

OFFICERS' Pulse

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Coverage.

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At a Glance & In Depth.

Polity and Social Issues
Economy
International Relations
Environment
Science and Tech
Culture

CURRENT AFFAIRS WEEKLY

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News @ a glance

POLITY

1. State OMCs to buy biodiesel made from used cooking oil

GS Paper III – clean energy, Economy;
GS Paper II – Health - Society

Why in news?

- world biofuel day; National biofuel policy 2018
- State-run oil marketing companies Indian Oil, Bharat Petroleum and Hindustan Petroleum launched a programme to procure biodiesel made from used cooking oil in 100 cities across the country. The programme was formally launched by Petroleum and Natural Gas Minister on the world biofuel day under which the three OMCs would invite expression of interest from private entities for setting up plants to produce biodiesel from used cooking oil.
- The biodiesel plants using used cooking oil as their raw material will be assured that their entire production will be procured by the oil marketing companies to be blended with normal diesel.

Other recent Initiatives -

- The Food Safety and Standards Authority of India (FSSAI) has directed Food Safety Commissioners to ensure that Food Business Operators (FBOs), whose consumption of edible oils for frying is more than 50 liters per day, stop reusing the oil more than three times.
- Food safety commissioners to conduct regular inspection and ensure that oil does not enter the food chain again.
- All FBO should compulsorily dispose of their used cooking oil to authorized collection agencies or aggregators.
- 'Repurpose Used Cooking Oil (RUCO)' sticker and a phone app to enable the collection of used cooking oil.

- Restaurants and hotels interested in supplying used cooking oil can affix the sticker to show availability

- [//economictimes.indiatimes.com/articleshow/70617703.cms?utm_source=content_ofinterest&utm_medium=text&utm_campaign=cppst](https://economictimes.indiatimes.com/articleshow/70617703.cms?utm_source=content_ofinterest&utm_medium=text&utm_campaign=cppst)

2. UP, Delhi, Rajasthan among worst performers in breastfeeding

- GS Paper II – Social issues-Health and nutrition

Why in news?

- Infant mortality and its prevention techniques. A report released by the union health ministry states that states like UP, Rajasthan, Delhi, Punjab are very low ranking in the Breastfeeding rates.
- This is in corollary to the worst infant mortality rates, low sex ratio, low literacy rates, high poverty and population.

What is the problem?

- In 2017, 4.1 million (75% of all under-five deaths) occurred within the first years of life worldwide. India is having a large proportion of such children.
- The WHO says that if breastfeeding could be scaled up to near-universal levels, lives of about 8, 20, 000 children could be saved every year.
- Globally, only 40% infants are exclusively breastfed for the first six months.
- Inadequate breastfeeding puts a huge burden on the health system.
- States like Mizoram, Manipur, Sikkim and Odisha have good indicators.

Importance of breastfeeding-

- The health and well-being of mothers, it helps to space children, reduces the risk of ovarian cancer and breast cancer
- Increases family and national resources
- Is a secure way of feeding and is safe for the environment.

- Highest potential of immunity for the newborn children.
- Breastfeeding is one of the most cost-effective intervention which addresses both survival and growth of the child.
- Early initiation of breastfeeding within an hour of birth can prevent neonatal mortality; whereas exclusive breastfeeding for six months can reduce under-five deaths significantly.”

What has to be done?

- The government in 2016 has rolled out “MAA-Mother’s Absolute Affection” is a nationwide programme launched in an attempt to bring undiluted focus on promotion of breastfeeding and provision of counselling services for supporting breastfeeding through health systems.
- The chief components of the MAA Programme are Community awareness generation, Strengthening inter personal communication through ASHA, Skilled support for breastfeeding at Delivery points in Public health facilities, and Monitoring and Award/recognition.
- Care of pregnant and lactation mothers are very important in order to serve the needs of breastfeeding. Schemes like Surakshit Matritva Abhiyan, etc. with cash transfers and nutrition provision in anganwadis is important.
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=148531>

3. Cancer treatment in PMJAY

- GS Paper II – Social issues
- Cancer treatment is proposed to be soon added to the Pradhan Mantri Jan Arogya Abhiyan.

Why is this being done?

1. According to the World Health Organisation, the rate of mortality due to cancer in India is high, with cancer the second-most common disease in India, responsible for maximum mortality, with about 0.3 million deaths per year.
2. The estimated number of people living with the disease stands at around 2.25 million, with over 11 lakh new cancer patients registered each year.
3. “In India, the risk of developing cancer before the age of 75 years for males stands at 9.81% and females at 9.42%.

4. Total deaths due to cancer in 2018 was 7,84,821 (Men: 4,13,519; Women: 3,71,302). The risk of dying from cancer before the age of 75 years stood at 7.34% in males and 6.28% in females.

5. Lung cancer is the most common type of cancer in India, followed by breast cancer and oral cancers. This is in concurrence with the high air pollution related mortality and maternal mortality rates.

- Therefore there is a need to include this chronic disease cancer in the primary health care. This move of the government is vital as cancer treatment is not affordable for the poor as well the success rate has to be improved.

PM-JAY

- Ayushman Bharat Yojana- Pradhan Mantri Jan Arogya Yojana (PM-JAY), which is the Central Government’s health insurance scheme that aims to give medical cover to over 10 crore poor and vulnerable families of approximately 50 crore beneficiaries, providing coverage of up to ₹5 lakh per family per year for secondary and tertiary care hospitalization.
- So far, 16,000 hospitals have been empaneled, nearly 34 lakh beneficiaries have been admitted, and 9 crore e-cards have been issued.
- <https://www.thehindu.com/sci-tech/health/pm-jay-to-include-cancer-treatment-soon-say-health-officials/article29036010.ece>

4. Panchamirtham of Palani gets GI tag

- GS Paper I and III – Art and culture; Economy – Geographic indicator
- The famous Palani panchamirtham, given as ‘prasadam’ at the Murugan temple, in Palani has been granted the Geographical Indication (GI) tag.
- This is the first time a temple ‘prasadam’ from Tamil Nadu has been bestowed with the GI tag.

Panchamirtham

- It is a combination of five natural substances — banana, jaggery, cow ghee, honey and cardamom.
- Dates and diamond sugar candies are added for flavour.

- It is sweet in taste and one of the main offerings for Lord Dhandayuthapani Swamy, the presiding deity of Arulmigu Dhandayuthapani Swamy Temple, situated on Palani Hills.
- Not even a single drop of water is added during the preparation of the panchamirtham. This gives it classic semi-solid consistency and taste. No preservatives or artificial ingredients are used.
- As per the GI application, the geographical area for production of panchamirtham is Palani town in Dindigul district, Tamil Nadu. It lies within latitude of 10.44 ° and longitude of 77.52 °.

What is a geographical indication?

- A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place.
- In addition, the qualities, characteristics or reputation of the product should be essentially due to the place of origin. Since the qualities depend on the geographical place of production, there is a clear link between the product and its original place of production.
- In India, geographic indications is given under The Geographical Indications of Goods (Registration and Protection) Act, 1999. The GI registrar is headquartered in Chennai.
- https://www.wipo.int/geo_indications/en/

5. EC kicks off delimitation process in J&K

- GS Paper II – Polity and governance

Why in news?

- J&K reorganization; Delimitation process
- ### THE JAMMU AND KASHMIR REORGANISATION ACT, 2019
- It provides for delimitation of Parliamentary constituencies of the two Union Territories of Jammu and Kashmir and Ladakh.
 - The number of seats in the Legislative Assembly of the UT of J&K would be

increased from 107 to 114 and delimitation of the constituencies may be determined by the Election Commission in the following manner:

1. Number of seats to be reserved for the Scheduled Castes and the Scheduled Tribes in the Legislative Assembly.
2. The assembly constituencies into which the Union territory shall be divided, the extent of each of such constituencies and in which of them seats shall be reserved for the Scheduled Castes or for the Scheduled Tribe.
3. The adjustments in the boundaries and description of the extent of the parliamentary constituencies in each Union territory that may be necessary
4. The Act also specifies that delimitation will be based on the 2011 census till 2026.

