reasons.
- The episode has harmed the image all round and the collateral damage has been huge. It will take a while for normality to return.

Conclusion

- As 2018 nears its end, the new year will be well served if lessons are learnt from immediate history.

Capital idea?

Introduction

- The government has moved a proposal in Parliament for an additional Rs. 41,000 crore to recapitalise public sector banks, over and above the already budgeted Rs. 65,000 crore.
- If approved by the House, this would take the total recapitalisation package for the current financial year to Rs. 1,06,000 crore, of which the government plans to utilise Rs. 83,000 crore over the remaining portion of the year.

What is Recapitalisation of Banks?

- Recapitalization is injection of capital by the government to strengthen them financially. Since the government is the majority shareholder of public sector banks, the responsibility of adding capital to them falls on the shoulders of the government.
- Recapitalisation was necessary because the PSBs are facing financial problems and they need money in the context of rising NPAs.

Need for recapitalisation

- The proposal aimed at:
  - Meeting regulatory capital norms
  - Providing capital to better-performing **Prompt Corrective Action** (PCA) Banks to achieve 9%

Capital to Risk-weighted Asset Ratio (CRAR)
    - Facilitating non-PCA banks that are in breach of some PCA thresholds to not be in breach
    - Strengthen amalgamating banks by providing regulatory and growth capital
- As many as 11 public sector banks have been stopped from lending freely by the RBI under the PCA framework due to their poor financial health.

Need for caution

- It is important that the additional capital is not wasted on banks that have not shown any improvement but rather used to support the weak ones that are on the recovery path.
- The government has said that PCA banks which have shown better performance in terms of reduction in NPAs and improvement in return of assets will be given priority.
- There have been reports that four banks under the PCA — Allahabad Bank, Bank of India, Corporation Bank and Bank of Maharashtra — will soon be out of the restrictive framework. This is following a review by the Board for Financial Supervision of the RBI, which went over the financials of all the banks under the framework.
- The government is keen to free up the banks from restrictions on lending as we enter into the election year. But it flies counter to the RBI's basic objective in keeping these banks under the PCA framework, which is to nurse them back to good health.

Way Forward

- In its eagerness to achieve its political objectives, the government should not end up pushing good money after bad by apportioning extra capital to weak banks instead of supporting the ones that are on the recovery path.
- While the idea of infusing more money into banks is not bad *per se*, given that they are grappling with inadequate capital, a lot depends on how and to which banks this money is distributed. This is where the government has to exercise prudence and caution.

The shape of growth matters

Introduction:

- Niti Aayog has unveiled its **'Strategy for New India @ 75'** document with an aim to accelerate growth to 9-10 per cent and make the country a $4-trillion economy by 2022-23.

Key recommendations:

- The annual growth rate of 9-10 per cent by 2022-23 would be essential for generating sufficient growth and achieving prosperity for all. This will raise the economy's size in real terms from $2.7 trillion in 2017-18 to nearly $4 trillion by 2022-23. Besides having rapid growth, it is also necessary to ensure that growth is inclusive, sustained, clean, and formalised.
- Increase the investment rate as measured by gross fixed capital formation (GFCF) from the present 29% to 36% of GDP by 2022.
- In agriculture, shift the emphasis to converting farmers to 'agripreneurs' by further expanding e-National Agriculture Markets (e-NAM) and replacing the Agricultural Produce Marketing Committee Act with the Agricultural Produce and Livestock Marketing Act.
- Give a strong push to 'Zero Budget Natural Farming' techniques that reduce costs, improve land quality and increase farmers' incomes.
- Launch a mission "Explore in India" by revamping minerals exploration and licensing policy.
- Double the share of freight transported by coastal shipping and inland waterways. Develop an IT-enabled platform for integrating different modes of transport and promoting multi-modal and digitized mobility.
- With the completion of the Bharat Net programme in 2019, all 2.5 lakh gram panchayats will be digitally connected. Aim to deliver all government services at the state, district, and gram panchayat level digitally by 2022-23.
- Implement the recommendations of the Second Administrative Reforms Commission as a prelude to appointing a successor for designing reforms in the changing context of emerging

technologies and growing complexity of the economy.

- Set up a new autonomous body, viz., the Arbitration Council of India to grade arbitral institutions and accredit arbitrators to make the arbitration process cost effective and speedy, and to pre-empt the need for court intervention.

Shape of growth matters

- The strategy have given the highest priority to employment and labour reforms. Overall growth is also emphasised by NITI Aayog. The strategy notes that the annual growth rate of 9-10 per cent by 2022-23 would be essential for generating sufficient growth and achieving prosperity for all.
- However, it is the shape of growth that matters more than size. The employment-generating capacity of the economy is what matters more to citizens than the overall GDP growth rate. There is no joy for citizens if India is the fastest-growing economy and yet does not provide jobs and incomes.
- The growth of industry and manufacturing is essential to create more employment, and to provide bigger opportunities to Indians who have been too dependent on agriculture so far. Here, too, it is not the size of the manufacturing sector that matters but its shape. **Labour-intensive industries** are required for job creation.
- If the manufacturing sector is to grow from 16% to 25% of the GDP, which the strategy states as the goal, with more capital-intensive industries, it will not solve the employment problem.
- The overall goal of the strategy remains the size of the sector. The goal must be clearly set in terms of employment, and policies and measurements of progress set accordingly. Indian statistical systems must be improved quickly to measure employment in various forms, formal as well as informal.

Reorienting labour laws

- The strategy recommends complete codification of central labour laws into four codes by 2019. While this will reduce the complexity in Indian labour laws, what is required is a fundamental reorientation of the laws and regulations — they must fit emerging social and economic realities.
- The nature of work and employment is changing, even in more developed economies. It is moving towards more informal employment, through contract work and self-employment, even in formal enterprises.
- In such a scenario, social security systems must provide for all citizens, not only those in formal employment. If employers want more flexibility to improve competitiveness of their enterprises, the state will have to provide citizens the fairness they expect from the economy. The NITI Aayog strategy suggests some contours of a **universal social security** system. These must be sharpened.
- Many international studies point out that one of the principal causes of the vulgar inequalities that have emerged around the world is the weakening of **unions**. Workers must have associations to aggregate themselves to have more weight in the economic debate with owners of capital. Rather than weakening unions to give employers more flexibility, laws must strengthen unions to ensure more fairness.

