

C.A From 08th July to 23rd July 2019

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UNESCO World Heritage list:

Why in News?

The Walled City of Jaipur, known for its iconic architectural legacy and vibrant culture, on July 6 made its entry into the UNESCO World Heritage Site list.

The announcement was made after the 43rd Session of the UNESCO World Heritage Committee (WHC), underway at Baku (Azerbaijan) from June 30 to July 10, examined the nomination of the Walled City of Jaipur for inclusion in the World Heritage list.

About The City:

- The historic walled city of Jaipur in Rajasthan, was founded in 1727 AD under the patronage of Sawai Jai Singh II. It serves as the capital city of the culturally-rich state of Rajasthan.
- The city was proposed to be nominated for its value of being an exemplary development in town planning and architecture that demonstrates an amalgamation and important exchange of ideas in the late medieval period.
- In town planning, it shows an interchange of ancient Hindu, Mughal and contemporary Western ideas that resulted in the form of the city," UNESCO Office in New Delhi had earlier said.
- In addition, Jaipur City is an exceptional example of a late medieval trade town in South Asia and defined new concepts for a thriving trade and commercial hub. In addition, the city is associated with living traditions in the form of crafts that have national and international recognition, it said.

About the Committee:

- The World Heritage Committee is composed of representatives of 21 States Parties to the World Heritage Convention who meet annually.
- The Committee is in charge of implementing the Convention.

- To date, 1,092 sites in 167 countries have been inscribed on the World Heritage List.

National Translation Mission:

Why in News?

The National Translation Mission (NTM) is a scheme launched in 2008 which is being implemented through the Central Institute of Indian Languages (CIIL), Mysore to establish translation as an industry in general and to facilitate higher education by making knowledge texts accessible to students and academics in Indian languages.

Progress made by the Mission:

- Under the scheme, the books of knowledge texts mostly text books of various subjects prescribed in Universities and Colleges are being translated in all Languages of the 8th Schedule of the Constitution of India.
- National Translation Mission has so far published 40 Knowledge Text translations in 16 languages (Assamese, Bengali, Bodo, Dogri, Hindi, Kannada, Maithili, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Tamil, Telugu and Urdu).
- NTM has published 6 bilingual dictionaries (English to Indian languages) in collaboration with Pearson Education, India.
- The Mission has trained about 1400 budding translators through 3-week intensive courses (21 days) on 'Introduction to translation' and 'Research Methodology in Translation'

Monsoon Break:

Why in News?

The southwest monsoon, which has seen a vigorous phase over parts of central India, the western coast and eastern India, will likely take a break after July 15, private weather agency Skymet Weather said.

About the Break:

- The break, which is a routine occurrence during the monsoon in July, will be triggered as a low-pressure system hovering over Uttar Pradesh and adjoining Madhya Pradesh starts to fade away, resulting in a drastic decrease in the rains over the central parts of the country.

- Moreover, a trough now passing through the Indo-Gangetic plains would also shift north towards the foothills of the Himalayas, leading to increased rain.
- Break monsoon usually occurs when the monsoon trough moves closer to the foothills of Himalayas.

Causes:

- Indian monsoon is strongly influenced by tropical waves like Madden Julian oscillation which moves across the tropics in the globe. If MJO is unfavourable i.e if MJO is in other basins such as west pacific, Atlantic monsoonal activity in India tends to decrease
- Strong typhoons in south china sea/west pacific close to Philippines moving in north/north east direction can rob the Indian basin of moist south westerlies leading to break monsoon
- During break monsoon period, Himalayan region including Uttarakhand, Nepal and north east region including sub Himalayan west Bengal and south eastern India i.e Tamil Nadu & south Andhra receive rains
- Floods in Assam usually occur in break monsoon period. More number of thunderstorms occur in TN & south Andhra during the same period. If monsoon becomes active, thunderstorms decrease in TN & south Andhra
- Break monsoon is mostly observed each year in the month of August than July

Nandi statues:

Why in News?

A pair of centuries-old Nandi statues, carved out of monolithic soapstone, have been unearthed from a dried lake bed in Arasinakere, about 20 km from here.

About the Statues:

- The statues appeared to belong to the 16th or 17th century, dating back to the post-Vijayanagar period.
- They resembled most of the sculptures carved out of the smooth soapstone during that period.

- The statues are carved out of a single rock.
- The statues are incomplete.
- While the larger one is around 15 feet in length and 12 feet in height, the smaller one is more compact, according to locals.

While the locals suggest there could be an ancient temple beneath the lake, archaeologists say it is plausible that the Nandi statues had been carved out of the rock found at the spot for transportation to a different destination

Arctic heat wave

Why in news?

Temperatures hit a record 21 degree Celsius in Alert, the northernmost permanently inhabited spot on the planet less than 965 km from the North Pole, the Canadian meteorology service said on Tuesday.

Details:

- The temperature was recorded on Sunday at Alert, a permanent military base on the 82nd parallel which intercepts Russian communications and which has been home to a weather station since 1950.
- In October, a landmark United Nations report warned that time is running out to avert global disaster and that avoiding climate chaos will require an unprecedented transformation of society and the world economy.
- The previous record of 20 degrees Celsius was set on July 8, 1956, but since 2012 there have been several days where the temperature has risen to 19 or 30 degrees Celsius at the base on the shore of the Arctic Ocean.

The current heatwave is due to a high pressure front over Greenland, which is “quite exceptional” and feeds southerly winds on the Arctic Ocean, said Castellán.

The Arctic is heating up three times faster than other parts of the planet, he .

Antarctic Ice melt and global warming

Why in news?

Governments could stop the West Antarctic Ice Sheet from sliding into the ocean and submerging coastal cities by launching a last-ditch engineering project to blanket its surface with “artificial snow”, according to a study released on Wednesday.

Why is it needed?

- Scientists believe that global warming has already caused so much melting at the south pole that the giant ice sheet is now on course to disintegrate, which would trigger an eventual global sea level rise of at least three metres (10 feet) over centuries.
- With the droughts, floods, storms and wildfires associated with climate change intensifying globally, some scientists have begun to seriously contemplate interventions that would have been dismissed as wildly impractical even a few years ago.
- The sea level rise from Western Antarctica will eventually submerge Hamburg, Shanghai, New York and Hong Kong.
- Melting ice sheets in Greenland, the Arctic and shrinking glaciers around the world would worsen the problem.
- Sea levels could ultimately rise at least five metres (16 feet) even if countries manage to implement the Paris pact.

What is to be done?

- The authors of the new study envisaged using 12,000 wind turbines to pump seawater 1,500 metres (4,900 feet) up to the surface, where it would be frozen into “snow” to try to weigh the sheet down enough to stop it collapsing any further.

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Doubling Farmer’s Income:

Why in News?

The Centre aims to double farmers' income by 2022. A 2017 NABARD survey shows high levels of inter-State income inequality among agricultural households.

Income inequality

- The map depicts the average monthly income of agricultural households in 2017. Households in Punjab earned more than Rs. 16,000, the highest among States.
- Those in Andhra Pradesh earned the least -- Rs. 5,842 on average.

What remains in the purse?

- Consumption expenditure is measured because it is less volatile over time. Agricultural households in Andhra Pradesh ended up with a surplus of Rs. 95 on average in 2017, which was the lowest among States, while households in Punjab had the highest: Rs. 4,314.

Sources of income

- Among the Centre's plans to improve farmers' income was to shift farmers to non-farm jobs.
- Cultivation, for instance, was the source of income for 35% of the agricultural households in rural India.

Right to Information Act:

Why in News?

The Central Information Commission (CIC) has rebuked the Department of Personnel and Training, the nodal ministry for Right to Information Act, for denying records related to appointment of Information Commissioners and framing of rules of the transparency law, saying it stifles “the very letter and spirit” of the legislation.

Details:

- The Commission admonishes the then Central Public Information Officer (CPIO) for invoking Section 8(1)(i) of the RTI Act without assessing its applicability and the present CPIO is also warned against mindlessly endorsing the reply.
- He directed that this order be placed before the Secretary of the Ministry to take note of “adverse findings” of the Commission.

What is Section 8(1)(i)?

Notwithstanding anything contained in this Act, there shall be no obligation to give any citizen,—

(i) cabinet papers including records of deliberations of the Council of Ministers, Secretaries and other officers: Provided that the decisions of Council of Ministers, the reasons thereof, and the material on the basis

of which the decisions were taken shall be made public after the decision has been taken, and the matter is complete, or over: Provided further that those matters which come under the exemptions specified in this section shall not be disclosed;

About RTI act, 2005:

- Right to Information (RTI) is act of the Parliament of India to provide for setting out the practical regime of the right to information for citizens and replaces the erstwhile Freedom of information Act, 2002.
- Under the provisions of the Act, any citizen of India may request information from a "public authority" (a body of Government or "instrumentality of State") which is required to reply expeditiously or within thirty days.
- The Act also requires every public authority to computerise their records for wide dissemination and to proactively certain categories of information so that the citizens need minimum recourse to request for information formally.

Proxy Voting:

Why in News?

The government is learnt to have withheld its plan to introduce a fresh bill in Parliament to extend the facility of 'proxy voting' to overseas Indians, pending "reconciliation" of varied views on the issue.

Background:

- There have been demands from various parties to extend similar facility to domestic migrants who are unable to vote when elections are held in their native places as most cannot afford to travel or miss work.
- The Bill proposes that overseas Indians, who are entitled to vote in India, could now appoint a proxy voter to cast their vote.
- As of now, overseas Indians were free to cast their votes in the constituencies where they were registered.

- The Bill seeks to give them the option of proxy voting, which till now was only available to service personnel.
- According to estimates of Ministry of External Affairs, there are about 3.10 crore NRIs living in different countries across the world.

Suggested Reforms:

- An expert committee of the Election Commission, working on the issue, had in 2015 forwarded the legal framework to the Law Ministry to amend the electoral laws to allow the overseas Indians to use proxy voting.
- Unofficial data with EC shows that only 10,000 to 12,000 overseas voters have exercised their franchise because they do not want to spend foreign currency to come to India and vote.
- The bill said the necessary provision of coming to India to cast ballot caused hardship for overseas electors.

Other Salient Provisions:

- Another provision in the amendment bill relates to the spouses of service voters.
- As of now, an armyman's wife is entitled to be enrolled as a service voter, but a woman army officer's husband is not, according to the provisions in the electoral law.
- The bill proposes to replace the term 'wife' with 'spouse', thus making the provision gender neutral.
- Members of the armed forces, central armed police forces, personnel of state police forces posted outside their state and the central employees posted outside India are eligible to be enrolled as service voters.

School Based Assessment (SBA) at elementary level:

Context:

The National Council for Educational Research and Training (NCERT) conducts periodic national surveys to assess learning achievement of children in Classes – III, V, VIII and X.

About NAS:

- The National Achievement Survey (NAS) 2017 was held on 13th November for assessing the competencies developed by the children at the grade levels III, V and VIII from across 701 districts covering all the 36 States and UTs and covered 22 lakh students from 1.10 lakh schools.
- NAS (2017) was administered with districts as the unit of reporting in different subject areas such as languages, mathematics, EVS/Science and Social Sciences in the Government and Government aided schools.
- The competency based test was based on the Learning Outcomes which were incorporated in the Central Rules for RTE Act by the Government of India.
- District report cards for NAS have been shared with the States and UTs to help identify gaps and devise strategies for further improvement.

Initiatives to improve the quality of education:

1. In order to focus on ensuring competencies, the Central rules to the Right of Children to Free and Compulsory Education (RTE) Act, 2009 have been amended to include reference on class-wise, subject-wise Learning Outcomes, which have, accordingly, been finalized and shared with all States and UTs.
2. Under Samagra Shiksha, funds are given to all States and UTs for strengthening of infrastructure and provision of other facilities in schools to ensure that all schools meet the prescribed norm.
3. Regulations for a four year B.Ed integrated course, to bring about qualitative improvement in teacher education.
4. It has been decided to participate in the Programme for International Students Assessment (PISA) to be conducted by the Organization for Economic Cooperation and Development (OECD) in 2021, which is a competency based assessment.
5. Approval has been given for conducting a Census based audit called Shagunotsav of all government and government aided schools in all States and UTs.
6. MHRD has designed a 70 indicators based matrix called Performance Grading Index (PGI) to grade the States/UTs.
7. In 2019-20, approval has been given for an Integrated Teacher Training Programme to train 42 lakh teachers, and other functionaries to make classrooms learner-friendly and improving children's competencies including critical thinking, problem solving, creativity, as well as social-personal qualities such as cooperation, team work etc.

8. In 2019-20 approval has been given for a competency based School Based Assessment (SBA) at the elementary level.

Ministry of Skill Development & Entrepreneurship

Context:

Commemorating World Youth Skills Day on July 15, 2019 and celebrating 4th Anniversary of the Skill India Mission, the Ministry of Skill Development & Entrepreneurship has announced launch of “Kaushal Yuva Samwaad” (A Youth Dialogue).

What does it aims for?

- Kaushal Yuva Samwaad is aimed at creating an open dialogue with the youth across all skill training centres to hear their views, ideas, opportunities and recommendations which could help the Ministry in scaling the existing programs and improve overall efficiency of its projects.
- As per the mandate, each training centre must invite a minimum of 20 candidates to participate in the dialogue.
- Post the dialogue, the recommendations from the Kaushal Yuva Samwaad are to be submitted to the Ministry.

About NSDM:

- The National Skill Development Mission (Skill India Mission), launched on July 15, 2015 under the esteemed guidance of Hon’ble Prime Minister Shri Narendra Modi, has been steadily making progress.
- Nearly One Crore youth are being presently imparted skills training annually under various programs of the Government through Skill India Mission.
- The mission also envisages convergence, coordination and harmonization of the fragmented skilling efforts of various Ministries in Government of India and other key stakeholders like State Government, Industry, Training ecosystem etc..