What is delimitation and its constitutional mandate?

- Article 82 of Indian Constitution provides for delimitation and it says: Upon the completion of each census, the allocation of seats in the House of the people to the States and the division of each State into territorial constituencies shall be readjusted by such authority and in such manner as Parliament may by law determine.
- Delimitation is the act or process of fixing limits or boundaries of territorial constituencies in country or a province having a legislative body. In India, the job of delimitation has been assigned to a high power body known as Delimitation Commission or Boundary Commission. Till now 4 such commissions has been set up from 1952 to 2002.
- The Delimitation Commission in India is a high power body whose orders have the force of law and cannot be called in question before any court.
- These orders come into force on a date to be specified by the President of India in this behalf. The copies of its orders are laid before the House of the People and the State Legislative Assembly concerned, but no modifications are permissible therein by them. The census of 2001 is followed for the latest delimitation.
- <https://eci.gov.in/delimitation-website/delimitation/>

6. Temple in Odisha worships the Father of the nation

- GS Paper I - Art and Culture
- An idol of Mahatma Gandhi is being worshipped within the complex of a Jagannath temple in Odisha's Berhampur. It was established on Gosaniganoun in Behrampur in 1960. Bhagavat Gadi (pedestal of Bhagavat purana) is a separate small temple for Gandhi.
- In it the Mahatma's idol is worshipped along with the Odia Bhagavat, written by poet-saint Jagannath Das, and pictures of Lord Rama and Shiva.

The history

- During the freedom movement, Bhagavat gadi or Bhagavat tunji in Odisha villages used to be major congregation points in the evening, where people came to listen to reading of the Odia Bhagavat. Leaders of freedom struggle motivated commoners at these congregations.
- In rural areas of Odisha, Mahatma Gandhi was sometimes believed to be incarnation of Lord Krishna. So, it had been decided to worship his idol along with the Bhagavat. At that time the Mahatma was adored as a divine being who had ushered in the new age of independence and social changes.
- <https://www.thehindu.com/news/national/temple-in-odisha-worships-the-father-of-the-nation/article29095269.ece>

7. Naga groups assail rethink on RIIN cut-off

- GS Paper II - Polity and Governance- citizenships and rights of indigenious people; Schedule V and VII of the Indian cosntitution.

What is the issue?

- A joint committee of Naga civil society groups has warned the Nagaland government against changing the cut-off date for including people in the Register of Indigenous Inhabitants of Nagaland (RIIN).
- The Nagaland government had, through a notification on June 29, decided to undertake the exercise to update the RIIN with December 1, 1963, as the cut-off date for inclusion of people in the register.
- Some organizations have, however, demanded that the cut-off date be changed to April 28, 1977.

Background -

- Nagaland was carved out of Assam as a State on December 1, 1963. The State government had in April 1977 issued a notification that laid down the criteria for issuing indigenous inhabitant certificates to the residents when the State was formed.

The confusion

- The notification was not clear whether those to be granted such a certificate would have to be a Naga. The cut-off date of December 1, 1963, is only for identifying non-Nagas and Nagas from other States who may be qualified to be called indigenous inhabitants of Nagaland.

What is RIIN?

- The Government of Nagaland has decided to set up a Register of Indigenous Inhabitants of Nagaland (RIIN) with the aim of preventing fake indigenous inhabitant's certificates. The RIIN will be the master list of all indigenous inhabitants of the state.
- This will be an exercise to protect the rights of indigenous people which is constitutionally granted to them under schedule VII of the Constitution.
- <https://indianexpress.com/article/explained/assam-nrc-nagaland-register-of-indigenous-inhabitants-5809576/>
- <https://www.thehindu.com/news/national/naga-groups-assail-rethink-on-riin-cut-off/article29094878.ece>

8. India gets its first National essential diagnostic list

- GS Paper II - Social Issues

Context

- India has got its first National Essential Diagnostics List (NEDL) finalized by the Indian Council of Medical Research (ICMR) which aims to bridge the current regulatory system's gap that do not cover all the medical devices and in-vitro diagnostic device (IVD).
- With this, India has become the first country to compile such a list that would provide guidance to the government for deciding the kind of diagnostic tests that different healthcare facilities in villages and remote areas require.

Significance of the NEDL:

- It is comprehensive and covers many diagnostics systems which was earlier not covered therefore it fills the gap in the system.
- The list is meant for facilities from village till the district level.
- The list also encompasses tests relevant for new programmes such as Health and Wellness Centres (HWCs) under the Pradhan Mantri Jan Arogya Yojana.
- It has adopted WHO's EDL (released in 2018) as its reference point.
- India's diagnostics list has been customized and prepared as per landscape of India's health care priorities.
- To provide an expanded basket of tests at different levels of the public health system.
- Implementation of NEDL would enable improved health care services delivery through evidence-based care, improved patient outcomes and reduction in out-of-pocket expenditure; effective utilization of public health facilities; effective assessment of disease burden, disease trends, surveillance, and outbreak

identification; and address antimicrobial resistance crisis.

Challenges –

- Adoption by States and harmonization with local standard diagnostic protocols and treatment guidelines
- Provision of requisite infrastructure, processes and human resources, ensuring quality of tests including EQAS and quality control and adequate utilization of EDL tests for making informed decisions for treatment protocols.”

Legal basis –

- Diagnostics (medical devices and in vitro diagnostics) follow a regulatory framework based on:
 - 1.The drug regulations under the Drugs and Cosmetics Act, 1940
 - 2.Drugs and Cosmetics Rules 1945.
 - 3.Diagnostics are regulated under the regulatory provisions of the Medical Device Rules, 2017.
- <https://www.thehindu.com/news/national/india-gets-its-first-national-essential-diagnostics-list/article29112959.ece>

ENVIRONMENT

1) More than half of forest wildlife declined since 1970: WWF

Why in news?

- The first-ever global assessment of forest biodiversity was done by World Wide Fund for Nature (WWF).

Highlights of the report:

- Until now, forest biodiversity had never been assessed, but forest area was often used as a proxy indicator.
- The new findings were based on the Forest Specialist Index, developed following the Living Planet Index methodology — an index that tracks wildlife that lives only in forests.
- There has been a 53 per cent decline in the number of forest wildlife populations since 1970
- Of the 455 monitored populations of forest specialists, more than half declined at an annual rate of 1.7 per cent, on average between 1970 and 2014.
- While the decline was consistent in these years among mammals, reptiles and amphibians (particularly from the tropical forests), it was less among birds (especially from temperate forests).
- the report found that just the changes in tree cover — deforestation or reforestation — were not responsible for the decline in wildlife populations.

Reasons for decline in the wildlife population according to the report:

- Loss of habitat due to logging, agricultural expansion, mining, hunting, conflicts and spread of diseases accounted for almost 60 per cent of threats.
- Nearly 20 per cent of threats were due to overexploitation. Of the 112 forest-dwelling primate populations, 40 were threatened by overexploitation (hunting), the report showed.
- Climate change, on the other hand, threatened to 43 per cent of amphibian populations, 37 per cent of reptile populations, 21 per cent of bird populations but only 3 per cent of mammal populations.

- More than 60 per cent of threatened forest specialist populations faced more than one threat, the report noted.

Importance of wildlife:

- Wildlife is an essential component of natural and healthy forests. They play a major role in forest regeneration and carbon storage by engaging in pollination and seed dispersal. Thus, loss of fauna can have severe implications for forest health, the climate and humans who depend on forests for their livelihoods.

Benefits of forests:

- Healthy forests help purify our air and water, prevent floods, provide people with food and jobs, and so much more. They also store and absorb carbon. Vitality, these carbon sinks help shield the planet against the effects of climate change.