Conclusion

- The shape of the development process matters more to people than the size of the GDP. Development must be by the people (more participative), of the people (health, education, skills), and for the people (growth of their incomes, well-being, and happiness).
- How well India is doing at 75 must be measured by the qualities of development, as experienced by its citizens, along these three dimensions. GDP growth will not be enough.

GST is gathering steam but glitches remain for SMEs

Introduction

- The implementation of GST has impacted the manufacturing industry favourably by bringing in a unified and consistent tax structure. It has forced

many to move into the organised sector.
- Businesses that were facing slowdowns in the early days its roll-out, are now picking up pace along with several other sectors experiencing the benefits of a common tax system.

Positive impacts

- The GST implementation has led to input costs becoming lower in many cases.
- It has also reduced the transit time of transport thus leading to reduced costs and time.
- Earlier, manufacturers had to bear the cost they incurred during the transportation of their goods. Multiple checkpoint, permits meant an additional expenditure on the part of the manufacturer. This was not only was expensive but also extremely time-consuming. Any delays from the manufacturers' end meant added expense.
- The GST system has helped providing a smooth and hassle-free flow of goods within the country by removing multiple checkpoints and permits at State border checkpoints. This move has helped reduce the logistics time, resulting in faster delivery of goods.

Glitches remain

- Export refunds are still not fully automated. Because of this, a large sum of money, which is to be refunded, is stuck.
- The GST audit requires input ITC details, expense category-wise, which is very tedious and needs manual work.
- For multiple orders, one invoice and one e-way bill is still an issue to be sorted out. If fixed, this will eliminate a lot of paperwork.

Conclusion

- Overall, GST has streamlined the system into a 'One State - One nation' – especially facilitating hassle free logistics movement and less paper work. By merging all state and central taxes together and making the filing of all the returns on line, the transparency and productivity has also improved significantly.
- The time spent both by companies and the government on assessments will come down once the system is fully stable as most of the data will be reconciled online between the parties.

Winning over AIDS

- India has the third largest HIV-infected population with an estimated 2 million people.
- The country aims to decrease new infections by 75 per cent between 2010 and 2020 and eliminate AIDS by 2030.

Stats

- 36.9 million people globally were living with HIV
- 21.7 million people were accessing anti-retroviral therapy in 2017
- 1.8 million people have become newly infected with HIV in 2017
- In 2017, 940000 persons died from AIDS related illness
- 77.3 million people have become infected with HIV since the start of the epidemic
- 35.4 million people have died from AIDS related illness since the start of the epidemic

HIV prevalence in India (2017)

- 2.1 million people living with HIV
- 0.2% adult HIV prevalence (15-49 years)
- 88,000 new HIV infections
- 69,000 AIDS related deaths
- 56% adults on antiretroviral treatment

Antiretroviral therapy

- Antiretroviral therapy (ART) consists of the combination of antiretroviral (ARV) drugs to maximally suppress the HIV virus and stop the progression of HIV disease.
- ART also prevents onward transmission of HIV
- Huge reductions have been seen in rates of death and infections

Test and Treat Policy for HIV

- Anybody who is tested and found positive will get ART irrespective of CD count or clinical stage
- CD4 cells (also known as CD4+ T cells) are white blood cells that fight infection.
- As HIV infection progresses, the number of these cells declines. When the CD4 count drops below 200, a person is diagnosed with AIDS.

90:90:90 strategy

- The 90:90:90 strategy has been adopted to identify 90% of those infected, place 90% of these on treatment and ensure 90% have their virus under control

- By 2020, 90% of all people living with HIV will know their HIV status.
- By 2020, 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy.
- By 2020, 90% of all people receiving antiretroviral therapy will have viral suppression.

The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act, 2017

Objective

- It aims to prevent and control the spread of HIV and AIDS in the country and provides for penalties for discrimination against those affected by the virus.

Features

- Prohibition of discrimination against HIV positive persons which include the denial, termination, discontinuation or unfair treatment with regard to:
  - Employment,
  - Educational establishments,
  - Health care services,
  - Residing or renting property,
  - Standing for public or private office, and
  - Provision of insurance (unless based on actuarial studies)
- Every HIV infected or affected person below the age of 18 years has the right to reside in a shared household and enjoy the facilities of the household.
- The Bill also prohibits any individual from publishing information or advocating feelings of hatred against HIV positive persons and those living with them.
- The Bill requires that no HIV test, medical treatment, or research will be conducted on a person without his informed consent.
- An ombudsman shall be appointed by each state government to inquire into complaints related to the violation of the Act and the provision of health care services.
- No person shall be compelled to disclose his HIV status except with his informed consent, and if required by a court order.
- The central and state governments shall take measures to:
  - Prevent the spread of HIV or AIDS,
  - Provide anti-retroviral therapy and infection management for persons with HIV or AIDS,
  - Facilitate their access to welfare schemes especially for women and children,
  - Formulate HIV or AIDS education communication programmes that are age appropriate, gender sensitive, and non-stigmatizing, and
  - Lay guidelines for the care and treatment of children with HIV or AIDS.

National AIDS Control Programme (NACP)

- The National AIDS Control Programme (NACP), launched in 1992, is being implemented as a comprehensive programme for prevention and control of HIV/AIDS in India.

NACP-IV Components

- Component 1: Intensifying and Consolidating Prevention services with a focus on High-Risk Group (HRG) and vulnerable populations.
- Component 2: Expanding IEC services for (a) general population and (b) high risk groups with a focus on behaviour change and demand generation.
- Component 3: Comprehensive Care, Support and Treatment.
- Component 4: Strengthening institutional capacities.
- Component 5: Strategic Information Management Systems (SIMS).

Challenges

- Side effects caused by consumption of medicines
- AIDS patients face discrimination in hospitals when they are referred to other departments
- There is issue with supply of drugs
- Less awareness about disease even among upper middle class and upper class
- There is social stigma attached with the disease and they face discrimination. It has reduced over the years but is still prevalent

Why more prevalent in North East?

- In North East, people are involved in injected drug abuse. Needle sharing practices have led to easy transmission of the disease.
- People have unprotected sex.
- People in this region migrate for work and consequently the disease spreads faster.

- Topography of the region hinders easy availability of drugs.

Impact of internet

- Internet penetration has both positive and negative impact on the spread of AIDS.
- Dating apps and other social network platform provide easy access to find partners. Thus people are more vulnerable to contracting AIDS as partners found online may not reveal their AIDS status.
- Internet also provides a platform to reach more people at a time. Awareness regarding the disease can be spread more efficiently.