India – Asean

Why in News?

India – ASEAN Troika Trade Ministers’ meeting was held in New Delhi today for informal consultation on the ongoing Regional Comprehensive Economic Partnership (RCEP). .

What is RCEP?

- The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement (FTA) between the ten member states of the Association of Southeast Asian Nations (ASEAN) (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam) and the six indo-Pacific states with which ASEAN has existing free trade agreements (China, Japan, South Korea, India, Australia and New Zealand).
- RCEP negotiations were formally launched in November 2012 at the ASEAN Summit in Cambodia.
- In 2017, prospective RCEP member states accounted for a population of 3.4 billion people with a total Gross Domestic Product (GDP, PPP) of \$49.5 trillion, approximately 39 percent of the world's GDP, with the combined GDPs of China and India making up more than half that amount.
- RCEP is the world's largest economic bloc, covering nearly half of the global economy.

Economic Prowess of RCEP;

- According to estimates by PwC, the Gross Domestic Product (GDP, PPP) of RCEP member states is likely to amount to nearly \$250 trillion by 2050, or a quarter of a quadrillion dollars, with the combined GDPs of China and India making up more than 75% of the amount.
- RCEP's share of the global economy could account for half of the estimated \$0.5 quadrillion global (GDP, PPP) by 2050.

Witness Protection Scheme

What does it aims?

Witness Protection Scheme, 2018 provides for protection of witnesses based on the threat assessment and protection measures inter alia include protection/change of identity of witnesses, their relocation, installation of security devices at the residence of witnesses, usage of specially designed Court rooms, etc.

Details:

- The Scheme provides for three categories of witness as per threat perception:

Category 'A': Where the threat extends to life of witness or his family members, during investigation/trial or thereafter.

Category 'B': Where the threat extends to safety, reputation or property of the witness or his family members, during the investigation/trial or thereafter.

Category 'C': Where the threat is moderate and extends to harassment or intimidation of the witness or his family member's, reputation or property, during the investigation/trial or thereafter.

- The Scheme provides for a State Witness Protection Fund for meeting the expenses of the scheme.

This fund shall be operated by the Department/Ministry of Home under State/UT Government and shall comprise of the following:

- i. Budgetary allocation made in the Annual Budget by the State Government;
- ii. Receipt of amount of costs imposed/ ordered to be deposited by the courts/tribunals in the Witness Protection Fund;
- iii. Donations/ contributions from Philanthropist/ Charitable Institutions/ Organizations and individuals permitted by the Government.
- iv. Funds contributed under Corporate Social Responsibility.

Background:

The Hon'ble Supreme Court of India in its Judgment dated 05.12.2018 in Writ Petition (Criminal) No. 156 of 2016 has endorsed the Scheme. As per Article 141/142 of the Constitution, the Witness Protection Scheme, 2018 endorsed in the said Judgment of the Supreme Court is binding on all Courts within the territory of India and enforceable in all States and Union Territories.

The Transgender Persons (Protection of Rights) Bill 2019

Why in news?

The Union Cabinet chaired by Prime Minister Narendra Modi has approved the proposal to introduce The Transgender Persons (Protection of Rights) Bill, 2019. The Bill will be introduced in the ensuing Session of Parliament.

The Bill provides a mechanism for their social, economic and educational empowerment.

Impact

- The Bill will benefit a large number of transgender persons, mitigate the stigma, discrimination and abuse against this marginalized section and bring them into the mainstream of society.
- This will lead to inclusiveness and will make the transgender persons productive members of the society.

Background

- Transgender community is among one of the most marginalized communities in the country because they don't fit into the stereotypical categories of gender of 'men' or 'women'.
- Consequently, they face problems ranging from social exclusion to discrimination, lack of education facilities, unemployment, lack of medical facilities.

Salient features of the Bill:

- The Clauses 21 and 22 of Chapter V aim to reserve 2% of seats in primary, secondary and higher education institutions funded by the government, and in government jobs.
- The Clause 24 for Chapter V mandates formation of special employment exchanges for transgender people.
- The Chapter VII details the formation of national and state-levels commission for transgender people.
- The Chapter VIII details the formation of special transgender rights courts.
- The Clause 11 of Chapter II specifies the right of a transgender child to a home and imposes conditions for foster care.
- The Chapter IX details the offenses and penalties. The maximum penalty for hate speech against transgender people in 1 year imprisonment with fine

The Inter-State River Water Disputes (Amendment) Bill

Why in News?

The Union Cabinet has approved the Inter-State River Water Disputes (Amendment) Bill, 2019 that will help adjudicate disputes relating to waters of inter-State rivers and river valleys. A version of this bill was first introduced in the Lok Sabha in 2017 but subsequently lapsed.

Salient features of the Bill:

- The Bill seeks to amend the Inter State River Water Disputes Act, 1956 to streamline the adjudication of inter-state river water disputes.
- A key feature of the bill is the constitution of a single tribunal with different Benches, and the setting of strict timelines for adjudication.
- There are about a dozen tribunals that now exist to resolve disputes among States on sharing water from rivers common to them.
- The standalone tribunal so envisaged will have a permanent establishment and permanent office space and infrastructure so as to obviate with the need to set up a separate Tribunal for each water dispute, a time consuming process.
- The Bill also proposes a Dispute Resolution Committee set up by the Central Government for amicably resolving inter-State water disputes within 18 months. Any dispute that cannot be settled by negotiations would be referred to the tribunal for its adjudication.
- The dispute so referred to the tribunal shall be assigned by the chairperson of the tribunal to a Bench of the tribunal for adjudication.

The Bill can also affect the composition of the members of various tribunals, and has a provision to have a technical expert as the head of the tribunal. Currently all tribunals are staffed by members of the judiciary, nominated by the Chief Justice.

Commonwealth Foreign Affairs Ministers Meet

Why in News?

India has called upon the Commonwealth to speed up the process of readmission of Maldives as a member country.

Background:

- Maldives withdrew from the Commonwealth during the tenure of previous President Abdullah Yameen in 2016 after the Commonwealth expressed serious concern about the deteriorating human rights situation in the country.
- The new government of President Ibrahim Mohamed Solih was elected after a democratic wave that fought the rule of President Yameen.

About Commonwealth:

- The Commonwealth of Nations, normally known as the Commonwealth, is a political association of 53 member states, nearly all of them former territories of the British Empire.
- The chief institutions of the organisation are the Commonwealth Secretariat, which focuses on intergovernmental aspects, and the Commonwealth Foundation, which focuses on non-governmental relations between member states.
- The Commonwealth dates back to the first half of the 20th century with the decolonisation of the British Empire through increased self-governance of its territories. It was originally created as the British Commonwealth of Nations through the Balfour Declaration at the 1926 Imperial Conference, and formalised by the United Kingdom through the Statute of Westminster in 1931.
- The current Commonwealth of Nations was formally constituted by the London Declaration in 1949, which modernised the community, and established the member states as "free and equal".

The human symbol of this free association is the Head of the Commonwealth, currently Queen Elizabeth II, and the 2018 Commonwealth Heads of Government Meeting appointed Charles, Prince of Wales to be her designated successor, although the position is not technically hereditary.

The Queen is the head of state of 16 member states, known as the Commonwealth realms, while 32 other members are republics and five others have different monarchs.

Iran Nuclear deal:

Why in News?

Iran on Monday began enriching its stockpile of uranium to 4.5% purity, breaching the terms of the 2015 nuclear deal that Washington abandoned last year. This comes days after Iran exceeded the 300-kg limit to its low-enriched uranium stockpile, breaching another cap set by the nuclear deal.

Reasons:

- These moves come as part of a series of aggressive actions by the U.S. and Iran.
- It began last year when the U.S. unilaterally pulled out of the nuclear deal and reimposed sanctions that have hit the Iranian economy.
- Iranian oil exports have fallen drastically and it has put its economy in a precarious situation.
- Oil exports dropped from 2.5 million barrels per day (bpd) to about 300,000 bpd in the first three weeks of June after the U.S. withdrew the waivers it had granted to a few countries, including India, to import oil from Iran.
- Iran has urged the remaining signatories of the deal to come up with an effective solution to help it circumvent U.S. sanctions.
- It had earlier threatened to exceed 20% in enrichment of uranium if Europe had not made any progress by July 7.
- Once 20% enrichment is reached, enriching it to weapon-grade levels of 90% is only a short step.

Why did the deal fall apart?

- Officially known as the Joint Comprehensive Plan of Action (JCPOA) it was signed by Iran, the five countries of the UNSC (the U.S., the U.K., France, China and Russia), Germany and the EU.

- The Islamic Republic was suspected of developing nuclear weapons surreptitiously; a charge that it denied.
- Under the deal, Iran agreed to limit its nuclear capabilities and, in return, international sanctions would be lifted.
- As per the deal, Iran reduced the number of its centrifuges used for enriching uranium by two-thirds, restricted its uranium enrichment to 3.67%, and removed the core of its heavywater facility in Arak.
- In May 2018, U.S. President Donald Trump pulled out of the deal stating it did not make an effort to curb Iran’s “sponsoring of terrorism” abroad and its ballistic missiles programme.

Did Europe try to save the deal?

- Europe launched a new trade mechanism called Instrument in Support of Trade Exchanges (INSTEX) to continue trade with Iran in a non-dollar basis.
- But INSTEX covers only humanitarian goods such as medicine, water, and food supplies, which are not affected by the sanctions anyway.
- INSTEX does not help in trading oil, which is the lifeline of the Iranian economy.
- Iran and other signatories met in Vienna on June 28 to work out a solution, but saw no breakthrough.
- The European leaders declared INSTEX operational after the conference, but Iran opines that although it is a positive development, Europe can ‘do more’.
- Circumventing U.S. sanctions via an alternative trade mechanism is not very simple as it is the European companies and not the government that have to trade with Iran, in the face of U.S. antagonism.

Poverty status in India:

Context:

India lifted 271 million people out of poverty between 2006 and 2016, recording the fastest reductions in the multidimensional poverty index values during the period with strong improvements in areas such as “assets, cooking fuel, sanitation and nutrition,” a report by the United Nations.

Salient observation of report:

- The 2019 global Multidimensional Poverty Index (MPI) from the UN Development Programme (UNDP), the Oxford Poverty and Human Development Initiative (OPHI) was released on Thursday.
- The report said that in the 101 countries studied — 31 low income, 68 middle income and 2 high income - 1.3 billion people are “multidimensionally poor”, which means that poverty is defined not simply by income, but by a number of indicators, including poor health, poor quality of work and the threat of violence.
- The report identifies 10 countries, with a combined population of around 2 billion people, to illustrate the level of poverty reduction, and all of them have shown statistically significant progress towards achieving Sustainable Development Goal 1, namely ending poverty “in all its forms, everywhere”.
- The 10 countries are Bangladesh, Cambodia, Democratic Republic of Congo, Ethiopia, Haiti, India, Nigeria, Pakistan, Peru and Vietnam.
- The report said that within these 10 countries, data shows that 270 million people moved out of multidimensional poverty from one survey to the next.

Global Scenario:

- This progress was largely driven by South Asia. In India, there were 271 million fewer people in poverty in 2016 than in 2006, while in Bangladesh the number dropped by 19 million between 2004 and 2014,” it said.
- The report noted that of the 10 selected countries for which changes over time were analysed, India and Cambodia reduced their MPI values the fastest — and they did not leave the poorest groups behind.
- India’s MPI value reduced from 0.283 in 2005-06 to 0.123 in 2015-16.
- Noting the examples of pro-poor reduction, where the poorest regions improved the fastest, the report said that Jharkhand in India reduced the incidence of multidimensional poverty from 74.9% in 2005-06 to 46.5% in 2015-16.
- Ethiopia, India and Peru significantly reduced deprivations in all 10 indicators, namely nutrition, sanitation, child mortality, drinking

water, years of schooling, electricity, school attendance, housing, cooking fuel and assets.

Status in India:

- In 2005-2006, the population in India living in multidimensional poverty stood at about 640 million people (55.1%) and this reduced to 369 million people (27.9%) living in poverty in 2015-16.
- India saw significant reductions in number of people who are multidimensionally poor and deprived in each of the 10 indicators over this time period.
- India reduced deprivation in nutrition from 44.3% in 2005-06 to 21.2% in 2015-16, child mortality dropped from 4.5% to 2.2%, people deprived of cooking fuel reduced from 52.9% to 26.2%, deprivation in sanitation from 50.4% to 24.6%, those deprived of drinking water reduced from 16.6% to 6.2 %.
- Further more people gained access to electricity as deprivation was reduced from 29.1% to 8.6%, housing from 44.9% to 23.6% and assets deprivation from 37.6% to 9.5%.

Uneven poverty reduction:

- The trends in these 10 countries also shine a light on where poverty reduction has been uneven, despite the good progress overall.
- “In all 10 countries rural areas are poorer than urban areas.
- In Cambodia, Haiti, India and Peru poverty reduction in rural areas outpaced that in urban areas — demonstrating pro-poor development — and in Bangladesh and Democratic Republic of the Congo poverty fell at the same speed in rural and urban areas, it added.
- The report also showed that children suffer poverty more intensely than adults and are more likely to be deprived in all 10 of the MPI indicators, lacking essentials such as clean water, sanitation, adequate nutrition or primary education.
- Child poverty fell markedly faster than adult poverty in Bangladesh, Cambodia, Haiti, India and Peru.