Threats to the species according to the report:

- Deforestation
- illegal wildlife trade
- unsustainable hunting
- invasive species
- climate change
- disease all put them at risk
- Habitat loss
- forest degradation

Way forward:

- If we are to reverse the decline in biodiversity worldwide and avoid a climate crisis, we need to safeguard forests and the species that live in them.
- Protecting wildlife and reversing the decline of nature requires urgent global action. The need is to preserve harmonious land use in our region, including forest management and protect the most valuable surviving ecosystems.
- Everyone can help protect and restore forests, but there is no time to waste. Global leaders must take action now to stop climate breakdown, safeguard our planet's remaining natural spaces, and make our consumption and production model more sustainable.

- <https://www.downtoearth.org.in/news/forests/more-than-half-of-forest-wildlife-declined-since-1970-wwf-66164>
- <https://www.worldwildlife.org/stories/forest-wildlife-populations-decline-53-since-1970>

2) Single Use Plastics

- Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled. These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging.

Why is it a problem?

- According to the Environment Ministry, about 20,000 tonnes of plastic waste is generated every day in the country, out of which only 13,000-14000 tonnes are collected.
- We produce roughly 300 million tons of plastic each year and half of it is disposable!
- World-wide only 10-13% of plastic items are recycled.
- The nature of petroleum based disposable plastic makes it difficult to recycle.
- Petroleum based plastic is not biodegradable and usually goes into a landfill where it is buried or it gets into the water and finds its way into the ocean.
- While degrading it releases toxic chemicals (additives that were used to shape and harden the plastic) which make their way into our food and water supply.
- These toxic chemicals are now being found in our bloodstream and the latest research has found them to disrupt the Endocrine system which can cause cancer, infertility, birth defects, impaired immunity and many other ailments.

Way forward:

- It's obvious that we need to use less plastic, move towards environmentally sustainable products and services and come up with technology that recycles plastic more efficiently.
- Ultimately, tackling one of the biggest environmental scourges of our time will require governments to regulate, businesses to innovate and individuals to act.

- Waste Management system improvements
- Promotion of eco-friendly alternatives
- Social awareness and public pressure
- Voluntary reduction strategies and agreements can help in reducing the usage of single use plastics.

Why in news?

- **Prime Minister Narendra Modi recently urged people to shun single-use plastic and encouraged the usage of jute and cloth bags to protect the environment.**
- https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y#page21
- <http://www.plasticfreechallenge.org/what-is-single-use-plastic>

3) Tamilnadu becomes 5th Indian state to declare a state butterfly

Why in news?

- The southern state of Tamil Nadu has recently declared Tamil Yeoman (Cirrochroa thais) as its state butterfly to symbolise its rich natural and cultural heritage, in a move aimed at boosting the conservation efforts of the attractive insects

About Tamil Yeoman:

- Locally known as Tamil Maravan meaning 'Tamilian Warrior',
- The canopy butterfly, usually sized between 60 and 75mm,
- It belongs to the family of brush-footed butterflies or the Nymphalid.
- The winged wonder, with its natural zigzag patterns near its bright orange-coloured wings and its aesthetic dots, has always been a fascination for local nature enthusiasts.
- Endemic to the biodiversity hotspot of Western Ghats,
- Tamil Yeoman is usually seen at the foothills and moist evergreen forests of the state's mountainous regions.
- It is known to have a straight flight with few wing beats and long glide, the butterfly is actively spotted in forest streams too.



New addition to the existing symbols of Tamilnadu:

- Tamilnadu has:-
 1. palmyra as the state tree,
 2. gloriosa lily as the state flower,
 3. emerald dove as the state bird,
 4. jackfruit as the state fruit and
 5. Nilgiri tahr as the state animal.
- Tamil yeoman becomes the latest addition to the existing symbols of Tamilnadu from the natural world.

Why was Tamil Yeoman chosen?

- Tamil lacewing was another species which gave a tough competition to Tamil Yeoman but authorities chose the latter for it is to be found in large numbers though found in only a few regions of Tamil Nadu.
- Tamil Yeoman was finally chosen for its cultural identity linking the state through its name and its abundance in hilly areas.
- Tamil Nadu has a total of 32 species of butterflies endemic to the state. With the latest policy initiative, it has become the fifth India state after Maharashtra (Blue Mormon), Uttarakhand (Common peacock), Karnataka (Southern birdwings) and Kerala (Malabar banded peacock) to bestow a state emblem status to one of its colourful insects.

About Butterflies:

- Butterflies are great bio-indicators of an ecosystem as they are highly sensitive to environmental conditions such as temperature, sunlight, humidity and rainfall patterns.
- Their presence, patterns and migration assist in mapping the climatic health of a region and are they are perhaps the most studied insect group across the world.
- Butterflies are not only great pollinators but also play a crucial role in the food chain.

- Creatures like chameleons, birds, frogs and even monkeys eat butterflies. They help maintain the balance of the ecosystem.
- Tamil Nadu's naturally elongated geographical placement combined with the presence of Eastern and the Western Ghats generate a variety of habitats with diverse ecological conditions allowing plenty of 'butterfly hotspots'.
- The state has as many as 32 butterfly hotspots – designated as a place where at least 25% of all the available species found in the state – while experts are on track to identify more such zones.

Government measures to conserve butterflies:

- **1) Declaring as state butterfly**
- This step will first create awareness among the common public to recognise that butterflies are an integral and important part of nature's ecosystem.
- This will help channelizing government funds towards a particular environmental cause.
- 2) The Tamil Nadu forest department, with the help of experts, published a book compiling the 326 species of butterflies found in the state along with photographers. The last such compilation of butterflies was only in the British era.
- 3) In 2015, the state government inaugurated the 'tropical butterfly conservatory' – a 27-acre facility located in a reserve forest zone near Trichy – as a marked step to examine and impart the biodiversity in the region.

Way forward:

- The government can introduce lessons on insects and butterflies.
- Smaller administrative zones can study and record ecological health through the status of butterflies. Even schools can set up gardens which attract butterflies offering the students to learn about nature.
- These are some efforts which could bring limelight on butterflies.
- <https://thewire.in/environment/tamil-nadu-state-butterfly-tamil-yeoman>

4) New burrowing frog species confirmed in Jharkhand

Why in news?

- A new species of burrowing frog has been confirmed in Jharkhand's Chhota Nagpur Plateau.

About the confirmation:

- The frog was first discovered in 2015. Its existence was verified and confirmed recently and published in the journal Records of the Zoological Survey of India.

About the frog:

- The frog is endemic to agricultural areas in Nawadih and Jounji village of Jharkhand's Koderma district
- The frog is the newest species of the genus Spahaerotherca, of which, 10 other species are found in South Asia.
- It has been named as Spahaerotherca Magadha and will be known by the common name of 'Magadha Burrowing Frog'.

Significance of such finding:

- The discovery points to the fact that new species of frogs can still be found even in the 'Central Indian Landscape' other than the Western Ghats and the Northeast, where most discoveries are currently taking place.



- <https://www.downtoearth.org.in/news/wildlife-biodiversity/global-eco-watch-major-ecological-happenings-of-the-week-august-5-august-11--66125>

5) Golden butterfly variety Tea

Why in news?

- Recently, a kilogram of a speciality Assam tea called "Golden Butterfly" was sold for Rs 75,000 at the Guwahati Tea Auction Centre (GTAC) — a new record.



About Golden butterfly tea:

- "Golden Butterfly" is produced by Dikom Tea Estate.
- The tea was purchased by Assam Tea Traders, one of the oldest tea shops in Guwahati.
- "Golden Butterfly" has an "extremely mellow and sweet caramel flavour".

Why is it named so?

- It is named so because only "the soft golden tips go into making this exceptionally rare and special tea".

Tea and auction centres

- Assam accounts for nearly 55% of India's tea production. The GTAC has 665 sellers, 247 buyers, and nine brokers, besides 34 warehouses, registered with it.
- Auctions are held normally on Tuesdays and Wednesdays.
- The GTAC has an auction hall but the entire process has been online for the last 8-9 years.
- India has six tea auction centres — Kolkata (the oldest, set up in 1861), Guwahati (1970), Siliguri, Kochi, Coimbatore and Coonoor.
- Any registered member of any auction centre can operate in any auction in any centre.