Cabinet approves Coastal Regulation Zone (CRZ) Notification 2018

Introduction:

- The Cabinet approved the Coastal Regulation Zone (CRZ) Notification, 2018 on ground that it will "lead to enhanced activities in coastal regions" thereby "promoting economic growth" while "respecting conservation principles of coastal regions.

Features of the notification:

- The **High Tide Line (HTL)** has been demarcated by the National Centre for Sustainable Coastal Management (NCSCM) and shall be reckoned as a universal standard for the HTL for all regulatory purposes.
- **Hazard line** mapping has also been carried out by Survey of India. The Hazard Line has, however, been delinked from the CRZ regulatory regime and shall be used only as a tool for Disaster Management and planning of adaptive and mitigation measures.
- A **No Development Zone (NDZ)** of 20 meters has been proposed to be stipulated for all Islands close to the main land coast and for all Backwater Islands in the main land.
- Only such projects/activities, which are located in the CRZ-I & IV areas, shall be dealt with for CRZ clearance by the MoEF&CC. For all other project activities located in CRZ-II/III areas, CRZ clearance shall be considered at the level of the Coastal Zone Management Authority (CZMA).
- As per CRZ, 2011 Notification, for CRZ-II areas, Floor Space Index (FSI) or the Floor Area Ratio (FAR) had been frozen at 1991 Development Control Regulation (DCR) levels. In the Draft CRZ, 2018 Notification, it has been proposed to de-freeze the same and permit FSI for construction projects, as prevailing on the date of the new Notification.
- Temporary tourism facilities are also proposed to be permissible in the No Development Zone (NDZ) of the CRZ-III areas.
- Regulated limestone mining is proposed to be permitted, subject to strict Environmental safeguards, in areas adequately above the height of HTL.

- **High Tide Line (HTL) –** HTL is generally the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. For the purposes of notification, HTL means the line on the **land up to which the highest water line reaches during the spring tide.**
- **Floor Space Index (FSI)** – Floor Space Index is also known as the Floor Area Ratio (FAR). It is the ratio between the area of a built up area to the area of the plot (land) on which a building stands.

Coastal Regulation Zone:

- The term coastal zone means the coastal water, wetland and shore land strongly influenced by marine waters. In other word, this is the area of interaction between land and sea, which is influenced by both terrestrial and marine environment.
- **Coastal Regulation Zone –I**: Ecologically sensitive and important areas, areas of outstanding natural beauty or historic importance or genetic diversity, areas which could sink as an effect of rising sea-levels and the area between the High Tide Line and Low Tide Line (LTL).
- **Coastal Regulation Zone -II**: Already 'developed' areas on or very close to the shoreline i.e. areas that have buildings and roads right on the beaches.

- **Coastal Regulation Zone -III**: Seaside areas that do not fall into CRZ I or II categories, including rural areas.
- **Category IV Coastal Regulation Zone -IV**: Coastline of the Indian islands that do not fall into CRZ I or II or III categories.

Survey of India:

- The **National Survey and Mapping Organization** of the country under the **Department of Science & Technology,** is the OLDEST SCIENTIFIC DEPARTMENT OF THE GOVT. OF INDIA.
- It was set up in **1767** and has evolved rich traditions over the years.
- In its assigned role as the nation's Principal Mapping Agency, Survey of India bears a special responsibility to ensure that the country's domain is explored and mapped suitably, provide base maps for expeditious and integrated development and ensure that all resources contribute with their full measure to the progress, prosperity and security of our country now and for generations to come.
- Survey of India **publishes maps** and the unrestricted category maps can be obtained at very reasonable prices from its several Geo-spatial data centers.
- **Restricted category maps require due approval from government authorities.** Many other rules govern the sale and use of Survey of India maps.
- **Only an Indian citizen may purchase topographic maps and these may not be exported from India for any reason**.
- The Survey of India acts as adviser to the Government of India on all survey matters, viz Geodesy, Photogrammetry, Mapping & Map Reproduction.

Nakshe portal:

- The Survey of India (SOI) has launched new web portal called Nakshe to make open series maps available to Indians for free.
- The portal was launched by Union **Minister for Science & Technology and Earth Sciences.**
- features:
  i. It will offer free download of 3,000 Topographic maps or **Open Series Maps (OSM**) in a pdf format on 1:50,000 scale through Aadhar enabled user authentication process.
  ii. The maps are meant for development activities in the country, and can be also used to plan scientific expeditions, research and planning development projects.
  iii. Topographic maps or OSM comprise natural and man-made geographical features including terrain or topography.

Conclusion:

- The new draft CRZ notification has major recommendations that will boost tourism development in coastal areas of the country, which remains untapped due to stringent regulatory framework.
- The government said the new notification will "boost tourism in terms of more activities, more infrastructure and more opportunities and will certainly go a long way in creating employment opportunities in various aspects of tourism".
- Moreover, it will also give individual states the power to decide on their own about any development in the region.

KURUKSHETRA DECEMBER

Science and Technology for Rural India

Introduction

- As early as 1935, at the All India Industries Association, Gandhi initiated a movement called **"science for people",** with an advisory board of national personalities including eminent scientists like J.C.Bose, P.C.Ray, C.V.Raman.
- Prime Minister Shri Narendra Modi's focus is on "**Go Rural**" with a sole objective to empower the rural masses and bridge the digital divide.
- Technology for rural areas must be aimed at creating employment, recycling waste, human welfare through housing, sanitation, elimination of drudgery, promotion of non-conventional energy, developing a resilient agriculture by balancing technological capacity, economic opportunity, and societal requirements.

Modern technology in implementation of rural development plans

Introduction

- The Ministry of rural development has been making sincere efforts to bring prosperity and well-being in the villages through its schemes viz
    - Pradhan Mantri Gram Sadak Yojana (PMGSY) that provides all-weather road connectivity to unconnected villages.
    - Pradhan Mantri Awas Yojana - gramin(PMAY-G) provides housing to all.
    - Mahatma Gandhi National rural employment Guarantee Act (MGNREA) aims to guarantee the 'right to work'.
    - National rural livelihood mission (NRLM) is a poverty alleviation project.
    - National social assistance program (NSAP) provides social pensions to the elderly, widows and persons with disabilities.
    - Sansad Adarsh Gram Yojana (SAGY) works on social mobilization of the village community.
    - Shyama Prasad Mukherjee Rurban Mission aims to develop a cluster of Smart Villages.
    - Mission Antyodaya enhances the effectiveness of schemes at Gram Panchayat Level.