Globally, of the 1.3 billion people who are multidimensionally poor, more than two-thirds of them—886 million— now live in middle-income countries. A further 440 million live in low-income countries.

Motor Vehicle (MV) Act

Why in News?

Amendments to the Motor Vehicle (MV) Act re-introduced by Prime Minister Narendra Modi-led government in the Lok Sabha on Monday.

These bills had lapsed since they had not been passed by the Rajya Sabha.

Proposed Amendments:

The proposed amendments to the MV Act seeks to provide a compensation of ₹5 lakh for death and ₹2.5 lakh for grievous injury in a motor vehicle accident case.

Among other provisions, the bill seeks

- to increase penalties for violations,
- facilitate grant of online learning licence,
- simplified provisions for insurance to provide expeditious help to accident victims and their families, and protection of good samaritans.

The Bill also proposes to raise the time limit for renewal of driving licence from one month to one year before and after the expiry date.

Issues with bill:

It would take away powers of State governments and infringe on their rights.

Dalai Lama Issue:

Why in News?

The successor of the Dalai Lama has to be decided within China and any interference by India on the issue will impact bilateral ties, Chinese authorities have said.

In first clear assertion on the sensitive issue, senior Chinese officials and experts said the reincarnation of the Dalai Lama must be approved by the Chinese government and the selection should take place within the country based on an over 200-year old historical process.

Background:

- The reincarnation of the Dalai Lama is a historical, religious and political issue.
- There are established historical institutions and formalities for the reincarnation of the Dalai Lama.
- The current Dalai Lama was recognized by Beijing and his successor must be found through the “draw of lots in golden urn process” within China.
- Beijing-based China Tibetology Research Centre, a government-run influential think tank, said any refusal by India to recognise the next Dalai Lama to be chosen within China will impact bilateral ties.

Dalai lama and India:

- The 14th Dalai Lama fled to India in 1959 following a crackdown on an uprising by the local population in Tibet.
- India granted him political asylum and the Tibetan government-in-exile is based on Dharamsala in Himachal Pradesh since then.
- The Dalai Lama is 84 years old now and the issue of his successor has gained prominence in the last couple of years.
- “It will be a major political difference that would impact bilateral relations and any wise political leader wouldn’t do that..

India’s Stance:

- India has maintained its stand on the Dalai Lama.
- Government of India’s position on His Holiness the Dalai Lama is clear and consistent.
- He is a revered religious leader and is deeply respected by the people of India. There is no change in that position.

- The Indian government had issued a note nearly a year back to senior officials, asking them not to attend events organised by the Tibetan government-in-exile.
- India has also been supporting the 'One China' policy, which states that Taiwan and Tibet are part of China's mainland. Beijing made the 'One-China' policy a prerequisite for countries to establish diplomatic ties with it.

Central Universities (Amendment) Bill, 2019

Why in News?

The Rajya Sabha on Tuesday passed the Central Universities (Amendment) Bill, 2019, for establishing a Central University and Tribal University in Andhra Pradesh.

About the Bill:

- The government has set aside ₹450 crore for the first stage of the Central University project against the total amount of ₹902.07 crore and ₹420 crore for Tribal University against an outlay of ₹836 crore.
- The Tribal University will offer research facilities in the fields of art, culture and technology to the tribal population.

Ebola crisis

Why in news?

The World Health Organization says the deadly Ebola virus outbreak in Congo is now an international health emergency. More than 1,600 people have died since August in the second-worst outbreak of the disease in history.

Wednesday's declaration was sparked by confirmation of a case in Goma, a Congo city of more than two million people on the border with Rwanda.

What is Ebola?

- The Ebola virus can spread quickly and be fatal in up to 90% of cases. Symptoms include fever, vomiting, diarrhea, muscle pain and at times internal and external bleeding. The virus is most often spread by close contact with bodily fluids of people exhibiting symptoms and with contaminated objects such as sheets.
- Health care workers are often at risk.
- There is no licensed Ebola treatment, but early care such as rehydration helps to improve the chances of survival. Some patients in

this outbreak have received experimental treatments but their effect has not been fully studied.

Prevention and cure

- An experimental Ebola vaccine has been effective in its first widespread use, and more than 163,000 people have been vaccinated.
- The vaccine's testing was sped up during the West African Ebola outbreak in 2014-16 that killed more than 11,300 people.

Why is this outbreak unique?

- Health workers call this the first Ebola outbreak to occur in what is essentially a war zone. Dozens of rebel groups are active in Congo's northeast, killing hundreds of people in recent years. Attacks have led to a traumatized population that can be wary of outsiders and authorities.

What's the significance of declaring a global emergency?

- Declaring a global health emergency often brings an increase in international attention and aid. While WHO has said that tens of millions of dollars are needed to help contain this outbreak, authorities in Congo lobbied against a declaration amid concerns that it could hurt the economy and lead other nations to close their borders.

RTI Bill:

Why in news?

The Centre will introduce a Bill to amend the Right to Information Act, 2005 in the Lok Sabha on Friday.

Proposed amendment

The Bill proposes to give the Centre the power to set the tenure and salaries of state and central Information Commissioners.

Issues:

- Critics warn that such a move could dilute the effectiveness of the RTI Act and threaten the autonomy of the Information Commissions.
- This will fundamentally weaken the institution of the Information Commissions as it will adversely impact the ability of commissioners to function in an independent manner.

- Key concerns regarding federalism were raised by the Centre “usurping” for itself the powers to decide tenure and salaries of even state commissioners.

Current scenario:

- The current law gives Information Commissioners a tenure of five years and salaries which match those of Election Commissioners.

Government's stand:

- In a copy of the amendment Bill dated July 15, 2019, which has been circulated among Lok Sabha MPs, the Centre argues that the functions being carried out by the Election Commission are “totally different” from the Information Commissions.
- A statement of objects and reasons attached to the amendment Bill argues that while the Election Commission is a constitutional body, the Information Commissions are statutory bodies, and that their differing mandates mean that “their status and service conditions need to be rationalised accordingly”.

National register of citizens

How many face deportation?

- The number of people being left out of the NRC is not yet final, and it is not clear if any of them can be deported at all.
- First, the numbers. The final draft NRC had left out 40 lakh applicants. Another 1 lakh, originally among the 2.89 crore included in that draft, were removed after subsequent verification.
- However, the number is unlikely to remain at 41 lakh. There could be more deletions as objections have been filed against 2 lakh of the names included.
- There are likely be some additions, too. Of the 40 lakh excluded from the draft, 36 lakh have filed claims and some of them may have proved their citizenship with documents later.
- Then there is the possibility of the government reintroducing and passing the Citizenship (Amendment) Bill, having allowed it to lapse earlier this year.
- If the Bill does become law, it would greatly reduce the number of individuals excluded from the final NRC.

- The final NRC is scheduled on July 31. Those left out will have a series of options for appeal, which is a long haul. Only after that will the question of deportation come up, if at all.

What makes deportation so uncertain?

- For a country to be able to deport a mass of individuals to another country, the second country has to accept that they were its citizens who entered the first country illegally.
- According to government data until February 2019, and published in The Indian Express earlier, Assam has since 2013 deported 166 persons (162 “convicted” and four “declared”) including 147 to Bangladesh.
- The NRC context is vastly different: this is not about a few hundred but lakhs of individuals, many of whom have lived in Assam for decades and been identifying themselves as Indian citizens.
- Over the years, Bangladeshi leaders have frequently been quoted in the media as denying the presence of its nationals in India.

If not deportation, then what?

- The various points of appeal imply that the process of establishing citizenship or illegal stay in Assam could take years, if not decades.
- First, there are the quasi-judicial Foreigners Tribunals, which those left out of the final NRC will approach. If their claim is rejected again, they have the option of approaching the High Court and the Supreme Court.
- In between, there is the prospect of being sent to one of the six existing detention camps, or one of the 10 being planned.
- These have often come into focus for lack of basic facilities, and the Supreme Court recently allowed conditional release of those who have completed three years in detention, against a bond.
- For lakhs of people, what the future holds is uncertain as ever. Only a long court battle is certain, while a stateless identity with curtailed rights is a possibility. Deportation, if it ever happens, appears a long way away.

RTI Act Amendments:

On Friday, the government introduced in Lok Sabha the Right to Information (Amendment) Bill, 2019, which proposes to give the Centre the powers to set the salaries and service conditions of Information Commissioners at central as well as state levels. The government’s move triggered protests from the Opposition.

What has changed?

- The Bill amends Sections 13 and 16 of the Right to Information (RTI) Act, 2005. Section 13 of the original Act sets the term of the central Chief Information Commissioner and Information Commissioners at five years (or until the age of 65, whichever is earlier).
- The amendment proposes that the appointment will be “for such term as may be prescribed by the Central Government”.
- Again, Section 13 states that salaries, allowances and other terms of service of “the Chief Information Commissioner shall be the same as that of the Chief Election Commissioner”, and those of an Information Commissioner “shall be the same as that of an Election Commissioner”.
- The amendment proposes that the salaries, allowances and other terms of service of the Chief Information Commissioner and the Information Commissioners “shall be such as may be prescribed by the Central Government”.

Why are Opposition parties protesting?

- The original Act had quantified the tenures, and defined the salaries in terms of existing benchmarks.
- The amendments are being viewed as implying that, in effect, the terms of appointment, salaries and tenures of the Chief Information Commissioners and Information Commissioners can be decided on a case-to-case basis by the government.
- The Opposition has argued that this will take away the independence of the RTI authorities.

What are the government’s stated grounds for bringing the amendments?

- The statement of objects says “the mandate of Election Commission of India and Central and State Information Commissions are different.
- Hence, their status and service conditions need to be rationalised accordingly”.
- The Central Information Commissioner has been given the status of a Supreme Court judge but his judgments can be challenged in the High Courts. How can that exist? Besides, the RTI Act did not give the government rule-making powers.

Over the last 14 years, how far has the RTI Act served the purposes for which it was introduced?

- The RTI Act is regarded as one of the most successful laws of independent India. It has given ordinary citizens the confidence and the right to ask questions of government authorities.
- According to estimates, nearly 60 lakh applications are being filed every year. It is used by citizens as well as the media.
- The law is seen as having acted as a deterrent for government servants against taking arbitrary decisions.

Juvenile Justice act

Why in news?

The Act defines a child as someone who is under age 18. For a CCL, age on the date of the offence is the basis for determining whether he or she was a child or an adult.

In 2016, a 17-year-old was booked for the murder of his three-year-old neighbour in Mumbai. The Mumbai city Juvenile Justice Board as well as a children's court directed that he be tried as an adult under the Juvenile Justice (Care and Protection) Act, 2015. Last week, the Bombay High Court set aside these orders and directed that the accused be tried as a minor, saying the Act is reformatory and not retributive.

When is a child tried as an adult?

- The Juvenile Justice Act of 2000 was amended in 2015 with a provision allowing for Children in Conflict with Law (CCL) to be tried as adults under certain circumstances. The Act defines a child as someone who is under age 18. For a CCL, age on the date of the offence is the basis for determining whether he or she was a child or an adult.
- The amended Act distinguishes children in the age group 16-18 as a category which can be tried as adults if they are alleged to have committed a heinous offence — one that attracts a minimum punishment of seven years.
- The Act does not, however, make it mandatory for all children in this age group to be tried as adults.

Why was this distinction made?

- The amendment was proposed by the Ministry of Women and Child Development in 2014. This was in the backdrop of the gang-rape of a woman inside a bus in Delhi in 2012, leading to her death. One of the

offenders was a 17-year-old, which led to the Ministry proposing the amendment (although it could not have retrospectively applied to him).

- The J S Verma Committee constituted to recommend amendments also stated that it was not inclined to reduce the age of a juvenile from 18 to 16. The amendment was made in 2015.

Criterion for trying as an adult

- As per Section 15 of the JJ Act, there are three criteria that the Juvenile Justice Board in the concerned district should consider while conducting a preliminary assessment to determine whether the child should be tried as an adult or under the juvenile justice system, which prescribes a maximum term of three years in a special home.
- The criteria are whether the child has the mental and physical capacity to commit such an offence; whether the child has the ability to understand its consequences; and the circumstances in which the offence was committed.
- If the Board finds that the child can be tried as an adult, the case is transferred to a designated children's court, which again decides whether the Board's decision is correct.

One of the court's key observations was that "essentially, the trial in the regular court is offence-oriented; in the juvenile court, it is offender-oriented.

In other words, in the children's court, societal safety and the child's future are balanced. For an adult offender, prison is the default opinion; for a juvenile it is the last resort".

PM Paridhan Rozgar Protsahan Yojana

Why in news?

Pradhan Mantri Paridhan Rozgar Protsahan Yojana (PMRPY) was a labour reform initiative under which Government was bearing the entire 12% of the employers' contribution to the Employees Provident Fund Scheme for new employees of garment and made-ups sectors for the first three years of their employment.

What has changed?

- Earlier, 8.33% of employer's contribution was being provided by Government under Pradhan Mantri Rozgar Protsahan Yojana (PMRPY) and additional 3.67% of employers' contribution was made available under PMRPY to garment and made-ups segments to new workers with wage up to Rs. 15,000/- per month.

- With effect from 1.4.2018, Government has started paying full employer's share i.e. 12% (EPS+EPF) for employees in all sectors (including textiles) for three years to new employees and to existing beneficiaries for their remaining period of three years under PMRPY.

The Protection of Human Rights (Amendment) Bill, 2019

Parliament should come together to support Government's step to make NHRC more inclusive and efficient, said Union Minister of State for Home Affairs, Shri Nityanand Rai, while moving the Protection of Human Rights (Amendment) Bill, 2019 for consideration and passing in Lok Sabha today.