Buying and selling process

- Buyers and sellers associated with the tea industry in Assam say auctioning is the best way to know the value of a tea.
- The indicators that buyers look at, include appearance, quality/strength of the liquid form, aroma, and "keeping quality", i.e., how well the tea will keep if stored for a long time in a shop or godowns.
- The auctioning process involves the tasting of tea by tasters, who give their opinion on the quality of the leaf.

- The tea is taken from the garden to the warehouse, where brokers do the tasting and sampling.
- Their valuation data is then entered on the Tea Board of India's auction website.
- <https://indianexpress.com/article/explained/assam-tea-at-rs-75000-kg-how-is-it-valued-how-is-it-sold-5905707/>

6) New species of marmoset discovered in Amazon

Why in news?

- A researcher has discovered a new species of marmoset, a type of primate in the Brazilian Amazon, even as its habitat is facing a flood of 'developmental' activities, according to a media report.

About the discovery:

- The new marmoset was discovered by Rodrigo Costa Araújo of the National Institute of Amazonian Research in Brazil's Pará state, which lies in the country's southwest.

About the species:

- The new species is distinct from other marmosets in that it has white tails rather than black, which the others have.
- It also has white feet and hands, white forearms and a beige-yellow spot on the elbow.
- The name 'Mico munduruku' has been given to the marmoset, after the Munduruku Amerindians that are native to the region.

Threats:

- Even as the marmoset has been discovered, its home is under great threats.
- Its habitat lies in a so-called 'arc of deforestation' in the Amazon where all sorts of 'developmental activities' including illegal logging, agricultural expansion, road and hydro-electric power plant building, have taken or are taking place.
- <https://www.downtoearth.org.in/news/wildlife-biodiversity/global-eco-watch-major-ecological-happenings-of-the-week-august-5-august-11--66125>

7) States with more dense tree and forest cover

- A quarter of India's geographical area (24.49 per cent) is under forest and tree cover, according to data shared in Parliament by the Ministry of Environment, Forest and Climate Change.
- These assessments are done by the Forest Survey of India, whose findings are published in the India State of Forest Report (ISFR).
- The last report was published in 2017.

Highlights of the report:

- The lowest forest and tree cover in the country is in Haryana, at 6.79 per cent of its geographical area.
- Punjab follows with 6.87 per cent
- Rajasthan's forest and tree cover is over 7.26 per cent of its geographical area while Madhya Pradesh's is 27.73 per cent.
- At 97 per cent, the Union Territory of Lakshadweep is on top – its geographical area is only 30 square km.
- Among the six states with the highest forest and tree cover, four are in the Northeast – Manipur, Arunachal Pradesh, Mizoram and Meghalaya
- Goa and Kerala are two other states with more than 50 per cent of their geographical area under forest and tree cover.
- In terms of geographical area, the highest tree and forest cover is in Madhya Pradesh, with 85,487 sq km.

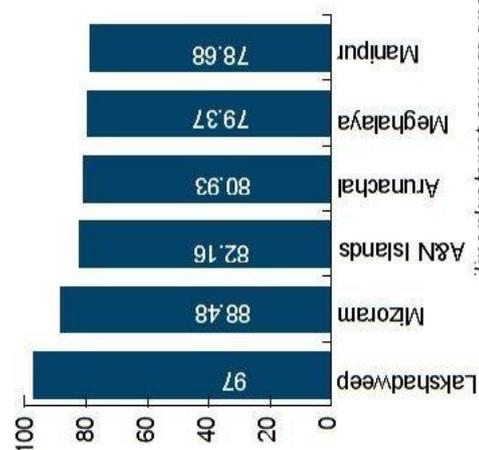
Why in news?

- Northeast crowds list of states with most dense tree, forest cover says Ministry of Environment, Forest and Climate Change.
- <https://indianexpress.com/article/explained/northeast-crowds-list-of-states-with-most-dense-tree-forest-cover-5897004/>

BOTTOM SIX



TOP SIX



Tree plus forest cover as a percentage of geographical area
Source: Ministry of Environment, Forest & Climate Change

8) Microplastics in Arctic snow point to widespread air contamination

Why in news?

- Minute microplastics particles have been detected in the Arctic and the Alps, carried by the wind and later washed out in the snow, according to a study.

Who made the study?

- The study was conducted by scientists at Germany's Alfred Wegener Institute and Switzerland's Institute for Snow and Avalanche Research.

Major finding of the study:

- Microplastics particles can be transported tremendous distances through the atmosphere.
- Concentrations of the micro particles in the Arctic were significantly lower than in the European sites, but still substantial.
- The team's hypothesis for airborne transportation builds on past research conducted on pollen, where experts confirmed that pollen from near the equator ends up in the Arctic.

What are Microplastics?

- Microplastics are not a specific kind of plastic, but rather any type of plastic fragment that is less than 5 mm in length according to the U.S. National Oceanic and Atmospheric Administration.

Course of Microplastics:

- Million tonnes of plastic litter course through rivers and out to the oceans, where they are gradually broken down into smaller fragments through the motion of waves and the ultraviolet light of the sun.
- They are then transported in the atmosphere to tremendous distances
- These particles, are later washed out of the air by precipitation, particularly snow

Significance:

- When large quantities of Microplastics can be transported by air is determined it leaves us with a question how much are we inhaling.
- Thus it stresses the need for urgent research into the effects on human and animal health.
- <https://www.thehindu.com/sci-tech/energy-and-environment/microplastics-in-arctic-snow-point-to-widespread-air-contamination/article29103451.ece>

ECONOMY

1. CSR expenditure may be made tax deductible

About CSR

- Corporate Social Responsibility (CSR) is a management concept through which a company achieves a balance of economic, environmental and social imperatives (“**Triple-Bottom-Line- Approach**”).
- India is the first country in the world to make CSR mandatory, following an amendment to The Companies Act, 2013.
- Any company that has a net worth of at least Rs 500 crore, a turnover of Rs 1,000 crore or a net profit of Rs 5 crore is obliged to spend 2% of its average profits over the last three years on CSR.
- Businesses can invest their profits in areas such as education, poverty, gender equality, and hunger.

Why in News?

- The High Level Committee on Corporate Social Responsibility headed by Injeti Srinivas has presented its report to Finance Minister Nirmala Sitharaman.

Key recommendations

- The committee has recommended to make CSR expenditure tax deductible.
- (*Deductible expenses are those that can be subtracted from a company's income before it is subject to taxation. It reduces company's tax liability*)
- Schedule 7 of the Companies Act, 2013 (*which outlines the kinds of activities that qualify as CSR*) should be aligned with the United Nations Sustainable Development Goals to include sports promotion, senior citizens' welfare, welfare of differently abled persons, disaster management, and heritage protection.
- Impact assessment studies should be introduced for CSR obligations of Rs 5 crore or more.
- Compliance violations should be treated as a civil offence that attracts penalties.
- [http://www.arthapedia.in/index.php?title=Corporate_Social_Responsibility_\(CSR\)](http://www.arthapedia.in/index.php?title=Corporate_Social_Responsibility_(CSR))

2. Retail inflation remains flat in July at 3.15%

About CPI

- It is an index which measures the weighted average of prices of a basket of consumer goods and services such as transportation, food and medical care.
- It is calculated by measuring price changes for each item in the predetermined basket of goods & services and averaging them.
- It is released by the Central Statistical Organisation (CSO) under the Ministry of Statistics and Program Implementation.
- The base year used to calculate CPI in India is 2011-2012.
- The RBI's goal is to keep CPI based inflation at 4%, with the upper tolerance limit of 6% and the lower tolerance limit of 2%.

Why in News?

- Retail inflation measured by the Consumer Price Index fell to 3.15% in July.
- <https://www.investopedia.com/terms/c/consumerpriceindex.asp>

3. Wholesale inflation eases to 1.08% in July

About WPI

- Wholesale Price Index measures and tracks the changes in the price of goods in the stages before the retail level. It provides estimates of inflation at the wholesale transaction level for the economy as a whole.
- It is released by the Office of Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry.
- The base year is 2011-2012.
- The index basket consists of commodities under 3 main categories in decreasing order of weightage: Manufactured products, Primary Articles and Fuel and Power.