Steps taken towards achieving the above

- In order to achieve the results emphasis has been laid on adopting modern technology.
- Under PMAY-gramin , construction of 52.26 lakh houses has been completed by 19th November,2018.
- In each stage of housing construction the progress is monitored using geo tagging and time stamping of assets that are geo coordinated by BHUVAN,Developed by ISRO.
- BHUVAN is a web mapping service that helps to explore a 2D/3D representation of the surface of the Earth.

Background of rural connectivity in India

- When planned development started in 1951, only 20% of the villages had all weather roads.
- During the 5th five year plan, 1974, the development of rural roads was made a part of the 'Minimum needs program'.
- As a result many kilometers of roads were laid without proper design and engineering.
- The subject of rural roads is included in the constitution under the state list.
- PM Shri Atal Bihari Vajpayee as a part of the poverty alleviation work launched the

centrally sponsored scheme of Pradhan Mantri Gram Sadak Yojana on 2000.

- At present 60 engineering and technology institutions conduct independent investigations of road project proposals.
- Pradhan Mantri Gram Sadak Yojana-II was started in 2012-13 for improvement in existing rural road network which is World Bank assisted.
- Mobile application **Aarambh** has been developed which helps in collecting necessary data for preparation of inventory of roads.
- Keeping in view the use of Green technologies in the construction of PMGSY roads, the Ministry of rural development has fixed state wise targets for the use of waste plastic.
- Recently a tripartite agreement was signed by national rural road development agency, rural development ministry, national remote Sensing center , ISRO and national institute of rural development and Panchayati Raj for use of geo informatics and satellite imagery to verify the progress of implementation of scheme as per the Information received from the states electronically.
- **Meri sadak app** helps to resolve complaints regarding PMGSY roads.It have been integrated with OMMAS to make it user friendly.
- An exclusive Initiative named **GEO-MGNREGA** was introduced in the financial year 2016-17 to strengthen the scheme and underpin transparency for providing at least 100 days of unskilled manual labour to each family in a financial year.
- **Secure** software has been developed to prepare online estimates of MGNREGA works.
- In the financial year 2017-18 an Android based mobile application **Jan -MGNREGA** was launched which has a large scale feedback mechanism for the public.
- The national electronic fund management system (NE-FMS) further simplifies the fund flow system at the same time ensuring transparency.

Building Agriculture innovation system

Introduction

- India has benefited from our established 'Indian agriculture research system' but it must be activity based as compared to previously existing system where the emphasis was on technology transfer.

Outcome based Developments

Pusa Krishi App

- This app provides information on latest technologies, machineries, weather conditions ,new varieties of crops developed by Indian Council of Agriculture Research (ICAR) to help farmers find easy solutions to the problems in their farm fields.

Way forward

- Implementing MLM paradigm that is. 'More from less for more' which means getting more output by using less resource (land,water,money ,inputs) to create benefits for more and more people ,not just more and more profit.
- Indian demand for food grains would increase from 192 million tonnes in 2000 to 342 million tonnes in 2030.The challenge is that this 'more' has to be created with 'less'.
- Agriculture is dominated by small farmers with small landholdings so we have to develop technological innovations that suits land holdings and more CSIR's krishi Shakti tractors.
- For Genetically modified (GM) crops, we need to adopt policies that are 'promotional but precautionary'.

Digital health services

- **MSakhi**
  - It is an open source android application it helps health workers in providing high quality health care to the families in even the remotest villages of the country.

- If a mother or a baby needs medical attention, an ASHA can use mSakhi to quickly refer them to a doctor who can help.
- An accredited social health activist (ASHA) is a community health worker instituted under Ministry of Health and Family Welfare as a part of the National Rural Health Mission.

- **Kilkari**
  - It means a baby's gurgle.It helps deliver free, weekly, time appropriate 72 audio messages about pregnancy,child birth and child care to families mobile phones from the second trimester of pregnancy until the child is one year old.
- **Mobile Academy**
  - It is a free audio training course designed to expand and refresh the knowledge base of ASHAs and improve their communication skills.
- **M-Cessation**
  - It aims at reaching out to those willing to quit tobacco use and support them towards successful quitting through text messages.
  - It has been a cost effective approach in comparison to conventional options for cessation support.
- **e-hospital**
  - It is an online registration services framework portal where people can do online registration, fix appointment, pay fees, view diagnostics reports and check for the availability of blood in Government hospitals in this portal.
- **ANM On Line (ANMOL)**
  - It aims at improving the delivery of quality services related to health, especially to rural population.
- **Mera Aspatal**
  - It is an initiative of the Ministry of health and family welfare,to capture patient's feedback for the services received at the hospital through user friendly multiple channels such as SMS,out bound dialling and web portal.in 7 different languages and for the hospitals visited in lastb7 days.

Krishi Vigyan Kendra

Introduction

- In order to draw true potential of farmers towards technologies for the betterment of agriculture Indian government has set up a big chain of over 700 krishi vigyan Kendras (KVKs) across the country.

Origin, Philosophy and objectives of KVK

- The meaning of KVK is 'farm science centre'.
- The concept of krishi vigyan Kendra was given by Dr.M.S.Swaminatham, initiator of green revolution in India and the father of Indian agricultural research.
- The Government of India established first KVK in Pondicherry during 1974 under ICAR.
- Presently around 695 KVK are existing across different districts of India.
- KVK can be created under a variety of host institutions including agricultural universities, state departments, ICAR institutions and NGOs.
- A KVK must own about 20 hectare of land for the purpose of testing advanced agricultural technologies.

Objectives cum activities of KVKs:

- On farm testing of new technologies related to seed varieties or innovative farming methods
- As Frontline demonstration center to show efficacy of new technologies in farm land
- To provide farmers information ,such as weather advisories or market pricing
- It promotes scientific temper which includes rational and scientific methods in farming that helps uneducated farmers.
- They also provide training to activities like wire basket making, tailoring etc. for school

dropouts, especially women to help them earn during off seasons.

Krishi vigyan Kendra portal

- In 2016, Indian government launched krishi vigyan Kendra portal to facilitate online monitoring of the KVK activities.

Conclusion

- With the intervention of KVKs about 80% of the farmers have modified their agricultural patterns related to diversification of crop based on cropping season, pattern, planting technique, use of fertilizers and pesticides.
- KVKs are the integral part of the national agricultural research and extension system are gaining trust of farmer community.