Why amendment in the bill:

- The Protection of Human Rights Act, 1993 was enacted to provide for the constitution of a National Human Rights Commission (NHRC), the State Human Rights Commission (SHRC) and the Human Rights Courts for protection of human rights.
- The NHRC has proposed certain amendments to the Act to address the concerns raised at certain global platforms.
- Besides this, certain State Governments have also proposed for amendment of the Act, as they have been facing difficulties in finding suitable candidates to the post of Chairperson of the respective State Commissions owing to the existing eligibility criteria to the said post.
- In view of the above, it has become necessary to amend certain provisions of the said Act.
- The proposed amendments will enable both the Commission as well as the State Commissions to be more compliant with the Paris Principles concerning its autonomy, independence, pluralism and wide-ranging functions in order to effectively protect and promote human rights.

The Protection of Human Rights (Amendment) Bill, 2019, inter alia, provides

- that a person who has been a Judge of the Supreme Court is also made eligible to be appointed as Chairperson of the Commission in addition to the person who has been the Chief Justice of India;
- to increase the Members of the Commission from two to three of which, one shall be a woman;
- to include Chairperson of the National Commission for Backward Classes, Chairperson of the National Commission for Protection of

Child Rights and the Chief Commissioner for Persons with Disabilities as deemed Members of the Commission;

- to reduce the term of the Chairperson and Members of the Commission and the State Commissions from five to three years and shall be eligible for re-appointment;
- to provide that a person who has been a Judge of a High Court is also made eligible to be appointed as Chairperson of the State Commission in addition to the person who has been the Chief Justice of the High Court; and,
- to confer upon State Commissions, the functions relating to human rights being discharged by the Union territories, other than the Union territory of Delhi, which will be dealt with by the Commission.

One Stop Crisis Centre

One Stop Centre (OSC) at the district level maintains the record of complaints received from women affected by violence. Ministry of Women and Child Development reviews the functioning of OSCs from time to time.

About the OSC

- As per the guidelines, OSCs are required to have the facility for temporary stay up to 5 days with 5 beds.
- To address the complaints of aggrieved women, the Scheme of One Stop Centre is to provide for a range of services for violence affected women including police facilitation, legal counselling, psycho-social counselling, medical aid and temporary shelter in an integrated manner under one roof.
- Under the scheme, OSCs are required to have a centre administrator, case workers, medical personnel, police facilitation officer, psycho-social counsellor, legal counsellor, security guard, IT staff and multi-purpose workers.
- Capacity building of OSC functionaries are undertaken through National, Regional and State trainings and workshops to improve the responsiveness of OSC staff.
- OSCs are also integrated with Women Helpline to improve the functioning and responsiveness of OSC staff.
- Media and publicity campaigns are undertaken to increase awareness about OSCs at district level.

National Medical Commission (NMC) Bill

On Monday, Union Health Minister Harsh Vardhan introduced the National Medical Commission (NMC) Bill in Lok Sabha. [Background](#)

An earlier version of this Bill was introduced in the 16th Lok Sabha, and had passed the scrutiny of the Parliamentary Standing Committee on Health and Family Welfare.

However, that Bill lapsed at the end of the term of the last Lok Sabha.

Once the NMC Bill is enacted, the Indian Medical Council Act, 1956, will stand repealed.

The existing Act provides for the Medical Council of India (MCI), the medical education regulator in India.

Why is Medical Council of India being replaced?

- The Parliamentary Standing Committee on Health and Family Welfare examined the functioning of the MCI in its 92nd report (in 2016) and was scathing in its criticism:
- “The Medical Council of India, when tested on the above touchstone (of producing competent doctors, ensure adherence to quality standards etc) has repeatedly been found short of fulfilling its mandated responsibilities.
- Quality of medical education is at its lowest ebb; the current model of medical education is not producing the right type of health professionals that meet the basic health needs of the country because medical education and curricula are not integrated with the needs of our health system;
- many of the products coming out of medical colleges are ill-prepared to serve in poor resource settings like Primary Health Centre and even at the district level;
- medical graduates lack competence in performing basic health care tasks like conducting normal deliveries;
- instances of unethical practice continue to grow due to which respect for the profession has dwindled.”
- Such state of affairs are also symptomatic of the rot within and point to a deep systemic malice”.

How will the proposed National Medical Commission (NMC) function?

- The NMC Bill provides for the constitution of a 25-member NMC selected by a search committee, headed by the Cabinet Secretary, to replace the MCI.

- The Bill provides for just one medical entrance test across the country, single exit exam (the final MBBS exam, which will work as a licentiate examination), a screening test for foreign medical graduates, and an entrance test for admission in postgraduate programmes.
- The Bill proposes to regulate the fees and other charges of 50 per cent of the total seats in private medical colleges and deemed universities.
- A medical advisory council — which will include one member representing each state and Union Territory (vice-chancellors in both cases), chairman of the University Grants Commission, and the director of the National Accreditation and Assessment Council — will advise and make recommendations to the NMC.
- Four boards — dealing with undergraduate and postgraduate medical education, medical assessment and rating board, and the ethics and medical registration board — will regulate the sector.
- The structure is in accordance with the recommendations of the Group of Experts headed by Ranjit Roy Chaudhury, set up by the Union Health Ministry to study the norms for the establishment of medical colleges.

Significance

The Bill marks a radical change in regulatory philosophy; under the NMC regime, medical colleges will need permission only once — for establishment and recognition.

There will be no need for annual renewal, and colleges would be free to increase the number of seats on their own, subject to the present cap of 250.

They would also be able start postgraduate courses on their own. Fines for violations, however, are steep — 1.5 times to 10 times the total annual fee charged.

What are the changes in the 2019 Bill?

- There are two crucial changes, following the recommendations of the Parliamentary Standing Committee on Health and Family Welfare (109th report in 2018).
- One, it has dropped a separate exit examination.
- Two, it has dropped the provision that allowed practitioners of homoeopathy and Indian systems of medicine to prescribe allopathy medicines after a bridge course.

What did the panel say about exit exam?

On the National Licentiate Examination, the Committee (in 2018) recommended that the relevant clause be redrafted “so as to make the final year MBBS examination as the licentiate examination”.

Ban on colistin

Why in news?

The Ministry of Health and Family Welfare has issued an order prohibiting the manufacture, sale and distribution of colistin and its formulations for food-producing animals, poultry, aqua farming and animal feed supplements.

Significance

- Intensivists across the country are rejoicing as the move is a “massive victory” for the movement against anti-microbial resistance.
- Colistin is a valuable, last-resort antibiotic that saves lives in critical care units and in recent years, medical professionals have been alarmed by the number of patients who have exhibited resistance to the drug.
- Therefore, any move to ensure that arbitrary use of colistin in the food industry, particularly as growth supplements used in animals, poultry, aqua farms, would likely reduce the antimicrobial resistance within the country.

GS-3.

Union Budget:Farmer Friendly Measures:

When doubling of farmers’ income agenda is being rigorously pursued by the government, a fresh slew of measures through this Budget will only firm up the prospects of the agriculture and rural development sectors. The crux of the Budget is ‘sustainability’ in every aspect, be it agriculture practices or economic viability.

Steps Taken:

- An announcement of formation of 10,000 new FPOs over the next five years is a step towards the same.

With this, the economies of scale can be harnessed to achieve the goal of doubling farmer's income by reduction in input costs and assuring better price realisations by the farmers for their output.

- The government's impetus is to promote non-farm activities to boost economic viability of farmers. Owing to climate change challenges, it has become imperative to explore viable and sustainable non-farm means of income generation.
- A new scheme — Pradhan Mantri Matsya Sampada Yojana — will give enough confidence to those who are in fisheries sector, to enhance their income with better fisheries management, infrastructure creation, increasing production and productivity, improved post-harvest management bringing economic viability of the sector.
- As the government wants to extend the parameters of ease-of-doing business and ease-of-living to the rural areas too, the emphasis of 'Gaon, Garib and Kisan' will see the uplift of rural lives of farmers and the poor, equally.
- The government has shown that every person having potential to bring economic revolution will be given an equal opportunity.
- Another new scheme — SFURTI — is an attempt in this direction.
- Now, under Pradhan Mantri Gram Sadak Yojana, a road network of 1.25 lakh km will bring more villages to rural markets.
- Enhancing the prospects of agripreneurs, the ASPIRE scheme will create 50,000 skilled rural entrepreneurs, especially in the rural agriculture sector.

Power generation

- To expand the income sources of our farmers, there is a proposal to enable them to take up power generation activities on their field to transform the Annadata to an Urjadata.
- In the dairy sector, cooperatives will be encouraged to create infrastructure for cattle field management, milk production, processing and marketing.

- For relieving farmers from uncertain prospects, the States will be forced to implement e-NAM mechanism for better operations under the APMC Act.
- The goal of “Har Ghar Jal” by 2024 shows the sensitivity to the issue of water availability and its scarcity, equally.

Integration of funds from various Ministries to fund the Jal Shakti Abhiyan may see critical water blocks being regained. In a nutshell, ‘sustainability’ has largely remained at the centre of this Budget.

Desalination technology :

The story so far:

With warnings from India’s top policy-makers and reports of major cities in India struggling to stave off a water crisis, there’s talk about exploring technologies to harness fresh water. The one idea that’s been around for a while is desalination, or obtaining freshwater from salt water. Desalination technology is not an esoteric idea — the city of Chennai already uses desalinated water. However, it only has a limited application, given the operation costs.

What is desalination technology?

- To convert salt water into freshwater, the most prevalent technology in the world is reverse osmosis (RO).
- A plant pumps in salty or brackish water, filters separate the salt from the water, and the salty water is returned to the sea. Fresh water is sent to households.
- Osmosis involves ‘a solvent (such as water) naturally moving from an area of low solute concentration, through a membrane, to an area of high solute concentration.
- A reverse osmosis system applies an external pressure to reverse the natural flow of solvent and so seawater or brackish water is pressurised against one surface of the membrane, causing salt-depleted water to move across the membrane, releasing clean water from the low-pressure side’.

Global Distribution:

- There are about 18,000 desalination plants in the world across 150 countries and nearly half of Israel's water is sourced through desalination.

How popular is it in India?

- Years of water crises in Chennai saw the government set up two desalination plants between 2010 and 2013.
- Last November, Gujarat Chief Minister, Vijay Rupani, announced plans of setting up a 100 MLD RO plant at the Jodiya coast in Jamnagar district.
- This would go a long way in 'solving' the water availability problems in the drought-prone Saurashtra region.
- Other plants of a similar size are expected to come up in Dwarka, Kutch, Dahej, Somnath, Bhavnagar and Pipavav, which are all coastal places in Gujarat.
- There are also a slew of desalination plants that cater to industrial purposes. For now, India's real-world experience with desalination plants is restricted to Chennai.

What are the problems with RO plants?

Because RO plants convert seawater to fresh water, the major environmental challenge they pose is the deposition of brine (highly concentrated salt water) along the shores.

- Ever since the Chennai plants have started to function, fishermen have complained that the brine being deposited along the seashore is triggering changes along the coastline and reducing the availability of prawn, sardine and mackerel.
- Environmentalists second this saying that hyper salinity along the shore affects plankton, which is the main food for several of these fish species.
- Moreover, the high pressure motors needed to draw in the seawater end up sucking in small fish and life forms, thereby crushing and killing them — again a loss of marine resource.

- Another unexpected problem, an environmentalist group has alleged, was that the construction of the RO plants required troves of groundwater.
- This was freshwater that was sucked out and has since been replaced by salt water, rendering it unfit for the residents around the desalination plants.
- On an average, it costs about ₹900 crore to build a 100 MLD-plant and, as the Chennai experience has shown, about five years for a plant to be set up.
- To remove the salt required, there has to be a source of electricity, either a power plant or a diesel or battery source.

Is RO water healthy?

- In the early days of RO technology, there were concerns that desalinated water was shorn of vital minerals such as calcium, magnesium, zinc, sodium, potassium and carbonates.
- They are collectively referred to as TDS.
- Higher quantities of these salts in desalination plants tend to corrode the membranes and filtration system in these plants.
- So ideally, a treatment plant would try to keep the TDS as low as possible.
- Most RO plants, including the ones in Chennai, put the water through a 'post-treatment' process whereby salts are added to make TDS around 300 mg/l.
- Several of the home-RO systems that are common in affluent Indian homes, too employ post-treatment and add salts to water.

Are there technological alternatives?

- The alternative desalination technology used is thermal energy sourced from the ocean.
- There is a low-temperature thermal desalination (LTTD) technique for instance which works on the principle that water in the ocean 1,000 or 2,000 feet below is about 4° C to 8° C colder than surface water.
- So, salty surface water is collected in a tank and subject to high pressure (via an external power source).

- This pressured water vapourises and this is trapped in tubes or a chamber.
- Cold water plumbed from the ocean depths is passed over these tubes and the vapour condenses into fresh water and the resulting salt diverted away.

Indigenous Aircraft Carrier (IAC) Vikrant

Why in News?

The country's first Indigenous Aircraft Carrier (IAC), Vikrant, is in advanced stage of construction and will be delivered to the Navy in 2021 for advanced trials, .

About Vikrant:

- Vikrant, weighing 40,000 tonnes, is being built by Cochin Shipyard Limited.
- It works on Short Take-Off But Arrested Recovery (STOBAR) mechanism similar to the present carrier INS Vikramaditya with an angular ski-jump.
- The ship is powered by four General Electric (GE) gas turbines.
- It will operate Russian origin MiG-29K fighters, which also fly from Vikramaditya.
- The ship's combat management system (CMS) was developed by Tata Power Strategic Engineering Division in collaboration with Weapon and Electronics System Engineering Establishment and MARS, Russia.
- It is the first CMS developed by a private company for the Indian Navy.