Why in News?

- Wholesale Price Index dropped to a 25-month low of 1.08% in July.

4. RBI issues final norms for regulatory sandbox

What is a regulatory sandbox?

- The regulatory sandbox allows live testing of new products or services in a controlled or test regulatory environment.
- For this, the regulator may permit certain relaxations for the limited purpose of testing.
- The regulatory sandbox will aid in innovation and new product development, which can then be of use for consumers as well.

Why in News?

- The RBI has issued the framework for regulatory sandbox in order to enable innovations in financial services.
- The framework will likely be a positive step for financial technology start-ups and companies looking to innovate in the highly regulated sector.
- https://www.business-standard.com/article/finance/rbi-finalises-regulatory-sandbox-framework-for-innovation-in-fintech-firms-119081400067_1.html

5. Govt. asks PSBs to find out reasons for rise in NPAs in last 5 years

What are NPA's?

- NPAs are loans made by a bank or a finance company on which repayments or interest payments are not being made on time.
- The loan is considered to be an NPA once the borrower fails to make interest or principal payments for 90 days.

Rise of NPAs

- In the last few years, gross NPAs of Scheduled Commercial Banks (as a percentage of total loans) have increased from 2.3% in 2008 to 9.3% in March 2019.
- This indicates that an increasing proportion of a bank's assets have ceased to generate income for the bank, lowering the bank's profitability and its ability to grant further credit.

- Public Sector Banks (PSBs) account for over 80% of the NPAs in the system.

Govt's approach

- In order to tackle the NPA crisis, the government adopted "**4Rs strategy**" of Recognition, Recapitalization, Resolution, and Reform.
- It involves recognising NPAs transparently, resolving and recovering value from stressed accounts, recapitalising PSBs, and reforms in banks and financial ecosystem to ensure a responsible and clean system.

Why in News?

- The Finance Ministry has initiated a comprehensive consultative process with PSBs to find out the reasons for the sharp rise in NPAs in the previous five years.
- <http://www.prsindia.org/content/examining-rise-non-performing-assets-india?page=2>

6. Forex reserves at a new high of \$430.57 bn

What is meant by "Foreign Exchange Reserve"?

- It indicates the reserves held by RBI in the form foreign currency assets, gold, SDR and reserve tranche. Components of foreign exchange reserve:
 - **Foreign Currency Assets**- Currencies of foreign countries are held in foreign exchange reserves. Apart from currency it also includes foreign currency deposit held by RBI with foreign central banks and the Bureau of Indian Standards (BIS).
 - **Gold Stock of RBI**- The RBI has gold stock as a backup to issue currency and to meet unexpected Balance of Payments (BOP) problems. (*BOP problem occurs when a nation is unable to pay for essential imports or service its external debt repayments*)
 - **SDR Holdings**- Special Drawing Rights (also called "*paper gold*") is a reserve created by the IMF to help countries that have BOP problems. The member countries have to contribute to this account in proportion to their IMF quota. The SDR basket consists of **five** major currencies of the world - the US dollar, Euro, British Pound, Chinese Renminbi and Yen (Japan).

- **Reserve Tranche**-The reserve tranche is a portion of the required quota of currency that each IMF member country must provide to the IMF. It can be accessed by the member country at any time for its own purposes without a service fee.

Why in News?

- According to the RBI's latest data, India's foreign exchange reserves hit a record high of \$430.6 billion in August.

7. Auto sales fall 19% in July, worst in 19 years

What's in the news?

- The automobile sales have declined 18.71% in July, the worst ever in 19 years.
- The fall is mainly due to weak domestic economic activity and escalating global trade tensions.
- The crisis has forced nearly 300 dealers to close down operations leading to loss of around two lakh jobs.
- Auto Component Manufacturers Association (ACMA) of India had earlier warned that 10 lakh people could lose their jobs in the automobile industry if immediate steps are not taken to stir up vehicle demand in the country.
- The automobile industry reiterated its demand for uniform GST of 18 per cent for the entire automobile sector in order to stimulate vehicle demand.

8. Plastics industry seeks export schemes, tax benefits for MSMEs

What is dumping?

- Dumping is the practice of selling a product in a foreign market at an unfairly low price (*a price that is lower than the cost in the home market, or which is lower than the cost of production*) in order to

gain a competitive advantage over other suppliers.

Anti-dumping duty

- An anti-dumping duty is a tariff that a domestic government imposes on foreign imports that it believes are priced below fair market value.
- Countries use anti-dumping duty to curb the ill effects caused by dumping on domestic industries, as well as to promote and establish fair trade.

What is CGTMSE?

- The Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme was launched by the Ministry of Micro, Small and Medium Enterprises and the Small Industries Development Bank of India (SIDBI).
- The primary objective of the scheme is to give credit guarantees to financial institutions that provide loans to SMEs and MSMEs.
- CGTMSE aims to encourage entrepreneurs to take collateral-free loans for starting businesses without the fear of defaulting. Funds under CGTMSE scheme will be used to reimburse the lending institution up to a certain limit, in case the borrower defaults.

Why in News?

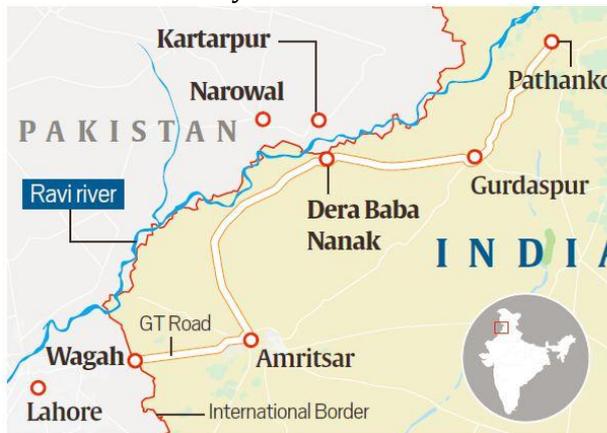
- Plastic manufacturers have requested the government to remove anti-dumping duty on machines not made in India, as it affects the cost competitiveness of plastic processors in India.
- Additionally, the sector appealed to the government to make lending to MSMEs in plastic sector more convenient by increasing the current limits under the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme.
- https://www.cgtmse.in/About_us.aspx

International Relations

1. Punjab CM asks Pakistan not to back down on commitment

Kartarpur Sahib Corridor

- The corridor will facilitate visa-free travel of Indian Sikh pilgrims to the Gurdwara Darbar Sahib in Kartarpur, Pakistan.
- It is in Kartarpur Sahib that Guru Nanak Dev had spent the last 18 years of his life. The gurdwara is built where Guru Nanak is said to have died.
- In November 2018, Vice President Venkaiah Naidu laid the foundation stone for the construction of the Kartarpur Sahib Road Corridor on the Indian side in Gurdaspur district of Punjab, marking a new beginning in India-Pakistan relations.
- The facilities on both sides of the international border are expected to be ready by the time celebrations begin in November in Kartarpur for the 550th birth anniversary of Guru Nanak Dev.



Guru Nanak

- Guru Nanak was the founder of Sikhism and became the first Sikh Guru. His spiritual teachings laid the foundation on which Sikhism was formed.
- He advocated the existence of one God and taught his followers that every human being can reach out to God through meditation and other pious practices. Guru Nanak did not support monasticism and asked his followers to lead the life of an honest householder.
- His teachings were immortalized in the form of 974 hymns, which came to be known as 'Guru Granth Sahib,' the holy

text of Sikhism. With more than 20 million followers, Sikhism is one of the important religions in India.

Why in News?

- Following reports of slowdown on the Kartarpur Corridor project, Punjab Chief Minister Amarinder Singh urged Pakistan not to back down on its commitment as it would hurt the sentiments of the Sikh community.