Knowledge management through digital technologies

Introduction

- In this era of 'knowledge sharing', making access to the required information and knowledge is the key to empowerment of citizens.
- Knowledge management (KM),a process of leveraging collective knowledge in a particular domain/institution/ organization, traditionally includes 4 processes:
  - Knowledge creation
  - Knowledge storage and retrieval
  - Knowledge transfer
  - Knowledge application
- Traditional KM systems include classroom teaching and distance mode mostly resulted in 'knowledge push' and very less scope for interactivity. These systems were 'process centric' rather than 'people centric'.
- The recent trends in information and communication technology (ICT), including web portals, social media, e-learning, mobile apps etc have made 'knowledge sharing' more efficient and timely.

Web portal: a powerful knowledge management tool

- Web portals are specially designed single access points to information collected from diverse sources.
- Web portals can be classified as horizontal (providing broad range of content for general user) or vertical (targeted offering for niche users) also called vortal.
- Some of the key web portals hosting credible Information on rural development in India include Vikaspedia, India panchayat knowledge portal,Digital India portal etc.
- Vikaspedia is an online information guide launched under Ministry of communications and information technology and has information in the domains of Agriculture, Health, Education, Social Welfare, Energy and e-Governance.

Social media: A cost effective tool for knowledge sharing

- It includes social networking sites(Facebook, LinkedIn), messenger apps(WhatsApp),blogs(blogger, WordPress), microblogs(Twitter),video sharing tools(you tube),podcasts,wikis etc.
- This makes the Sharing of data, information and knowledge faster, easier and cost effective.

Smart phones:

- Reforms in telecommunications since 1990's have facilitated strong ICT infrastructure in India. As on 31st August 2018 the total number of mobile users in India were 1167 million that is 91% of total population, including 519 million subscribers from rural areas as estimated by the telecom regulatory authority of India (TRAI).

Expert system

- It is a virtual expert tool providing solutions for problems using artificial intelligence.
- These systems provide offline applications where there is an issue of internet connectivity.
- These are available in agriculture and allied sectors developed by ICAR and widely used by krishi vigyan Kendras(KVKs).

- **'Plantix'** is a mobile based plant disease diagnostic tool getting popular in recent days.

e-learning

- Technology enabled learning (TEL) includes online courses,remote classrooms,video conferencing etc.
- Massive online open courses (MOOCs) are recent trends adopted by many organisations to offer free online courses.
- Eg., Khan academy,udacity and future learn.

e-Governance

- Adopting ICTs for capacity building of Panchayati Raj Institutions (PRIs)
- Community radio is a broadcasting system for the purpose of the community's welfare.

Conclusion

- In India most of the websites (76%),particularly Government websites are available only in English and about 24% host bilingual content (Hindi/regional language)
- But still the availability of modern ICT tools has made knowledge sharing as 'people centric' rather than 'process centric'.

Innovative technologies for higher productivity

Introduction

- Major changes in Agricultural production took place in mid 1960s during 'Green revolution'.
- However this growth rate did not sustain during 1990s due to slowdown in public investment, decline in water table and environmental stress.
- Agriculture is still the main livelihood of approximately half of the rural households in India contributing over 16% of its gross domestic product (GOI, 2018).
- With the introduction of geographic Information systems (GIS), global positioning systems (GPS) and remote sensing (RS), farmers can now refine nutrient recommendation and water management models to the site specific conditions of each field.
- Variable rate technology (VRT) and Site specific nutrient management (SSNM) available with farm implements has fostered the growth of precision agriculture.

Improving water productivity

- Water productivity is defined as the output of goods derived from the unit volume of water.
- Pressure irrigation system along with fertilizer application (fertigation) resulted in remarkably high water use efficiency with proper combination of water and fertilizers upto optimum level.
- Micro irrigation as compared to surface irrigation supplies water below the soil surface without any water losses via evaporation and surface run.

Crop diversification

- Diversification takes place through crop intensification by adding new high value crops to existing cropping systems, like using gap between two crops.

Integrated farming systems

- In regions with rainfall of 500 to 700 mm, the farming systems should be based on livestock with promotion of low water requiring plantations to meet fodder, fuel and timber requirements of the farmers.
- Areas of more than 1100 mm integrate paddy with fisheries.

Conservation agriculture

- Minimum soil disturbance by adopting no tillage
- Managing crop residues on the soil surface
- Adopt crop rotation that includes growing of different crops in succession on a piece of land to avoid exhausting the soil and to control weeds, pests, and diseases.

Integrated crop management (ICM)

- It combines the best of traditional methods with appropriate modern technology for balancing the economic production of crops with positive environmental management.

Conclusion

- Climate change and environmental degradation is being considered as one of the greatest risks to future world food security. Agricultural development that not only needs improving food and nutritional security but also by the concerns for ecosystem.

Technology interventions in sanitation

Introduction

- The Swachh Bharat Mission, launched in 2014, is a unique programme that has brought focus on the cleaning up of our cities and villages and the elimination of open defecation.
- But every year about 55 million tonnes of municipal solid waste (MSW) and 38 billion litres of sewage are generated in the urban areas of India.

Waste can be broadly classified into

  - Urban/Rural waste-Municipal solid waste, sewage and Fecal sludge
  - Industrial waste-Hazardous and non- hazardous
  - Biomass waste
  - Biomedical waste
- Such wastes find their way into land and water bodies without adequate treatment, resulting in the pollution of water sources.
- Greenhouse gases like methane and carbon dioxide are emitted which add to the air pollution.

To reduce the quantity of wastes

- Waste to energy (WtE) are also called by the term energy from waste (EfW) is the process of generating energy in the form of electricity or heat from the treatment of waste material.
- Incineration is the most common method of combustion of organic material with energy recovery .It entails burning waste to boil water, which powers steam generators that generate electric energy and heat.
- Modern incinerator reduces the volume of the original waste by 95-96%, depending upon composition and degree of recovery of materials.

Other technologies

- There are many other new and emerging technologies that have the potential to produce more electric power from the same amount of fuel than would be possible by direct combustion mainly due to the separation of corrosive components (ash) from the converted fuel, thereby allowing higher combustion temperatures used in boilers, Gas turbines.

Thermal technologies

- In this nearly all the carbon content in the waste is emitted as carbon dioxide (CO_2) to the atmosphere.
- Nearly all biodegradable waste is biomass and the plastics, oil and gas derived products are generally treated as non-renewables.