Significance of Aircraft Carrier:

- An aircraft carrier is a warship that serves as a seagoing airbase, equipped with a full-length flight deck and facilities for carrying, arming, deploying, and recovering aircraft.
- Typically, it is the capital ship of a fleet, as it allows a naval force to project air power worldwide without depending on local bases for staging aircraft operations.

- While heavier aircraft such as fixed-wing gunships and bombers have been launched from aircraft carriers, it is currently not possible to land them.
- By its diplomatic and tactical power, its mobility, its autonomy and the variety of its means, the aircraft carrier is often the centerpiece of modern combat fleets. \
- One of its great advantages is that, by sailing in international waters, it does not interfere with any territorial sovereignty and thus obviates the need for overflight authorizations from third party countries, reduce the times and transit distances of aircraft and therefore significantly increase the time of availability on the combat zone

Nhai Signs MoU with NIIF for funding highway projects

Details:

National Highways Authority of India (NHAI) today signed an MoU with National Investment and Infrastructure Fund (NIIF) .

The MoU is related to co-operation in formation of SPVs to execute the fund arrangement for large size road projects particularly green field projects to be executed by NHAI in future.

What is NIIF:

- NIIF is a fund promoted by Government of India to give boost to the infrastructure sector in the country.
- National Investment and Infrastructure Fund (NIIF) is India's first sovereign wealth fund that was set up by the Government of India in February 2015.
- The objective behind creating this fund was to maximize economic impact mainly through infrastructure investment in commercially viable projects, both Greenfield and Brownfield.
- It was proposed to be established as an Alternative Investment Fund to provide long tenor capital for infrastructure projects with an inflow of Rs. 20,000 crore from the Government of India.

- NIF was approved in August 2015 by the Department of Economic Affairs. First meeting of its governing council was held in December 2015 further to which it was registered with SEBI as Category II Alternative Investment Fund.
- As of September 2018, the NIF manages funds of over US\$ 3.4 billion.

Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme

Context:

The National Electric Mobility Mission Plan (NEMMP) 2020 is a National Mission document providing the vision and the roadmap for the faster adoption of electric vehicles and their manufacturing in the country.

As part of the NEMMP 2020, Department of Heavy Industry formulated a Scheme viz. Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme in the year 2015 to promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same.

About the Scheme:

- The Phase-I of this Scheme was initially launched for a period of 2 years, commencing from 1st April 2015, which was subsequently extended from time to time and the last extension was allowed up to 31st March 2019.
- The 1st Phase of FAME India Scheme was implemented through four focus areas namely
 - (i) Demand Creation,
 - (ii) Technology Platform,
 - (iii) Pilot Project and
 - (iv) Charging Infrastructure.
- Market creation through demand incentives was aimed at incentivizing all vehicle segments i.e. 2-Wheelers, 3-Wheelers Auto, Passenger 4-Wheeler vehicles, Light Commercial Vehicles and Buses.

Evaluation of the Scheme:

The evaluation of Phase-I of FAME Scheme was done by an independent consultant. The main findings of the validation of outcome report as submitted by consultant are given below:

- During the last 2 years, the agenda of clean mobility has been placed front and center in all discussions. The relatively increased awareness, is in itself a notable achievement.
- Overall outcomes of key parameters of Fuel saving and CO₂ reduction are significantly below the target for FAME;
- Industry players have been cautious about developing capabilities – players have chosen to operate adjacent to their core capabilities
- Subsidy structure needs to be revised based on the powertrain technology (to incentivize cleaner technologies) and to establish parity across technologies
- Overall phased implementation plan has taken off but at the very slow pace, demonstrated limited progress in the first phase.

Future of scheme:

- Based on the experience gained during Phase 1 of FAME Scheme and suggestions of various stakeholders including industry associations, the Department of Heavy Industry notified Phase-II of the Scheme.

The DNA Technology (Use and Application) Regulation Bill – 2019

Why in News?

Union Minister of Science and Technology, Dr. Harsh Vardhan introduced “The DNA Technology (Use and Application) Regulation Bill, 2019” today in the Lok Sabha.

Purpose:

-]This Bill is for the regulation of use and application of DNA technology for the purpose of establishing identity of missing persons, victims, offenders, under trials and unknown deceased persons.

- The primary intended purpose of "The DNA Technology (Use and Application) Regulation Bill, 2019" is for expanding the application of DNA-based forensic technologies to support and strengthen the justice delivery system of the country.
- The utility of DNA based technologies for solving crimes, and to identify missing persons, is well recognized across the world.
- By providing for the mandatory accreditation and regulation of DNA laboratories, the Bill seeks to ensure that with the proposed expanded use of this technology in this country, there is also the assurance that the DNA test results are reliable, and furthermore that the data remain protected from misuse or abuse in terms of the privacy rights of our citizens.

Benefits of the Bill:

- The proposed legislation will empower the criminal justice delivery system by enabling the application of DNA evidence, which is considered the gold standard in crime investigations.
- Establishment of the National and Regional DNA Data Banks, as envisaged in the Bill, will assist in forensic investigations.
- The proposed Bill will give fillip to the development of uniform code of practices in all laboratories involved in DNA testing throughout the country .
- This will aid in scientific up gradation and streamlining of the DNA testing activities in the country with appropriate inputs from the DNA Regulatory Board which would be set up for the purpose.
- It is expected that the expanded use of this scientifically driven technology would empower the existing justice delivery system.

Nanoclean AC Filters:

Why in News?

Nanoclean AC Filters can turn your AC into an air purifier. Made of a specially-designed non-woven structure, the device has been developed in tandem with Prof Ashwini K Agrawal, HOD, Department of Textile Technology and Prof Manjeet Jassal, from the same department.

About the filters:

- These are easy-to-use, nearly invisible nasal filters, which are clipped onto your nostrils to prevent particulate matter from entering while breathing.
- Affordable, at ₹10 a piece, this one-time-use anti-pollution filter can hold up to a day.
- Nasofilter is a patented technology, and the company exports its products to 30 countries, such as Thailand, Vietnam, Indonesia and more. Currently, their manufacturing unit is based in Ahmedabad.

How do we use it?

- It is a Do-It-Yourself (DIY) product and can easily be placed in both a split as well as window AC.
- One only has to place it on the frame of the existing AC Filter. The product is unwashable.

How pure does the air get with this device?

- It can purify a room up to 90% in just 35-40 minutes (less than an hour).
- It removes PM2.5 and other micro-particle pollutants from the air.

Does it have any negative impact on either cooling or electricity consumption?

- No, the Nanoclean AC Filter, when fitted, occupies less than 45-50% of the space of the inbuilt cooling filter, hence cooling is taken care of.
- And with the use of Nanotechnology, these filters allow ACs to become purifiers at no recurrent electricity cost.

What is it made of?

- A proprietary (specially designed) non-woven structure which is able to retain pollutants (PM2.5), made up of pure PP (polypropylene) which can be recycled into other products (making it an environmentally friendly technology)

Liquidity Situation in NBFCs

Context:

As per Reserve Bank of India (RBI)'s Financial Stability Report (FSR), released on June 27, 2019, liquidity stress in NBFCs was reflected in the third quarter of the last financial year due to an increase in funding costs and difficulties in market access in some cases.

About FSR:

Further, despite this, better-performing NBFCs with strong fundamentals were able to manage their liquidity even though their funding costs moved with market sentiments.

FSR also states that better-performing companies continue to raise funds, while those with asset-liability management and/or asset quality concerns are subject to higher borrowing costs.

Steps Taken to strengthen regulation of NBFC:

1. Open market operations were conducted, in addition to regular Liquidity Adjustment Facility auctions, to inject liquidity in financial markets.
2. The single-borrower exposure limit for NBFCs that do not finance infrastructure was increased from 10 percent to 15 percent of capital funds, up to 31st March 2019.
3. Banks were permitted to provide partial credit enhancement for non-deposit accepting systematically-important NBFCs registered with RBI and HFCs registered with National Housing Bank as per guidelines.
4. RBI reduced the minimum average maturity requirement for External Commercial Borrowings in the infrastructure space raised by eligible borrowers from five years to three years.
5. NBFCs were provided regulatory concessions to enable restructuring of MSME loans.
6. NBFCs with assets over Rs. 5,000 crore have been asked to appoint a Chief Risk Officer to improve the standards of risk management.

What are NBFC?

- A Non Banking Financial Company (NBFC) is a company registered under the Companies Act, 1956 of India, engaged in the business of loans and advances, acquisition of shares, stock, bonds, hire-purchase insurance business or chit-fund business but does not include any institution whose principal business includes

agriculture, industrial activity or the sale, purchase or construction of immovable property.

Generic medicines:

Why in News?

With an objective of making quality generic medicines available at affordable prices to all, PradhanMantriBhartiya Jan AushadhiPariyojana (PMBJP) was launched by the Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India.

Objectives of the scheme:

- Making quality medicines available at affordable prices for all, particularly the poor and disadvantaged, through exclusive outlets “Pradhan Mantri Bhartiya Janaushadhi Kendras”, so as to reduce out of pocket expenses in healthcare
- Under this scheme, dedicated outlets known as Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJKs) are opened to sell generic medicines at affordable rates.

Implementation Agency

- BPPI (Bureau of Pharma PSUs of India), under the administrative control of the Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India will be the implementation agency for the PMBJP.
- BPPI has been established under the Department of Pharmaceuticals, Government of India, with the support of all the Pharma CPSUs for coordinating procurement, supply and marketing of generic drugs through the Pradhan Mantri Bhartiya Janaushadhi Kendras.

NLEM:

- The National List of Essential Medicines (NLEM) is one of the key instruments in healthcare delivery system of a country which inter alia includes accessible, affordable quality medicine at all the primary, secondary, tertiary levels of healthcare.

- The primary purpose of NLEM is to promote rational use of medicines considering the three important aspects i.e. cost, safety and efficacy.
- Furthermore it promotes prescription by generic names.
- The list serves as a reference document for correct dosage form and strength for prescribing.

Economically Weaker Sections (EWS) Bill

Why in News?

Articles 15(6) and 16(6) have been inserted in the Constitution, vide the Constitution (One Hundred and Third Amendment) Act, 2019.

Purpose of the Amendment:

- This enables the State to provide the benefits of reservation on preferential basis to the Economically Weaker Sections (EWSs) in civil posts and services in the Government of India and admission in Educational Institutions.
- Accordingly, the provision for 10% reservation to the EWS was implemented by the Government in January 2019.
- The data regarding number of persons who have availed benefit of EWS reservation for appointment in Government services till date will be available with DOPT after uploading of data for the current year commence.
- Instructions have been issued by the Ministry of HRD for increasing the total number of seats over a period of two years, to provide for 10% EWS reservation, without adversely affecting the proportionate seats of SCs, STs and OBCs.

Eligibility:

- 10% reservation under EWS category is applicable to those persons who are not covered under the existing scheme of reservations for the Scheduled Castes, the Scheduled Tribes and the Socially and Educationally Backward Classes.

Feminization of Agriculture:

Context:

As per Agriculture Census conducted at an interval of every five years by the Department of Agriculture, Cooperation and Farmers Welfare, the percentage of female operational holdings in the country have

increased from 12.78 percent during 2010-11 to 13.78 percent during 2015-16.

Steps taken in this regard:

- Ministry of Rural Development is already implementing a programme exclusively for women farmers namely, Mahila Kisan Sashaktikaran Pariyojana (MKSP), which is a sub-component of Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM).
- The primary objective of MKSP is to empower women by enhancing their participation in agriculture and to create sustainable livelihood opportunities for them.
- Funding support to the tune of up to 60% (90% for North Eastern States) for such projects is provided by the Government of India.
- The Department of Agriculture Cooperation and Farmers Welfare is also promoting mainstreaming of Gender Concerns in agriculture by ensuring flow of funds and benefits to the tune of 30% for women farmers under its beneficiary oriented Schemes and Programmes.
- Besides, Government is providing additional support and assistance to women farmers, over and above the male farmers under a few selected Schemes.

Garbage at Mount Everest:

Why in News?

In a bid to save Mount Everest from trash, Nepal conducted a month-long cleaning campaign and collected around 10,000 kg of rubbish from the region.

What is being Done?

- Instead of sending the solid waste straight to the landfill near Kathmandy, the items were segregated, processed and recycled as raw materials for various products.
- They segregated the collected materials in different categories such as plastic, glass, iron, aluminium and textile.
- Besides recycling the waste, team is also working with municipalities, hospitals, hotels and different offices to maximise value from waste by recycling, reducing the amount of waste sent to landfills and by creating green jobs.

- To make the campaign more effective, the company suggested authorities to set up an initial processing unit in the mountain area itself, so that waste can be segregated immediately and easily managed.

Selling products online

- Though the company does not recycle the materials itself, it collaborates with another firm called Moware Designs to create up-cycled glass bottle products and to sell them online.
- Glass products are trendy and useful for homes home, offices, restaurants and hotels.
- They are used as decorative items as a flower vase, candle cover, plates, travel cups, regular drinking glasses or as an accessory.
- These products, which range from 350 Nepalese rupees to 2,000 Nepalese rupees (\$3 to \$18), are bacteria free as they are sterilized.
- These glass items have also been a means of livelihood for local women who shape them into trendy designs.

Steps Taken to Stop Terror Financing:

Why in News?