2. U.N. Security Council met on Kashmir issue

About UNSC

- The United Nations Security Council (UNSC) was established in 1946 as one of the six principal organs of the UN. It is generally viewed as the apex of the UN system.
- It is responsible for the maintenance of international peace and security. Its powers include the establishment of peacekeeping operations, the establishment of international sanctions, and the authorization of military action through Security Council resolutions.
- It is the only UN body with the authority to issue binding resolutions to member states.

Membership

- UNSC consists of 15 Members and each member has one vote.
- The council has five permanent members (P-5) United States, Russia, China, United Kingdom and France. These permanent members can **veto** any substantive Security Council resolutions, including those on the admission of new member states.
- The Security Council also has 10 non-permanent members, elected on a regional basis. Each year the 193-member UN General Assembly (UNGA) elects five non-permanent members for a two-year term.
- The body's presidency rotates monthly among its members.

Why in News?

- The United Nations Security Council held a closed-door meeting to discuss India's

move to end the special status of Jammu and Kashmir.

- India reiterated its position that the abrogation of Article 370 is an internal matter.

3. RCEP nations' top officials to meet soon

What is RCEP?

- Regional Comprehensive Economic Partnership is an economic grouping of the ASEAN's 10 members, plus India, China, Japan, South Korea, Australia and New Zealand.
- Once concluded, RCEP will create a zero-customs duty zone that contributes 34% of GDP and 40% of world trade. The region is also home to almost half of the world's population.
- Negotiations have been going on since 2013, with one of the major issue being India's reluctance to open up its markets.

Concerns of India

- Imbalance in the negotiations between goods and services is the main concern for India. Member countries are putting pressure on India to commit to zero tariffs on more than 90 percent of tradable goods with few exemptions.
- However, they remain reluctant to India's proposal to allow free movement of Indian skilled professionals in the RCEP region. They are not ready to go beyond 60% of services to bring under the pact.
- Indian industries are worried that with RCEP allowing a wide range of goods to import at zero tariffs, Chinese goods will flood India. It will cause serious damage to the "Make in India" programme.
- Already India's trade deficit with China is unsustainable at \$63 billion in 2017-18. India has trade deficits with other RCEP nations, too, such as South Korea (\$11.9 billion) and Australia (\$10.2 billion).

Opportunities for India

- Despite these concerns, RCEP will offer India an opportunity to engage with China. It will give India a chance to stall some of its unfair practices such as giving subsidies unethically and stalling Indian products, such as pharmaceutical, on the pretext of quality control.

- RCEP will give Indian exporters a window to be a part of global value chains.

INDIA AND RCEP

65% of India's goods trade deficit in 2017-18 was with RCEP nations. Will the pact balloon India's trade deficit further? (in \$ billion)

	India's export to	India's Import from	Total trade	Deficit
China	13.1	73.3	89.4	63.1
Asean	33.8	47	80.8	13.3
S Korea	4.4	16.4	20.8	11.9
Australia	3.8	13.9	17.8	10.2
Japan	4.7	10.9	15.7	6.2
New Zealand	0.35	0.64	0.99	0.29
RCEP	60.2	165.2	225.4	105

	Export	Import	Total trade	Deficit
India's global trade (\$ bn)	300	461.2	761.4	161.4
Share of trade with RCEP	20.1%	35.8%	29.6%	65.1%

Source: Ministry of Commerce and Industry

Why in News?

- Senior officials of RCEP countries are planning to meet in Indonesia to resolve differences in the finalisation of the trade pact.
- <https://economictimes.indiatimes.com/news/economy/foreign-trade/what-is-stopping-india-from-joining-rcep-trade-deal/articleshow/67399881.cms?from=mdr>

4. China says Hong Kong protests 'near terrorism'

What's in the news?

- China has condemned the ongoing violent protests in Hong Kong, calling it had reached near terrorism.

Reason for the protests

- The trigger for the protests was a now-suspended extradition bill, which would have allowed Hong Kong to detain and transfer people wanted in countries with which it has no formal extradition agreements, including the Chinese mainland.
- Opponents of the bill cited the alleged use of torture, arbitrary detentions and forced confessions in China.

- The protests have now turned into a movement for full democracy and autonomy from mainland China.

Hong Kong and China relationship

- Hong Kong, a former British colony, was returned to China in 1997 under a policy known as “**one country, two systems,**” which promised the territory a high degree of autonomy. Hong Kong allows freedoms not enjoyed in mainland China, including freedom to protest and an independent judiciary.
- But that autonomy, guaranteed under a mini-constitution known as the **Basic Law**, expires in 2047. The joint signed declaration does not state what will happen in 2047 after that agreement officially ends.

SCIENCE and TECHNOLOGY

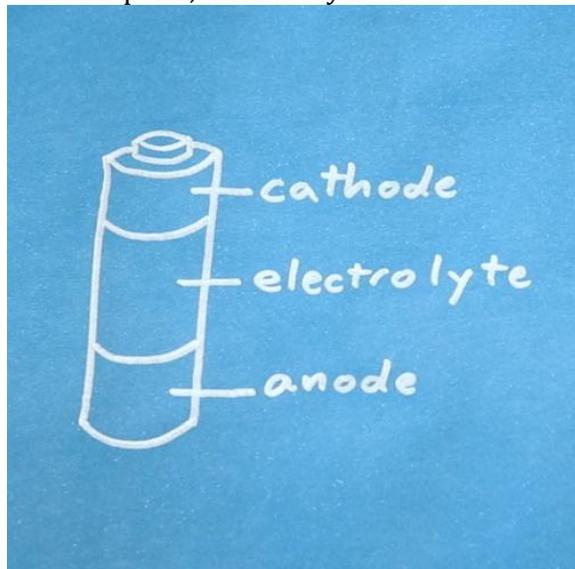
1. Battery

What is a battery?

- Batteries are a collection of one or more cells whose chemical reactions create a flow of electrons in a circuit.
- All batteries are made up of three basic components: an anode (the '-' side), a cathode (the '+' side), and some kind of electrolyte (a substance that chemically reacts with the anode and cathode).

How does it work?

- When the anode and cathode of a battery is connected to a circuit, a chemical reaction takes place between the anode and the electrolyte.
- This reaction causes electrons to flow through the circuit and back into the cathode where another chemical reaction takes place.
- When the material in the cathode or anode is consumed or no longer able to be used in the reaction, the battery is unable to produce electricity.
- At that point, the battery is "dead."



Types of battery

- Batteries that must be thrown away after use are known as primary batteries.
- Batteries that can be recharged are called secondary batteries.

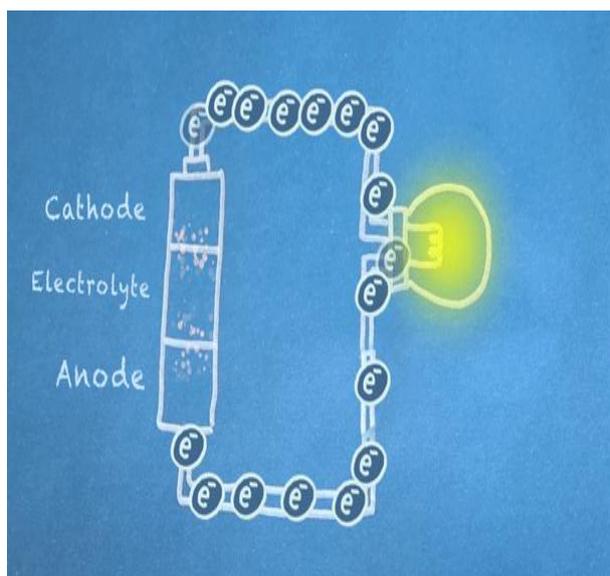
Applications of batteries

- Batteries offer a way to store electrical potential energy in a portable container

- Without batteries, your quadcopter would have to be tethered to the wall, you would have to hand crank your car, and your Xbox controller would have to be plugged in all the time.