Energy can efficiently convert the energy into liquid or gaseous fuels .These technologies include the following-

- **Gasification:** Producing combustible gas, hydrogen, synthetic fuels.
- **Thermal polymerization**: produces synthetic crude oil, which can be further refined.
- **Pyrolysis:** producing combustible tar/bio-oil and chars.
- **Plasma arc gasification or plasma gasification process (PGP):** Producing Syngas including hydrogen and carbon monoxide usable for fuel cells.

Non -thermal technologies

- **Anaerobic digestion:** producing biogas rich in methane.
- **Fermentation production:**Takes biomass and creates ethanol , using waste cellulose or organic material eg.ethanol, lactic acid, hydrogen.
- **Esterification:**the result of this process is biodiesel.

India: waste to energy potential

- According to the Ministry of New and Renewable Energy (MNRE) there exists a potential of about 1700MW from urban waste (1500 from MSW and 225 MW from sewage) and about 1300 MW from industrial waste.

- To promote biofuels in the country, a National policy on biofuels, revised in 2018 has the objective of reaching 20% ethanol blending and 5% biodiesel blending by 2030.

Gobardhan:

- As a part of Swachh Bharat Mission, GOBAR-DHAN Galvanising organic bio agro resources dhan scheme, 2018 aims to engage people in the safe and efficient management of bio agro waste in villages, so that the villages remain clean.
- It is crucial component of ODF +.
- SBM ODF + protocol focuses on sustaining community/ pubic toilet usage.
- SBM ODF ++ will focus on achieving sanitation sustainability by addressing sanitation value chain, including safe containment, processing and disposal of fecal sludge and septage.

Plastic waste

- Everyday about 15000 tonnes of plastic waste are generated across India, of which ,60% is recycled and 40% is disposed unsafely.

Extended producer responsibility (EPR)

- Under this concept the manufacturers and importers of products are to bear a significant degree of responsibility for the environment impacts of their products throughout the product life cycle.
- The Indian 2016 plastic waste management rules address the question of EPR.

Technology for managing plastic waste:

- **Re-extrusion: it** introduces clean scrap of single types of plastics that can be re-entered into manufacturing of similar materials.
- **Mechanical recycling:** mechanical processes performed on plastic waste before it is introduced into manufacturing.
- **Chemical and thermal recycling:** It converts materials into smaller constituent molecules which can be used in petrochemicals and plastics.
- **Energy recovery:** Here plastic is burnt to produce energy in the form of heat, steam and electricity.

Efforts towards the direction

- More than 1200 KMS of plastic waste mixed roads in rural areas have been laid by DRDA, Erode Tamil Nadu.
- Waste to fuel plant in Sriperumbudur in Tamil Nadu.

Conclusion

- The possibility of use of waste to generate energy thus becomes a win win argument and thus is a priority for a country like India with huge waste especially bio waste.Bio waste has the potential to be harnessed as energy, fuel and fertilizer.

Disease management in horticulture crops

Introduction

- Food and agriculture organisation (FAO) of the United Nations estimate that pests i.e insects, weeds, plant diseases, rodents and birds cause upto 35% of the losses in the crop production worldwide annually.
- Less than 0.1% of pesticide sprayed reaches the site of action due to its loss in the atmosphere itself thereby affecting both the environment and the application cost.
- Developing countries account for 25% of world pesticide use in farming.
- In India according to a report of the Ministry of agriculture, residues of chemical pesticides were detected in 9.2% of the samples of different food articles collected during 2006-12.
- There are number of alternative approaches like botanical pesticides,bio pesticides,use of organic amendments, soil solarization and transgenic molecular techniques,nano formulation of pesticides.

Bio pesticides

- They are derived from various microorganisms e.g bacterium, fungus, virus or protozoan.
- Almost 90% of the microbial biopesticides available in the market are derived from one pathogenic bacterium i.e Bacillus

thuringiensis or Bt which is used against insect pests.
- They are an effective tool against lepidopterans insects.
- In plant disease management Trichoderma spp are the most widely used microbial biopesticide.
- Agrobacterium radiobacter K1026 is used against crown gall disease.
- According to the figures from BPIA (bio pesticides industry alliance) ,the world market for bio pesticides grew from 10% in 2005-10 to 23% between 2010-11 and 2016-17 while that of chemical fertilizers grew only by 2%.

Botanical pesticides
- Botanicals have low mammalian toxicity, target specificity, biodegradability and contain many ingredients in low concentration, thus have a biocidal property against insect pests.
- Eg.Neem which can meet around 50% requirements of pesticides in crop production.
- Neem contains around 35 biologically active ingredients.

Soil solarization
- It is done by covering the moistened soil in summer with thin transparent polyethylene mulch to capture solar energy for heating the soil that kills the soil borne pathogen.

Bio fumigation
- It incorporates certain Brassica or related species like crop residues of cabbage, cauliflower, mustard or other crops of brassica family into the soil leading to the release of isothiocyanate compounds that kills the pests.
- Bio fumigation can be integrated with soil solarization.

Biotechnological approaches
- miRNA based disease management and development of genome edited crops using (clustered regularly interspaced short palindromic repeats) CRISPR system has helped to profile the microbial communities living inside and outside of plants to understand the plant -microbe and microbe -microbe interactions.

Changing crop growing practices
- Crop rotation reduces the load of inoculums in the soil.
- Deep ploughing leads to the inactivation and death of the pathogen propagules.
- Flooding of the field leads to the lack of O2 and increased CO2 that harms the growth of the microorganisms.

Nano formulations of pesticides
- Plant extract based silver nano particles (SNPs) have good potential for management of various diseases in plants synthesized mainly from plant like Neem.
- Antimicrobial effect of nano particles has been attributed due to their small size and high surface to volume ratio which allow them to closely interact with microbial membrane, causing its rupturing and killing of pathogens.

Conclusion
- Tapping the potential of resistance sources through bio technological tools must be used effectively for the management of plant diseases thereby making India self-sufficient in food grain production.

Technology innovations for soil health preservation

Introduction
- Soil is a natural organo-mineral product formed by natural forces and maintained by the interaction between microorganisms and plants.
- Indiscriminate use of fertilizers, pesticides and land resources disturbs the harmony existing within the soil there affecting the physicochemical properties of the soil system.