The Government has taken various steps to combat terror financing in the country, which inter alia, include:-

- i) Strengthening of the provisions in the Unlawful Activities (Prevention) Act, 1967 to combat terror financing.
- ii) A Terror Funding and Fake Currency Cell (TFFC) has been constituted in National Investigation Agency (NIA) to conduct focused investigation of terror funding and fake currency cases.
- iii) Since Fake Indian Currency Notes (FICN) network is one of the channels of terror financing in India, FICN Coordination Group (FCORD) is been formed by the MHA to share intelligence/information among security agencies of the states/centre to counter the problem of circulation of fake currency notes.
- iv) The withdrawal of legal tender status of Specified Bank Notes of Rs 500 and Rs 1000 denomination led to instant extinguishment of high quality fake Indian currency notes of these denominations.

V) Since illegally held cash forms a large chunk of terrorist funding, most of the cash held with the terrorists turned worthless.

What is terror financing?

- The financing of terrorism involves providing finance or financial support to individual terrorists or non-state actors.
- Some countries maintain a list of terrorist organizations and have money laundering laws, which are also used to combat providing finance for those organizations.
- The FATF Blacklist (the NCCT list) mechanism was used to coerce countries to bring about change.
- A 2008 FATF report on terrorism financing noted the importance of links between financial tools and wider counter-terrorist activity to combat terrorist financing.

Unregulated Deposit Schemes Bill, 2019

Why in News?

The Union Cabinet, chaired by the Prime Minister Narendra Modi has approved the banning of Unregulated Deposit Schemes Bill, 2019.

It will replace the banning of Unregulated Deposit Schemes Ordinance, 2019.

The banning of Unregulated Deposit Schemes Bill, 2019 will replace the Ordinance promulgated on 21st February, 2019, which will otherwise cease to operate after six weeks after reassembly of Parliament.

Impact

- The Bill will help tackle the menace of illicit deposit taking activities in the country, which at present are exploiting regulatory gaps and lack of strict administrative measures to dupe poor and gullible people of their hard-earned savings.

Background

- The banning of Unregulated Deposit Scheme Bill, 2018 was considered by the Lok Sabha in its sitting held on 13th February, 2019 and after discussion, the same was passed, as amended

through the proposed official amendments, as the banning of Unregulated Deposit Scheme Bill, 2019.

- However, before the same could be considered and passed in the Rajya Sabha, the Rajya Sabha was adjourned sine die on the same day.

About the Bill:

The Bill provides for a mechanism to ban unregulated deposit schemes and protect the interests of depositors.

It also seeks to amend three laws, including the Reserve Bank of India Act, 1934 and the Securities and Exchange Board of India Act, 1992.

- Unregulated deposit scheme: A deposit-taking scheme is defined as unregulated if it is not registered with the regulators listed in the Bill.
- Competent Authority: The Bill provides for the appointment of one or more government officers, not below the rank of Secretary to the state or central government, as the Competent Authority.

The Competent Authority may: (i) provisionally attach the property of the deposit taker, as well as all deposits received, (ii) summon and examine any person it considers necessary for the purpose of obtaining evidence, and (iii) order the production of records and evidence. The Competent Authority will have powers similar to those vested in a civil court.

- Designated Courts: The Bill provides for the constitution of one or more Designated Courts in specified areas. This Court will be headed by a judge not below the rank of a district and sessions judge, or additional district and sessions judge.

Offences and penalties: The Bill defines three types of offences, and penalties related to them.

These offences are: (i) running (advertising, promoting, operating or accepting money for) unregulated deposit schemes,

(ii) fraudulently defaulting on regulated deposit schemes, and

(iii) wrongfully inducing depositors to invest in unregulated deposit schemes by willingly falsifying facts.

Repeated offenders under the Bill will be punishable with imprisonment between five to 10 years, along with a fine ranging from 10 lakh to five crore rupees.

Plastic Pollution:

Why in News?

More than 300 women will join a round-the-world voyage launching in October to highlight the devastating impact of plastic pollution in the oceans and conduct scientific research into the escalating crisis.

Why is it needed?

- Millions of tonnes of plastic, from food packaging to fishing gear enters the sea each year, leading some marine experts to warn that there could be more plastic than fish in our oceans by 2050.

About the voyage:

- The two-year all-female voyage comprises scientists, teachers, filmmakers, product designers, photographers and athletes.
- It is organised by eXXpedition, a non-profit focusing on marine pollution - will collect samples from some of the planet's most important and diverse marine environments to build a picture of the state of the seas.
- The 38,000 nautical mile trip will cover the Arctic, the Galapagos Islands, the South Pacific islands and central ocean areas where plastic accumulates because of circulating currents.

Need of the hour:

- There's a misconception that there are islands of plastic out there that you can see, but it's more like a soup.
- It's fine fragments and the solution was to "turn off the tap" on land and stop the plastic entering the sea in the first place.
- The research will focus on identifying the types of plastic and finding tailored solutions.
- "There's not one silver bullet solution. We need to be working from every sector, from every angle. "We need design of new materials,

we need policy change, we need education, we need the arts to be shifting mindsets, we need engineers.

- The only way we are going to solve it is by all working together.

Automated Facial Recognition System (AFRS):

What is it?

The AFRS, being implemented by the National Crime Records Bureau (NCRB), is a component of Crime and Criminal Tracking Network and Systems (CCTNS), a national database of crimes and criminals.

The data will only be accessible to law enforcement agencies.

Concerns about Privacy:

- The Automated Facial Recognition System (AFRS) would not violate privacy of citizens and is only being developed to help the law enforcement agencies to identify criminals, missing children and unidentified bodies in a scientific and speedy manner.

Details:

- The NCRB had last week invited bids for AFRS that would even “capture face images from CCTV feed and generate alerts if a blacklist match is found,” triggering privacy concern.
- At present, there are 7.71 lakh cases of missing persons in the CCTNS database that includes 98,000 children.
- “This software will be used only in respect of such persons who figure on the CCTNS data base -- accused persons, prisoners, missing persons and unidentified found persons including children, and unidentified dead persons -- and is not going to be used on any other data base
- Just as fingerprint matching is used in investigation by the police by matching fingerprint found in crime scene with the fingerprint database, the AFRS will add another information layer to investigation by allowing matching photograph of suspect or missing person with the photo database of CCTNS.

Helping against crime:

- In case a person is suspected or arrested for crime during investigation, his photo can also be matched over the CCTNS data base for previous criminal records.
- This will ensure that criminals and terrorists will no longer be able to hide behind fake identities.
- Presently, police undertake manual search for matching photographs on CCTNS data base.

Artificial Intelligence:

Why in News?

The Union Health Ministry is working towards using Artificial Intelligence (AI) in a safe and effective way in public health.

Union Health Minister Harsh Vardhan said in Lok Sabha on July 12 that to address gaps in India's AI ecosystem and realise its economic impact, the central government has prioritised building AI technology capabilities.

Potential in health sector:

- The potential of AI in public health is being explored in our country. The Ministry of Health and Family Welfare (MoHFW) is working towards using AI in a safe and effective way in public health in India/
- A few of the initiatives undertaken by the central government to use AI in public health are Imaging Biobank for cancer, for which the NITI Aayog with Department of Bio-Technology (DBT) aims to build a database of cancer-related radiology and pathology images of more than 20,000 profiles of cancer patients with focus on major cancers prevalent in India.
- NITI Aayog is working on using AI for early detection of diabetic retinopathy.
- NITI Aayog is currently in the process of developing institutional mechanism, funding framework and other such steps to realise India's AI aspirations.
- NITI Aayog, after consultation with various ministries and leading academicians, institutions, practitioners and industry players,

released India's National Strategy for Artificial Intelligence in June 2018.

Ease of doing business:

Why in News?

Union Finance Minister Nirmala Sitharaman, said the government will increase its focus on agriculture infrastructure.

“Ease of doing business and ease of living should apply to farmers,” she said.

In this regard, Ms. Sitharaman suggested that farmers take up zero-budget farming. “

What is zero-budget farming?

- Zero-budget farming is a form of natural farming which is neither chemical-loaded nor organic with its reliance on manure.
- It is a form of gardening as a self-sustainable practice with minimum external intervention.
- This concept was first propagated 25 years ago by Subhash Palekar as a movement for farmers who were in debt due to the Green Revolution and is now being used by a large number of farmers across the country.

Hayabusa:

Why in News?

Japan's Hayabusa2 probe made a “perfect” touchdown on Thursday on a distant asteroid, collecting samples from beneath the surface in an unprecedented mission that could shed light on the origins of the solar system.

“We have never gathered sub-surface material from a celestial body further away than the moon,” he added.

Details of Mission:

- The brief landing on Thursday is the second time Hayabusa2 has touched down on the desolate asteroid Ryugu, some 300 million kilometres from Earth.
- Ryugu, which means “Dragon Palace” in Japanese, refers to a castle at the bottom of the ocean in an ancient Japanese tale.
- The complex multi-year Hayabusa2 mission has also involved sending rovers and robots down to the surface.
- Thursday’s touchdown was intended to collect pristine materials from beneath the surface of the asteroid that could provide insights into what the solar system was like at its birth, some 4.6 billion years ago.
- To get at those crucial materials, in April an “impactor” was fired from Hayabusa2 towards Ryugu in a risky process that created a crater on the asteroid’s surface and stirred up material that had not previously been exposed to the atmosphere.
- Hayabusa2’s first touchdown was in February, when it landed briefly on Ryugu and fired a bullet into the surface to puff up dust for collection, before blasting back to its holding position.
- The touchdown is the last major part of Hayabusa2’s mission, and when the probe returns to Earth next year to drop off its samples, scientists hope to learn more about the history of the solar system and even the origin of life on Earth.

Background:

- Hayabusa2 is the successor to JAXA’s first asteroid explorer, Hayabusa — Japanese for falcon — that returned with dust samples from a smaller, potato-shaped asteroid in 2010.
- It was hailed as a scientific triumph despite various setbacks during its epic seven-year odyssey.
- The Hayabusa2 mission was launched in December 2014, and has a price tag of around \$270 million.

FPI Inflow:

Why in News?

The Centre's budget proposal earlier this month to increase taxes on those with annual incomes of more than ₹2 crores (\$292,269) has rattled many foreign portfolio investors (FPIs).

The realisation that the new tax likely applies to the trusts through which many foreign investors put money into Indian financial markets sent stocks plunging last week. Now, their advisors say the investors are threatening to pull funds from India unless rules are amended so that they won't take a tax hit.

Here are some facts about the new tax rules.

What are the new rules?

- In her budget, Union Finance Minister Nirmala Sitharaman proposed a tax increase of 3% for individuals with an annual income of between ₹2 and ₹5 crores, and 7% for those earning more than ₹5 crores.
- The additional taxes apply to individuals, and groups of individuals who are an Association of Persons (AoP) or a body of individuals.
- It takes the tax rate of someone earning ₹2 crores up to 39%, and for those earning more than ₹5 crores the rate climbs to at least 42.7%.

Who will be affected?

- There are about 9,400 foreign portfolio investors registered in India, largely from tax domiciles in the United States, Mauritius, Ireland, Luxembourg, Singapore and the United Kingdom, who have invested nearly \$50 billion in Indian equity, debt and hybrid instrument markets.
- Tax experts say 30-40% of them, registered as trusts, could be affected by the new rules.

Why FPIs register as trusts?

- FPIs register as private trusts mainly to navigate cumbersome disclosure rules and other compliance questions.
- If structured as a corporate fund, they may have to pay a minimum alternate tax of 18.5%.
- In a trust structure, it is easy for investors to move capital in and out of trusts without paying high taxes.

What is likely to increase in a tax burden?

- The FPIs registered as trusts will be taxed as AoPs at the new rates.
- Though they will continue to be charged at the basic tax rate of 15% and 10% on short term and long term capital gains in financial markets, the increase in the overall income tax rates mean their tax bills will go up substantially.

Will FPIs withdraw funds or change structure?

- Tax consultants with overseas investors said the majority of investors are unlikely to withdraw their current investments particularly in the debt market though they would continue to lobby for withdrawal of tax rules.
- Future investments in India could depend not only on tax rates but on corporate earnings and the fundamentals of the Indian economy compared with other countries.
- Large number of FPIs may continue to use trusts and pay higher tax, as their promoters find the structure convenient and always have the option to shift to other markets.

Could it impact sovereign bonds, foreign investment flows?

- The proposed rules could hit India's plans to raise \$10-\$15 billion through overseas sovereign bonds and its attempts to attract more foreign investment in equities and debt, as many investors may feel reluctant to invest due to uncertainty over tax rates in India.
- If the government doesn't announce tax exemptions to proposed overseas sovereign bonds then there will be a negative impact.
- Government officials have suggested that they could tax interest payments on sovereign bonds under current rules.
- However, the details are still not public.

Mediterranean Sharks:

Why in News?

Sharks — the sea's top predators for millions of years — are at risk of disappearing from the Mediterranean as overfishing and plastic

pollution choke populations of the endangered hunters, conservationists have warned.

Observation by WWF:

- The World Wildlife Fund (WWF) said that more than half of shark and ray species in the Mediterranean were under threat, and that almost a third of them have been fished to the brink of extinction.
- Its report, released ahead of Shark Awareness Day, singled out Libya and Tunisia as the worst culprits, with each country's fishery hauling in about 4,200 tonnes of sharks a year — three times that of the next biggest Mediterranean fisher, Italy.
- While some species are targeted for food, many of the sharks fished in the Mediterranean are bycatch caught up in nets set for other fish.
- The WWF said it had recorded more than 60 shark species entangled in fishing nets across the Mediterranean.
- In addition, the explosion of plastic pollution is endangering shark populations, either through the animals ingesting or becoming enmeshed in refuse items.

The IUCN Red List of endangered species counts 79 endangered shark and 120 endangered ray species.