Evolution of batteries

- Alessandro Volta created the first battery in 1800 - The voltaic pile consisted of a stack of zinc and copper plates separated by cloth soaked in brine
- In 1859, the French physicist Gaston Planté created a battery using two rolled sheets of lead submerged in sulfuric acid.
- By reversing the electrical current through the battery, the chemistry would return to its original state, thus creating the first rechargeable battery.
- In 1866, Georges Leclanché created a battery using a zinc anode, a manganese dioxide cathode, and an ammonium chloride solution for the electrolyte. While the electrolyte in the Leclanché cell was still a liquid, the battery chemistry proved to be an important step for the invention of the dry cell.
- Carl Gassner figured out how to create an electrolyte paste out of ammonium chloride and Plaster of Paris.
- He patented the new "dry cell" battery in 1886 in Germany.
- In the 1970s, COMSAT developed the nickel-hydrogen battery for use in communication satellites.
- These batteries store hydrogen in a pressurized, gaseous form.
- Many man-made satellites, like the International Space Station, still rely on nickel-hydrogen batteries.
- Asahi Chemical of Japan built the first lithium-ion battery in 1985, and Sony created the first commercial lithium-ion battery in 1991.
- Most of the commercial batteries in today's world are constructed using Lithium
- Lithium-ion batteries are widely used in various electronic devices due to their higher energy density



Problem with lithium ion battery

- There are several drawbacks with this battery that we all are aware of.
- For instance, they need protection from overcharging and prevention from short-circuiting.
- Also, the cost of lithium is rising up due to the increasing demand for lithium ion batteries in electric vehicles.
- Exploring new battery chemistry to overcome these drawbacks will be a step forward in meeting the growing energy demands.
- While lithium mining is relatively cheap, it comes with huge downsides.
- When brine mining, miners need to let the water surrounding lithium evaporate in order to reach it, which means using 500,000 gallons of water per tonne of lithium.
- And when digging the mineral out of rock, it requires toxic chemicals, which can lead to disastrous results.
- So, the need for an alternative is a pressing one, and iron could be a strong option.

Why in news?

- Indian Institute of Technology (IIT) Madras researchers have for the first time fabricated a rechargeable iron ion battery using mild steel as the anode.
- The iron ion battery is cost-effective and the amount of energy that can be stored in the battery is also high.

Why iron?

- Iron has favorable physico-chemical properties like lithium

- The redox potential of iron ion is higher than lithium ion and the radius of the Fe^{2+} ion is nearly the same as that of the lithium ion.
- Redox refers to "reduction potential," or the tendency for a chemical substance to lose or gain electrons and have their effectiveness lowered.

Iron ion battery

- Iron ion battery is designed using metal oxide as one of the electrodes and mild steel is chosen for the other electrode, the cheapest source of iron in an ether-based electrolyte.
- Using this design, the research team is able to achieve 60% of the performance obtained in the conventional lithium-ion battery.
- Iron does not form dendrites during the charging process and therefore prevents short-circuiting of the batteries.
- Thus, when compared to the popular Lithium metalbased batteries, these are cost-efficient and less harmful.
- The fabrication of lithium-based batteries is done in a controlled atmosphere due to the reactive nature of lithium, which again increases the production cost of the battery.
- The developed iron ion battery can also be fabricated in ambient condition due to the less reactive nature of iron.
- We notice that the iron ion battery fabricated in ambient condition shows about 72% of the performance of the battery fabricated in the controlled atmosphere

Sources

- <https://alumni.iitm.ac.in/article/news/rechargeable-iron-ion-battery/>
- <https://learn.sparkfun.com/tutorials/what-is-a-battery/all>
- <https://www.popularmechanics.com/science/environment/a28702497/could-iron-replace-lithium-batteries/>

2. Stem cells

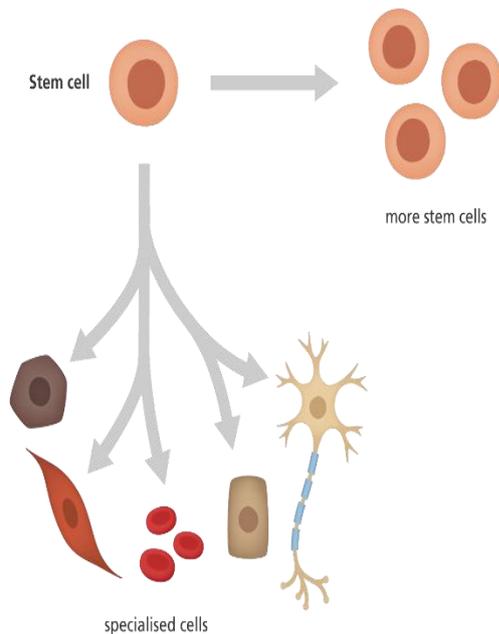
What Are Stem Cells?

- Stem cells are special human cells that have the ability to develop into many different cell types, from muscle cells to brain cells.

- In some cases, they also have the ability to repair damaged tissues.

Stem cell therapy

- Researchers believe that stem cell-based therapies may one day be used to treat devastating ailments like paralysis and Alzheimer's disease.



Types of stem cells

- Stem cells are divided into two main forms: embryonic stem cells and adult stem cells.
- The embryonic stem cells used in research today come from unused embryos resulting from an in vitro fertilization procedure and that are donated to science.
- These embryonic stem cells are pluripotent, meaning that they can turn into more than one type of cell.
- There are two types of adult stem cells.
- One type comes from fully developed tissues, like the brain, skin, and bone marrow.
- There are only small numbers of stem cells in these tissues, and they are more likely to generate only certain types of cells.
- For example, a stem cell derived from the liver will only generate more liver cells.
- The second type is induced pluripotent stem cells.
- These are adult stem cells that have been manipulated in a laboratory to take on the

pluripotent characteristics of embryonic stem cells.

- Although induced pluripotent stem cells don't appear to be clinically different from embryonic stem cells, scientists have not yet found one that can develop every kind of cell and tissue.

What are cancer stem cells?

- Cancer stem cells are rare immortal cells within a tumour that can both self-renew by dividing and give rise to many cell types that constitute the tumour, and can therefore form tumours.
- Such cells have been found in various types of human tumours and might be attractive targets for cancer treatment.

Mechanism

- Within a malignant tumor or among the circulating cancerous cells of leukemia, there can be a variety of types of cells.
- The stem cell theory of cancer proposes that among all cancerous cells, a few act as stem cells that reproduce themselves and sustain the cancer, much like normal stem cells normally renew and sustain our organs and tissues.
- Cancer Stem Cells (CSCs) are a small subpopulation of cells within tumors with capabilities of self-renewal, differentiation, and tumorigenicity when transplanted into an animal host.
- The idea that cancer is primarily driven by a smaller population of stem cells has important implications.

Significance of CSCs

- Cancer stem cells are small in number in the tumor but are perhaps the most difficult ones to target as they resist chemotherapy and radiation.
- They are also responsible for the relapse of cancer.
- Many new anti-cancer therapies are evaluated based on their ability to shrink tumors, but if the therapies are not killing the cancer stem cells, the tumor will soon grow back
- An analogy would be a weeding technique that is evaluated based on how low it can chop the weed stalks—but no matter how low the weeds are cut, if the roots aren't taken out, the weeds will just grow back.
- Another important implication is that it is the cancer stem cells that give rise to metastases.

- CSCs can also act as a reservoir of cancer cells that may cause a relapse after surgery, radiation or chemotherapy has eliminated all observable signs of a cancer.

Why in news?

- The role of cancer stem cells in maintaining and spreading a tumour has remained a hypothesis until recently
- A group of researchers from Cancer Institute (WIA), Chennai, have shown that in a common type of ovarian cancer, cancer stem cells can morph into special cell types that build tiny bunches of blood vessel within the tumour.
- The team also found that cells making up lymph vessels, another essential component of the tumour which aids in spreading the tumour (metastasis), can be made by the cancer stem cells.

Significance

- Up to 20% of the blood vessels in the tumours were derived from the cancer stem cells
- This is the first study to make this connection between lymphatic endothelial cells and the stem cells.

Implications of this study

- The study has implications for management of cancer because a tumour needs supply of both blood and lymph to grow and spread.
- So, targeting the cancer stem cells can curtail both.
- The study also suggests that drugs that inhibit the growth factor may be more effective clinically.