Soil health
- Healthy soil maintain a diverse community of soil organisms
- It helps to control plant disease, insect and weed pests
- forms beneficial symbiotic associations with plant roots
- recycles essential plant nutrients

- improves soil structure for soil water and nutrient holding capacity
- A healthy soil also contributes to mitigating climate change.

Common Indicators of soil health

- **Chemical Indicators:** Soil pH, soil electrical conductivity, total carbon and nitrogen.
- **Physical Indicators:** Soil texture, penetration resistance of soil, soil water holding capacity.
- **Biological indicators:** Microbial biomass, Soil enzyme activities, Pollutant detoxification, Soil respiration, Soil pathogens.

Good practices of soil health preservation:

- **Prevent soil erosion :**
  - Soil erosion causes the loss of too layer soil containing organic and mineral nutrient pools which should be minimized by growing cover plants, mulching, cropping, agroforestry, shelter belts and reduced stocking rates and grazing intensities.
- **increase soil organic matter content**
  - Applying integrated method of soil fertility management and pest management, applying animal manure or other carbon rich wastes, implementing crop rotations.

Mitigating soil salinization and alkalization

- Surface and subsurface drainage systems should be installed and maintained to control groundwater tables and control soil salinity.

Minimizing soil contamination

- Contamination occurs if the rate of addition of a given contaminant exceeds its rate of removal from the soil system.
- Contaminated soils should not be used for food and feed production.

Application of organic amendments

- Use of nitrogen fixing leguminous species, microbial inoculants, mycorrhizas, earthworms, manure and biochar should be encouraged.
- Biochar is the charcoal produced from plant matter and stored in the soil as a means of removing carbon dioxide from the atmosphere.

Conclusion

- Soil health management is vital to ensuring food and nutritional security, preserving soil biodiversity, enhancing efficient inputs and mitigating global warming potential.

Use of ICTs in education

Introduction

- In the 21st century mastering the skills of computers can be considered alongside 3 Rs (reading, writing and arithmetic) as the fundamental requirements for a literate person.
- Government has undertaken several initiatives to augment digital literacy of its citizens by
  - Offering subject like information technology to students
  - Vocational courses under National Skills Qualifications Framework (NSQF), National Skill Development Corporation (NSDC).
  - Enhancing technological competencies of teachers

What technology means for education?

- Educational technology scheme began in 1972 under which 100% assistance was given to establish 6 state institutes of educational technology (SIETs) .
- The union budget 2018-19 has proposed to start 'Samagra Shiksha' for school educational sector extending from preschool to class 12 by subsuming the schemes of Sarva Shiksha Abhiyan (RMSA) and teacher education (TE).
- ICT curriculum for students and teachers seeks to educate and train students and teachers on the wide implications of the use of ICT in education.

Steps taken

- **e-Pathshala** is a joint initiative of Ministry of human resource development and NCERT.This portal has all the textbooks of

NCERT from class I to XII in digital form along with audio/video materials.

- **National repository of open educational resources** was launched in 2013 which is a storehouse of all types of e-contents arranged thematically and mapped according to the NCERT.
- **32 DTH TV channels** were launched in 2017 under SWAYAM PRABHA initiative. It telecasts high quality educational programs on these 32 channels on 24*7 basis using GSAT -15 satellites. It covers curriculum based contents of the subjects taught in schools from class IX to undergraduate and postgraduate level.
- **GSAT-15** is an Indian communication satellite that augments the capacity of transponders to provide more bandwidth for Direct-to-Home television and Very Small Aperture Terminal (VSAT) services.
- **SWAYAM (study webs of active -learning for young aspiring minds) was** launched in 2017.It is a digital platform which hosts courses offered by the best teachers free of cost.
- National coordinators are there to ensure that best quality contents are produced and delivered and they are AICTE for self-paced and international courses,NPTEL for engineering,UGC for non-technical post-graduation courses,CEC for undergraduate education,NCERT and NIOS For school education,IGNOU For out of school students,IIMB for management studies,NITTTR for teacher training programme.
- **ShaGun portal** was launched by MHRD which is a repository of success stories, resources.It stands for 'Shala' meaning schools and 'gunvatta' means quality.
- **Kendriya vidyalaya's shaala darpan** is an e-government platform for all KV schools in improving quality of education.
- **DIKSHA** is a joint initiative of MHRD and national council for teacher education (NCTE) to make one stop resource for all requirements of a teacher.

Conclusion

- The focus of technological integration into education is to improve the quality of education and making learning constructive, critical and collaborative.

Biofertilizers for sustainable food production

Introduction

- It has been observed that up to 90% of applied P -fertilizer (phosphorus fertilizer) is unavailable for crop uptake.
- Phosphorus (P) is one of the major essential macronutrients for plants.
- Plants can only take up phosphorus dissolved in the soil solution, and since most of the soil phosphorus exists in stable chemical compounds, only a small amount of phosphorus is available to the plant at any given time.
- For the P-fixation, the other alternative is the Mycorrhizal inoculation of plants.
- Fungi that forms symbiotic association with roots of plants are referred as mycorrhizal fungi and the association is referred to as ' Mycorrhizae'.
- Mycorrhizae is made up of two words - Mycor(fungus) and rhiza (root) and literally means root fungus.

Work and application of bio fertilizers

- Mycorrhizae form a network of filaments that is associated with plant roots, increases the absorption of nutrients, particularly phosphorus that enhances the growth of crop plants and trees.
- Currently, VAM (vesicular Arbuscular Mycorrhizae) as biofertilizer are utilised in fumigated soils, greenhouse crops and in reclamation of disturbed sites.
- Ectomycorrhizae are employed in the establishment of trees in nurseries and in the production of containerized seedlings.

Various functions of Mycorrhizae

- It dissolves the fixed phosphate available as insoluble phosphate in the Rhizosphere zone i.e the zone in the soil surrounding the roots and makes it available to the plants through the hypha roots made by the fungi.
- They help in dissolution of trace elements in the form of insoluble compounds due to

high alkalinity which has been added to the soil with the use of urea since green revolution.

- The fungi synthesize certain chemicals like HCN (Hydrogen cyanide) etc and release them to the rhizosphere zone which protects the feeder roots of plants from pathogens in the zone.
- It also helps in nitrogen fixation and it can be used along with Rhizobium.