About WWF:

- The World Wide Fund for Nature (WWF) is an international non-governmental organization founded in 1961, working in the field of the wilderness preservation, and the reduction of human impact on the environment.
- WWF is the world's largest conservation organization with over five million supporters worldwide, working in more than 100 countries, supporting around 1,300 conservation and environmental projects.
- WWF is a foundation with 55% of funding from individuals and bequests, 19% from government sources (such as the World Bank, DFID, USAID) and 8% from corporations in 2014.

Aims and Objectives:

- WWF aims to "stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature."
- The Living Planet Report is published every two years by WWF since 1998; it is based on a Living Planet Index and ecological footprint calculation.
- In addition, WWF has launched several notable worldwide campaigns including Earth Hour and Debt-for-Nature Swap, and its current work is organized around these six areas: food, climate, freshwater, wildlife, forests, and oceans.

Blue Flag:

Why in News?

The Union Environment Ministry has selected 12 beaches in India to vie for a 'Blue Flag' certification, an international recognition conferred on beaches that meet certain criteria of cleanliness and environmental propriety.

These beaches are at Shivrajpur (Gujarat), Bhogave (Maharashtra), Ghoghla (Diu), Miramar (Goa), Kasarkod and Padubidri (Karnataka), Kappad (Kerala), Eden (Puducherry), Mahabalipuram (Tamil Nadu), Rushikonda (Andhra Pradesh), Golden (Odisha), and Radhanagar (Andaman & Nicobar Islands).

International standards

- To achieve the internationally recognised highest standard for the purpose of beach management, planning and execution of projects for infrastructure development, cleanliness, safety and security services, these beaches have been identified for Blue Flag Certification in different States and Union Territories.

About the Blue Flag:

- The Blue Flag Programme for beaches and marinas is run by the international, non-governmental, non-profit organisation FEE (the Foundation for Environmental Education).

- It started in France in 1985 and has been implemented in Europe since 1987, and in areas outside Europe since 2001, when South Africa joined.
- Japan and South Korea are the only countries in South and southeastern Asia to have Blue Flag beaches.
- Spain tops the list with 566 such beaches; Greece and France follow with 515 and 395, respectively.

33 criteria;

- There are nearly 33 criteria that must be met to qualify for a Blue Flag certification, such as the water meeting certain quality standards, having waste disposal facilities, being disabled- friendly, have first aid equipment, and no access to pets in the main areas of the beach.
- Some criteria are voluntary and some compulsory.

Beaches in India:

- India is set to apply for certification for two beaches, at Shivrajpur and Ghogla, by the end of this month.
- About ₹20 crore have been spent on each and the FEE jury will decide by October if these beaches meet the mark.
- If approved, beaches are given the qualification for a year and must apply annually to continue meriting the right to fly the flag at their locations.

To help Indian beaches meet these criteria, the Ministry has allowed structures such container toilet blocks, change rooms, shower panels, mini grey water treatment plants in an enclosed structure, mini solid waste recycling plants and off-grid solar photovoltaic panels, provided they are a minimum 10 metres from the high tide line.

Trade Deficit:

Why in News?

India's trade deficit narrowed by nearly 8% to \$15.28 billion during the last month, as against \$16.6 billion in June 2018, according to official data released on Monday.

Details:

- In June 2019, merchandise exports fell nearly 10% to \$25.01 billion as against \$27.70 billion in the year-ago month, the Commerce Ministry data showed.
- In rupee terms, exports stood at ₹1,73,682.55 crore, down 7.52% from ₹1,87,800.20 crore in June 2018.
- The data showed that merchandise imports too declined during the month under review from \$44.30 billion to \$40.29 billion, a fall of 9.06%.

Causes:

- The decline in exports in June 2019 is due in large part to a base effect of an extraordinarily good month in June 2018 impacting growth figures for June 2019.
- It added that the negative growth is consistent with certain global trends, which have impacted India's exports in recent months.
- The World Bank, in its Global Economic Prospects (June 2019), has projected weakening of global trade in 2019. Global trade is projected to grow at 2.6% this year – a full percentage point below their previous forecast.
- The major commodities which led to this decline were petroleum products, rice, cotton yarn/Fabrics/made-ups, gems and jewellery, ready-made garments, organic & inorganic chemicals, and Engineering goods.

What is Trade Deficit?

- The balance of trade, commercial balance, or net exports (sometimes symbolized as NX), is the difference between the monetary value of a nation's exports and imports over a certain time period.
- Sometimes a distinction is made between a balance of trade for goods versus one for services.

- The balance of trade measures a flow of exports and imports over a given period of time.
- The notion of the balance of trade does not mean that exports and imports are "in balance" with each other.
- If a country exports a greater value than it imports, it has a trade surplus or positive trade balance, and conversely, if a country imports a greater value than it exports, it has a trade deficit or negative trade balance.
- As of 2016, about 60 out of 200 countries have a trade surplus. The notion that bilateral trade deficits are bad in and of themselves is overwhelmingly rejected by trade experts and economists

Airports Economic Regulatory Authority of India (AERA):

Why in news?

The Rajya Sabha on July 16 passed a Bill allowing the Airports Economic Regulatory Authority of India (AERA) to bid out any new airport at a pre-determined tariff structure.

Details of the Bill:

- As many as 16 airports will be in the purview of AERA.
- All other airports continue to be looked after by the Civil Aviation Ministry.”
- Currently, major airports with an annual capacity to handle one-and-a-half million passengers come under the purview of Airports Economic Regulatory Authority of India (AERA).
- The AERA is a regulator that has the powers to set the tariffs charged at airports

Effect of the Bill:

- If the amendment is passed by Parliament, the definition of major airports would be changed to any aerodrome which has or is designated to have annual passenger capacity of three-and-a-half million

Global immunisation coverage:

Why in News?

Twenty million children worldwide – more than 1 in 10 – missed out on life-saving vaccines against diseases such as measles, diphtheria and tetanus in 2018, according to data from the WHO and the UNICEF.

It showed that an additional 1.5 million deaths could be avoided if global immunisation coverage improved.

Concerns:

- Globally, since 2010, vaccination coverage with three doses of diphtheria, tetanus and pertussis (DTP3) and one dose of the measles vaccine had stalled at 86 %
- In 2018, an estimated 19.4 million infants worldwide were not reached with routine immunisation services such as three doses of DTP vaccine.
- Around 60% of these children live in 10 countries: Angola, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Nigeria, Pakistan, the Philippines and Vietnam.
- While high, this is not sufficient. 95% coverage is needed — globally, across countries, and communities — to protect against outbreaks of vaccine-preventable diseases,” said WHO Director-General.

Case in Point:Measles outbreak

- Stark disparities in vaccine access persisted across and within countries of all income levels.
- This had resulted in devastating measles outbreaks in many parts of the world, including countries that had high overall vaccination rates.
- In 2018, almost 3,50,000 measles cases were reported globally, more than doubling from 2017.
- Ukraine leads a varied list of countries with the highest reported incidence rate of measles in 2018.

Drought rules 2016:

Why in news?

The All India Kisan Sabha (AIKS) on Tuesday demanded that the Centre scrap the Manual for Drought Management, 2016, which had changed the way that droughts are declared and the circumstances under which Central help can be sought by affected States.

Drought Prone Areas:

- Latest data from the India Meteorological Department show over half the country's land area still faces rainfall deficits of more than 20% this monsoon season.
- Saurashtra and Kutch are the worst affected region, with a 60% deficit as of June 16, followed by Gangetic West Bengal, parts of Rajasthan, Haryana and Kerala.
- Across the Deccan peninsula — in Marathwada, Vidarbha, Andhra Pradesh, Telangana and Tamil Nadu — the deficits hover in the 30-35% range.
- Rainfall is low, but even in areas where the deficit may not be high now, the rain has come late, affecting the sowing and growing of crops," he added.

Why demand for change in Drought inclusion criterion:

- Before 2016, it was considered a drought year in a particular area if there was deficient rainfall and the crop yield was less than 50% of the average of the previous 10 years.
- States could draw support from the Calamity Relief Fund and the National Calamity Contingency Fund.
- However, the Manual for Drought Management, issued by the Union Agriculture Ministry in 2016, brought in stringent new parameters.
- States are required to assess conditions using five indicators:
- Rainfall, agriculture, soil moisture, hydrology and crop health.
- The Manual allows States to request for support from the National Disaster Response Fund if a drought is declared as "severe".
- This can only happen if three impact indicators (apart from rainfall) fall into the "severe" category, he explained.
- "These conditions are so stringent that an area may not be officially declared as facing a severe drought even while its farmers are suffering.

G-securities

Why in news?

Yields of 10-year G-secs (or the 10-year government bonds) have been falling sharply and almost continuously of late. At the end of trading sessions on July 16, these yields were trading at a 30-month low.

So why does a fall in government bond yields matter?

- The way the bond market functions, the yield, or the interest rate earned, on a government bond — especially the 10-year one — is a good indicator of the prevailing interest rate in an economy.
- If yields on government bonds (also called government securities or G-secs) are falling, it is reflective of a downward movement in interest rates applicable for the broader economy as well.
- For the average consumer then, the rate of interest that she will pay for say, a new car this Diwali, will likely be lower than a year ago or indeed, the present.

And what exactly are G-secs?

- In simplest terms, a G-sec is an IOU given by the government to anyone who lends it money. Like every entity in an economy, the government too needs to borrow to carry out its functions. The G-sec is the government's vehicle to borrow from the public.

What makes G-secs attractive?

- In any investment, apart from the reward (that is, the rate of return or rate of interest), the other key factor is the level of risk.
- G-secs are appealing because they are considered to be among the safest of investments — the sovereign is not expected to default or go bankrupt.
- However, as is always the case, the price of a safe investment is modest returns.

But what is the relation between G-sec yields and interest rate in the economy?

- The way bond yields function implies that they are in close sync with the prevailing interest rate in an economy.

- With reference to the above example, only if the interest rate in the broader economy is 5% will the bond's selling price be the same as the bond's face value.
- If there is any discrepancy, the market will ensure it is removed.
- For instance, if the prevailing interest rate is 4% and the government announces a bond with a yield of 5% (that is, a face value of Rs 100 and coupon of Rs 5) then a lot of people will rush to buy such a bond to earn a higher interest rate.
- This increased demand will start pushing up bond prices, even as the yields fall.
- This will carry on until the time the bond price reaches Rs 125 — at that point, a Rs-5
- coupon payment would be equivalent to a yield of 4%, the same as in the rest of the economy.
- process of bringing yields in line with the prevailing interest rate in the economy works in the reverse manner when interest rates are higher than the initially promised yields.

So, are interest rates likely to fall in the coming future?

- The yields of G-secs have been falling, and are now at the lowest level since the November 2016 demonetisation exercise.
- The fall has been faster since the announcement in the Budget that the government would limit its borrowing.
- A lower supply of bonds, without a change in demand, has effectively pushed up prices and, in the process, brought down yields.

Moreover, the RBI is concerned about the low inflation and deceleration in economic growth, and is expected to further cut interest rates in its forthcoming reviews. The falling bond yields are, thus, pointing to where the interest rates are likely to be in the coming months.

Agricultural growth

Context

India's dream of becoming a \$5-trillion economy by 2024 is now in the open with a 'blue sky' vision envisaged in the Economic Survey this year. The document lays down a clear strategy to augment the growth of key sectors by shifting gears as the current economic conditions are smooth in terms of

macroeconomic stability to expand growth. However, unless there are adequate investment reforms in primary sectors, steps taken to augment growth in other sectors would be futile.

What is needed?

According to the Food and Agriculture Organisation (FAO), insufficient investment in the agriculture sector in most developing countries over the past 30 years has resulted in low productivity and stagnant production.

- First, the wave of investment should touch segments such as agro-processing, and exports, agri-startups and agri-tourism, where the potential for job creation and capacity utilisation is far less. Integrating the existing tourism circuit with a relatively new area of agri-tourism (as a hub-and-spoke model), where glimpses of farm staff and farm operations are displayed to attract tourists, would help in boosting the investment cycle and generate in-situ employment.
- Second, investment needs to be driven to strengthen both public and private extension advisory systems and the quality of agri-education and research through collaboration and convergence.
- Third, given that India has the highest livestock population in the world, investment should be made to utilise this surplus by employing next-generation livestock technology with a strong emphasis not only on productivity enhancement but also on conservation of indigenous germplasm, disease surveillance, quality control, waste utilisation and value addition.
- This would lead to a sustained increase in farm income and savings with an export-oriented growth model.
- Fourth, investment in renewable energy generation (using small wind mill and solar pumps) on fallow farmland and in hilly terrain would help reduce the burden of debt-ridden electricity distribution companies and State governments, besides enabling energy security in rural areas.
- Fifth, a farm business organisation is another source of routing private investment to agriculture.
- Linking these organisations with commodity exchanges would provide agriculture commodities more space on international trading platforms and reduce the burden of markets in a glut season, with certain policy/procedural modifications.
- Finally, data is the key driver of modern agriculture which in turn can power artificial intelligence-led agriculture, e-markets, soil mapping and others

Conclusion

Agriculture and its allied sectors are believed to be one of the most fertile grounds to help achieve the ambitious Sustainable Developmental Goals (SDGs).

An inclusive business model facilitating strong investor-farmer relations should be created, with a legal and institutional framework for governance. Expanding institutions is essential to accommodate the developmental impacts of foreign agricultural investment.

Investment in power sector

Why in news?

One of the key requirements for a \$5-trillion economy is an investment of about ₹5 lakh crore in the power transmission sector over the next few years, in order to cater to the 1.8 lakh crore units of electricity that India is likely to consume by 2025, according to a White Paper released by the Confederation of Indian Industry (CII).