In detail about the biofertilizers

- Arbuscular Mycorrhizae (AM):
  - It is the commonest Mycorrhizae associated with the roots of 80% of plant species.
  - The AM association is endotrophic (exchange mechanism on the inside of the root)and has previously been referred to as vesicular -arbuscular mycorrhizae (VAM).
  - Arbuscules have a lifespan of 14 days.
- Ericoid endomycorrhizae
  - The fungus digests polypeptides saprotrophically (extracellular digestion) and passes absorbed nitrogen to the plant host.
  - In harsh situations it may even provide the host with carbon sources.
- Orchidaceous endomycorrhizae
  - It is similar to ericoid Mycorrhizae but their carbon nutrition supports young orchid.
- Ectomycorrhizae
  - They are mainly Basidiomycota and include common mushrooms such as Amanita App.
  - It includes about 3% of seed plants including majority of forest trees.
- Ectendomycorrhiza
  - They are same as ectomycorrhizae but show extensive intracellular penetration of the fungal hyphae into living cells of the host root.
- Inoculation method
  - VAM innoculations are mixed with cow dung manure/soil and mixed with the fields uniformly while preparing the fields.
  - It is done in various ways like:
    - Seed coating with Mycorrhizal inoculum.
    - To form multi seeded Mycorrhizae pellets stabilized with clay or pear inoculum.
    - Placing inoculum under or beside seed sown in a furrow.
    - Rising AM in situ by growing mycorrhizal host plants to reach the crop roots.
    - Fluid drilling and Seedlings may be dipped into the water suspension of the inoculum containing some jaggery or molasses before transplantation.

Conclusion

- Mycorrhiza a potential biofertilizer is considered as a boon for agriculture along with the nitrogen fixing biofertilizers with mycorrhizae, Phosphate solubilizing bacteria (PSB) and organic manure.
- It will increase the C: N (carbon to nitrogen ratio) leading to increased production.

Renewable energy adoption for rural areas

Introduction

- India has substantial renewable energy sources, including a large land mass that receives the highest solar irradiation in the world, a long coastline and high wind velocities that provide many opportunities for generating power.
- The government's program named "**Saubhagya**" is embarked to provide power connection to every household by the end of March 2019.
- The process of electrification involves three steps
  - extension of infrastructure to the village
  - connecting the household
  - Ensuring the supply of reliable and affordable energy that is sustainable.
- People in some villages have started using solar energy for running their businesses

even before the government power lines were installed.

Challenges

- 50% of the India relies on coal to meet its electricity demands but there is stagnation in the production of coal.
- Thermal power also harmful effects on the environment.
- Cutting down of forest resources disturbs the valuable carbon sink as well.
- A carbon sink is anything that absorbs more carbon than it releases as carbon dioxide.
- India's energy distribution companies suffer huge losses and therefore increasing the share of renewable energy should be on the policy agenda.

Renewable energy

- Renewable energy commonly refers to those energies that do not pollute the environment and could be recycled naturally.
- Renewable energy have been categorized as traditional and new.
  - Traditional energy includes: Giant hydropower and biomass burnt directly.
  - New energy includes: Small hydropower, geothermal energy, wind energy, biomass energy, solar energy, ocean energy etc.
  - **Biomass:**
    - It refers to organic waste that has stored energy through photosynthesis.
    - The waste can be from farming or horticulture, food processing, animal farming, or human waste from sewage plants.
    - It is used in various industrial processes, like energy production or manufacturing chemicals.
- **Hydroelectricity:** Potential and kinetic energy of water is converted into electricity in hydroelectric plants.
- **Geothermal energy:** It is the heat emitted from within the earth's crust, usually in the form of hot water or steam.
- **Solar photovoltaic** is solar radiation exploited for electricity generation using the photovoltaic cells.
- **In tide/wave/ocean the mechanical energy** is derived from tidal movement, wave motion or ocean current which is exploited for electricity generation.
- **In wind energy the** kinetic energy of wind is exploited for electricity generation by using wind turbines.
- **In biogas plants** the gases are composed of methane and carbon dioxide that are produced by anaerobic fermentation of biomass which includes landfill gas, sewage sludge gas.

Possible constraints in Renewable Energy adoption

- unfamiliarity with the technology
- lack of awareness of the environmental benefits
- opinion that the technology is unreliable
- unsuitable location for the installation
- inability to access sufficient credit

Way forward

- The Ministry of new and renewable energy (MNRE) is promoting biomass power plants for producing electricity using wood chips,rice husk,arhar stalks, cotton stalks and other agro residues in rural areas.
- Recent research indicates that successfully implemented renewable energy projects are usually managed by co-op ventures rather than profit motive driven corporations.
- Co-ops are autonomous associations of people united voluntarily and democratically elected in order to satisfy their mutual economic, social and cultural needs through jointly owned and consensually controlled enterprise.
- The need of the hour is a private-cooperative partnership.

Digital technology in financial inclusion

- Financial inclusion is the way the Government strives to ensure that no one is left out from the benefits of economic growth, thereby encouraging the poor persons to save ,safely invest in various financial products and borrow from the formal channel when they need.
- With a view to increase the penetration of banking services and ensure all households have atleast one bank account, need based credit ,remittances ,insurance and pension for excluded sections a national mission on financial inclusion names as Pradhan Mantri Jan Dhan Yojana was announced by Prime minister Narendra Modi in 2014.
- Implementation of PMJDY was enabled by National Payments Corporation of India (NPCI).
- NPCI is an organization that operates for retail payments and settlement systems in India.

Technology in financial inclusion

- Every bank account is made on line with
  - RuPay card for cashless transaction among farming community
  - use of e-KYC to ease the account opening process
  - use of Aadhar enabled payment system (AePS) for interoperability
- To expand the networks of ATMs the RBI has allowed non-bank entities to start ATMs (called 'white label ATMs).
- As a part of its financial inclusion plan,RBI started the business correspondent model in 2006. Business correspondents (BCs) are representatives appointed by banks to act as their agents, who provide banking services in remote locations.
- Smart card (32k/64k memory chip) is provided to customer for recording of transactions.
- NABARD supports cooperative banks and RRBs in procuring EMV chip based RuPay cards.
- **EMV stands for Europay, MasterCard, Visa,** which is a global standard for chip-based credit and debit transactions.
- To promote digital transactions for personal consumption expenditure, two schemes viz.Lucky Grahak Yojana and Digi Vyapara Yojana were funded through financial inclusion fund for consumers and merchants respectively.

Conclusion

- Digital inclusion is the foundation of financial inclusion.
- We simply don't want to digitise India, but to create a technology that is transformative ,which will empower India ,and empower Indians.