Current scenario

The transmission sector, CII added, had seen a reduction in investments to below ₹1.8 lakh crore in the last five years.

The White Paper goes on to enumerate eight action points that the government must work on to enhance the transmission sector in line with the growth of the economy that is envisaged.

Need for huge investment?

- “Traditional coal-fired power plants took 5-6 years to build compared to three to four years for construction of transmission lines required for power evacuation,” the White Paper said. “In comparison, wind or solar plants take 12-18 months to build, implying the need for advance planning of transmission projects.
- “Increasing urbanisation, evolving demographics, expanding renewables and changing market dynamics have placed extraordinary pressure on utilities to solve energy-delivery challenges in an economical manner in the shortest possible time with minimum disruption.

RBI committee

Why in news?

A committee set up to recommend the appropriate economic capital framework for the Reserve Bank of India (RBI) has recommended the transfer of excess capital from the central bank to the government over 3 to 5 years, according to a senior official. It has also recommended the framework should be reviewed periodically. .

What is the committee's mandate?

The Committee was set up in December last year following discussions between the finance ministry and the RBI about the manner in which the central banks' surplus can be shared with the government. It was expected to submit its report within 90 days of its first meeting;

What are the key contentious issues?

- First and foremost is the issue of transferring past reserves including unrealised gains in gold and currency revaluation accounts.
- The other big issue pertains to RBI's profits. The committee was set up to "review status, need and justification of various provisions, reserves and buffers presently provided for by the RBI; and (to) review global best practices followed by the central banks in making assessment and provisions for risks which central bank balance sheets are subject to."

What is at stake

- According to Section 47 of the RBI Act, profits of the RBI are to be transferred to the government, after making various contingency provisions, public policy mandate of the RBI, including financial stability considerations.
- For the year ending June 2018, RBI had total reserves of Rs 9.59 lakh crore, comprising mainly currency and gold revaluation account (Rs 6.91 lakh crore) and contingency fund (Rs 2.32 lakh crore).
- Many economists and expert committees have in the past argued that the RBI is holding much higher capital that required to cover all its risks and contingencies.
- Former Chief Economic Adviser Arvind Subramanian said in Economic Survey 2016-17 that the RBI is "is already exceptionally highly capitalized" and nearly Rs 4 lakh crore of its capital transfer to the government can be used for recapitalising the banks and/or recapitalising a Public Sector Asset Rehabilitation Agency.
- This proposal was opposed by the then RBI Governor Raghuram Rajan

Status of vulture in India

Why in news?

The Union Environment Minister says the population of three species of endangered resident Gyps vultures – white-backed vulture, long-billed vulture and slender-billed vulture is 6,000, 12,000 and 1,000, respectively.

There has been a sharp decline in the population of vultures in the country which has come down from 40 million to 19,000 in a span of over three decades, the Environment Ministry told the Parliament on Friday.

Surveys being done

- The nationwide vulture surveys are being carried out by the Bombay Natural History Society (BNHS) every four years sponsored by the Ministry of Environment and Forest Departments of various States since 1990.
- “The surveys are carried out mainly for the three species of critically endangered resident Gyps vultures.
- These three species were very common in the country with an estimated population of 40 million in early eighties.
- Based on the latest survey carried out in 2015 and the results published in 2017, there were about 6,000 White-backed vultures, 12,000 Long-billed vultures and 1,000 Slender-billed vultures.

Causes of mortality

- The major cause of mortality of vultures was found to be the veterinary non-steroidal anti-inflammatory drug ‘Diclofenac’, given to cattle in pain and inflammation.
- Diclofenac was found to be extremely toxic to vultures and causes renal failure. The Government of India banned the veterinary use of the drug in 2006 which was gazetted in 2008, but the misuse of multi-dose vials of human formulation of the drug in treating cattle was still causing mortality in vultures.

Steps taken

- Eight Vulture Conservation Breeding Centres (VCBCs) were established in various States.
- “Four of the centres, Pinjore in Haryana (established in 2004), Rajabhatkhawa (in 2006) in West Bengal, Rani in Assam (in 2009) and Kerwa near Bhopal (established in 2008) are managed by respective State Forest Departments with support from BNHS and the Union Ministry of Environment.

- “Four more centres i.e. Junagarh in Gujarat (established in 2006), Nandankanan in Odisha (in 2006), Hyderabad in Telangana (in 2006) and Muta in Ranchi are established in State zoos and are being run by State Forest Departments with support from the Central Zoo Authority (CZA) of the Ministry of Environment and technical support from BNHS.
- According to the figures, between 2016 and 2019, the government released a total of ₹12.53 crore for vulture conservation to five States - Punjab, Haryana, Kerala, Uttarakhand and West Bengal.
- For protection and conservation of vultures in the country, the government has also upgraded the status of White-backed, Long-billed and Slender-billed vultures from Schedule IV to Schedule I of the Wild Life (Protection) Act, 1972.
- To conserve the remnant population of vultures and facilitate their reintroduction into the wild from breeding centres, attempts are being made to create Vulture Safe Zones in the areas where there are vulture populations.
- “The area in a radius of 100km around the VCBCs is made secure by community participation by ensuring that there is no use of vulture toxic veterinary NSAIDs, there is enough food and habitat and there is no other threat to vultures.
- This is done by a targeted advocacy and awareness programme.
- The Ministry said it has also taken initiatives to strengthen mass education and awareness for vulture conservation in the country.

Artemis programme

Why in news?

NASA marked the 50th anniversary of the historic first Moon landing, the U.S. space agency is preparing to take its next giant leap with the ambitious Artemis programme that could see the “first woman and the next man” walk on the lunar surface.

About the mission

- Artemis is named after the twin sister of Apollo who is also the Goddess of the Moon and the hunt.
- NASA said the mission “encompasses all of our efforts to return humans to the Moon -- which will prepare us and propel us on to Mars.”
- The programme to return astronauts to the lunar surface is planned to launch by 2024, according to the U.S. space agency.

- “Through the Artemis programme, we will see the first woman and the next man walk on the surface of the Moon.
- As the ‘torch bringer,’ literally and figuratively, “Artemis will light our way to Mars,” NASA said in a statement.

Objective

With the mission, NASA plans to explore regions of the Moon never visited before, unlock mysteries of the universe and test the technology that will extend the bounds of humanity farther into the Solar System.

Blockchain and crypto currency

Context

What is the potential of this foundational technology and how much can be tapped? What are the hurdles?

The story so far:

For a little over a decade, the term blockchain has been flitting in and out of news cycles, especially in connection with bitcoin, the digital cryptocurrency.

The Reserve Bank of India has banned speculation and investment in cryptocurrencies. Of late, however, blockchain is seeing a revival, and companies are looking at how to use the tremendous potential of the technology that underpins the cryptocurrency.

What is blockchain?

- It is a foundational technology or a platform that allows designing a secure way to record transactions and circulate it among signatories, or any kind of target group with an Internet connection. At its core it is an extremely democratic ledger that cannot be arbitrarily manipulated and easily shareable.
- Blockchain’s appeal is that it achieves this without a central authority.
- While cryptocurrencies have a bad reputation, Silicon Valley tech giants and investment banks are trying to salvage the underlying promise of blockchain and use it for other collaborations.

How does blockchain work?

- Every block in a blockchain is a record of transactions and the more of the latter, the longer the chain.

- Just as worthless paper transforms into valuable currency with the signature of the RBI governor, blocks are great because they provide an unalterable document of the history of every transaction.
- In the context of currency, it stores the place, time, value (rupee, for example) and location of a purchase. There is minimal identifying information and every block is linked to a unique 'digital signature' of the transacting participants.
- Every block is distinguished from another through a unique code which is a string of numbers.
- In the case of bitcoin, the computers are rewarded with bitcoin.
- This is stored in digital wallets and may be used like money provided there are sellers of real world goods who would accept bitcoins. Nowadays, they are frequently traded as another speculative, volatile asset.

What real world problem does blockchain solve?

- As of today nothing, but blockchain backers say it solves the problem of 'trust'.
- Because the major cost of any transaction or exchange of services or goods is the act of verification — VISA charges fees to ensure that your card swipe is connected to your account or a property charges you for the effort of ensuring that you are entering into a genuine transaction — blockchain asks you to trust the energy-intensive nature of mathematical problems and have them masquerade them as 'locks' to secure your money, confidential documents or any kind of information.

Where can it be used?

- Facebook this year announced Libra, a kind of blockchain-backed digital currency. According to report in a 2017 issue of the Harvard Business Review (HBR), "Bank of America, JPMorgan, the New York Stock Exchange, Fidelity Investments, and Standard Chartered are testing blockchain technology as a replacement for paper-based and manual transaction processing in such areas as trade finance, foreign exchange, cross-border settlement, and securities settlement"

LIGO detector

Why is it important for the country to join the global network studying gravitational waves? What will it achieve?

The story so far:

On September 14, 2015, the two LIGO detectors in the U.S., at Livingston in Louisiana, and Hanford in Washington, registered a disturbance that was not unlike the chirp of a bird.

It was due to gravitational waves travelling outwards from a point 1.3 billion light years away from the earth.

At this point, two massive black holes with masses 29 and 36 times that of the sun had merged to give off gravitational wave disturbances.

What is black holes?

- Black holes are exotic objects that we know little about, but their immense gravitational pull which traps even the fastest object in the world, which is light, is legendary.
- When objects with such an immense gravity merge, the disturbance is felt by the very fabric of space time and travels outward from the merger, not unlike ripples on a pond surface.
- Thus, gravitational waves have been described as “ripples in the fabric of space time”. Following the 2015 detection, which later won the Physics Nobel (2017), the two LIGO detectors detected seven such binary black hole merger events before they were joined by the European Virgo detector in 2017.
- LIGO India project is expected to join the international network in a first science run in 2025.

What are the LIGO detectors?

- The acronym LIGO stands for Laser Interferometer Gravitational-Wave Observatory.
- LIGO consists of a pair of huge interferometers, each having two arms which are 4 km long. Remarkable precision is needed to detect a signal as faint as a gravitational wave, and the two LIGO detectors work as one unit to ensure this.
- Naturally, this requires weeding out noise very carefully, for when such a faint signal is being detected, even a slight human presence near the detector could derail the experiment by drowning out the signal.
- A single LIGO detector cannot confidently detect this disturbance on its own. At least two detectors are needed.
- This is because the signal is so weak that even a random noise could give out a signal that can mislead one into thinking a genuine gravitational wave has been detected.

- It is because two detectors have detected the faint signal in coincidence that the observer is convinced it is a genuine reading and not noise.

What is the need to have another detector in India?

- Right now, with just three detectors, there is huge uncertainty in determining where in the sky the disturbance came from.
- Observations from a new detector in a far-off position will help locate the source of the gravitational waves more accurately.

What are the possible sources of gravitational waves?

- Mergers of black holes or neutron stars, rapidly rotating neutron stars, supernova explosions and the remnants of the disturbance caused by the formation of the universe, the Big Bang itself, are the strongest sources.
- There can be many other sources, but these are likely to be too weak to detect.

Why does one study gravitational waves?

- As a largely unknown and fundamental phenomenon, gravitational waves are interesting to scientists.
- But once many more detectors are in place, the study also offers a new way to map out the universe, using gravitational-wave astronomy.
- Perhaps one day we will have such accurate detection facilities that signatures of gravitational waves bouncing off celestial objects can help us detect and map them.

What do we know about LIGO India?

- LIGO India will come up in Maharashtra, near Aundha in Hingoli district.
- Most of the land has been acquired, and the small balance is going through a slightly longer acquisition procedure.
- The project is formally in the construction phase, with the building design conceptualised.

Will LIGO India be different from LIGO itself?

- Like the LIGO detectors, the one at LIGO India will also have two arms of 4 km length. But while there are similarities there will be differences too.
- Being an ultra-high precision large-scale apparatus, LIGO India is expected to show a unique “temperament” determined by the local site characteristics.
- LIGO India and its complex feedback control loops to high sensitivity will follow a fairly independent track and poses an exciting full-scale challenge.
- Under a memorandum of understanding, the National Geophysical Research Institute is carrying out a year-long, multiple-station seismic survey campaign at the LIGO India site to characterise the local properties.
- This is in addition to the elaborate geotechnical and geophysical survey completed earlier this year.”

What is the technology being developed in India for LIGO India?

- Some of it includes design and fabrication of ultra stable laser, quantum measurement techniques, handling of complex control system for enforcing precision control, large-scale ultra-high vacuum technology, data analysis and machine learning.
- This is not a complete list and the development of such indigenous technology is likely to result in many spin-offs for industry and research.
- Impact of Climate Change on Agriculture
- Context
- Agriculture sector in India is vulnerable to climate change.
- Higher temperatures tend to reduce crop yields and favour weed and pest proliferation.
- Climate change can have negative effects on irrigated crop yields across agro-ecological regions both due to temperature rise and changes in water availability.
- Rainfed agriculture will be primarily impacted due to rainfall variability and reduction in number of rainy days.
- Analysis of impact of climate change under National Innovations in Climate Resilient Agriculture (NICRA) project has found that climate change is expected to affect yields, particularly in crops like rice, wheat and maize.

- Government of India has initiated various actions to mitigate affects of climate change:
- Varieties and cultivars tolerant to abiotic stresses are developed under strategic research component of NICRA.
- The technology demonstrations aim at enhancing the adaptive capacity of the farmers and also to cope with climate variability in the vulnerable districts to achieve climate resilient agriculture.
- Under NICRA, climate resilient technology demonstrations are implemented in 151 climatically vulnerable districts of the country.
- District Agriculture Contingency Plans have been prepared by ICAR-CRIDA, Hyderabad for 648 districts in the country to address the adverse weather conditions.