Sources

- <https://www.stanfordchildrens.org/en/topic/default?id=what-are-stem-cells-160-38>
- <https://www.nature.com/subjects/cancer-stem-cells>
- <https://med.stanford.edu/ludwigcenter/overview/theory.html>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3733496/>

3. Reusable rockets

What is a reusable launch system?

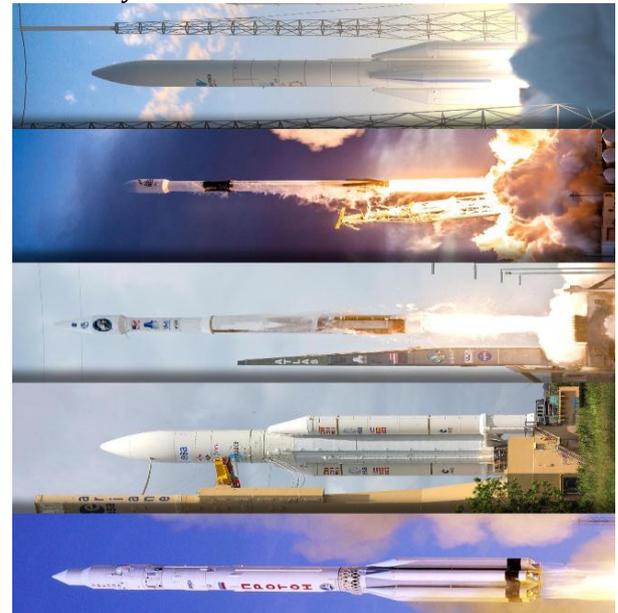
- A reusable launch system is a space launch system that includes the recovery of some or all of the component stages

Status of reusability

- To date, several fully reusable sub-orbital systems and partially reusable orbital systems have been flown.
- No fully reusable orbital launch system has yet been demonstrated.

Why reusable rockets?

- To demonstrate the necessity for reusable rockets, let us look at an example.
- SpaceX's Falcon 9 rocket currently carries a list price of about \$54 million.
- However, the cost of fuel for each flight is only around \$200,000—about 0.4% of the total.
- The majority of the launch cost comes from building the rocket, which flies only once
- Compare that to a commercial airliner. Each new plane costs about the same as Falcon 9, but can fly multiple times per day, and conduct tens of thousands of flights over its lifetime.
- Following the commercial model, a rapidly reusable space launch vehicle could reduce the cost of reaching Earth orbit by a hundredfold.



Why in news?

- Chinese startup LinkSpace completed its third test of a reusable rocket in five months, stepping up the pace in the race to develop a technology key to cheap space launches in an expected global boom in satellite deployment.

The precursor

- SpaceX has already used recoverable rockets on a number of orbital missions since a historic launch early in 2017,

spurring Europe, Russia, Japan and China to speed up their own research into the technology or at least consider studying it.

Cost-effectiveness

- The reusable design of its next-generation rocket could lead to a predicted cost reduction of 70%, iSpace estimated.
- LinkSpace said it hoped to charge no more than 30 million yuan (\$4.25 million) per reusable launch.
- That's a fraction of the \$25 million to \$30 million needed for a launch on a Northrop Grumman Innovation Systems Pegasus, a commonly used small rocket.

Sources

- <https://www.spacex.com/reusability-key-making-human-life-multi-planetary>
- The Hindu

4. Egg shells as bone implants

What are bone implants?

- A Bone implants/bone grafts is a surgical procedure used to fix problems with bones or joints.
- Bone grafting, or transplanting of bone tissue, is beneficial in fixing bones that are damaged from trauma or problem joints.
- It's also useful for growing bone around an implanted device, such as a total knee replacement where there is bone loss or a fracture.
- A bone graft may fill an area where bone is absent or help provide structural stability.
- The bone used in a bone graft can come from your body or a donor, or it can be entirely synthetic.
- It can provide a framework where new, living bone can grow if it's accepted by the body.

Why bone grafting is performed?

- Bone grafting is done for numerous reasons, including injury and disease. There are four main reasons bone grafts are used:
 - A bone graft may be used in the case of multiple or complex fractures or those that don't heal well after initial treatment.
 - Fusion helps two bones heal together across a diseased joint. Fusion is most often done on the spine.
 - Regeneration is used for bone lost to disease, infection, or injury. This can

involve using small amounts of bone in bone cavities or large sections of bones.

- A graft can be used to help bone heal around surgically implanted devices, like joint replacements, plates, or screws.

Current treating for missing bones

- In modern medicine, damaged and missing bones are replaced with bone from either the patient or a donor or by using artificial materials containing calcium, such as Plaster of Paris, and more recently, phosphate compounds like hydroxyapatite and calcium phosphate.

What's in the news?

- Researchers from the Indian Institute of Technology- (IIT-H) and Dr. B.R. Ambedkar National Institute of Technology, Jalandhar, have developed a process by which bone implant materials can be synthesised from eggshells.
- The research seeks to produce bone substitute materials such as tricalcium phosphate, a commonly-used bone substitute material, from natural sources.

Why egg shells?

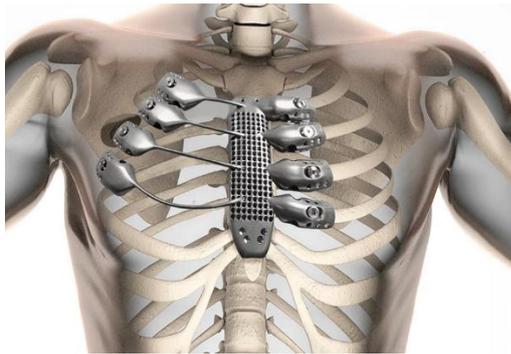
- Eggshells are made of largely of minerals (95.1%) along with small amounts of proteins and water. Calcium is the main mineral component.
- Tonnes of eggshells are dumped as waste across the world but bioceramics made from them exhibit greater biocompatibility than other synthetic powders due to the presence of additional bioactive elemental ions.
- Eggshells are inexpensive and can be obtained in unlimited quantities

Elaboration

- Researchers synthesised pure and thermally stable tricalcium phosphate nanopowder — powder a hundred thousand times smaller than the width of a single human hair — from eggshells.
- This activated calcium phosphate powder was used to create the replacement for the conventional bone graft.

Results

- Results showed that eggshell waste is promising enough to replace the commercially available tricalcium phosphate (produced by using harmful chemicals) and has the capability to develop implantable biomaterial for tissue regeneration.



Sources

- <https://www.healthline.com/health/bone-graft>
- The Hindu

5. Multidrug-resistant tuberculosis (MDR-TB)

What is Multi Drug Resistant TB?

- Multi Drug Resistant TB is often abbreviated to MDR-TB. MDR TB is a particular type of drug resistant TB.
- It means that the TB bacteria that a person is infected with are resistant to two of the most important TB drugs, isoniazid (INH) and rifampicin (RMP).
- If bacteria are resistant to certain TB drugs this means that the drugs don't work.
- Other drugs then need to be taken by the person if they are to be cured of TB.

What is RR-TB?

- RR means rifampicin resistant TB. People with RR-TB are resistant to rifampicin.
- They may or may not have resistance to other drugs. MDR/RR-TB means patients with MDR-TB as well as patients with TB resistant to rifampicin.
- For many years Multi Drug Resistant TB has been the most basic form of drug resistant TB, and the type of TB for which many statistics were collected.
- Then in 2016 RR-TB started to become more widely discussed because many people are now being diagnosed with TB using the Genexpert test.
- The Genexpert test detects resistance to rifampicin as well as resistance to isoniazid.

How do you get MDR-TB or RR-TB?

- There are two main ways that you can get MDR TB or RR-TB.
- Firstly, you can get it if you don't take your drugs exactly as you have been

instructed to by your health care provider.

- You may also get TB if you are not taking the correct drugs.
- This could possibly be because your bacteria are resistant to more drugs than your health care provider realized.
- Maybe you have undiagnosed XDR-TB. This is referred to as acquired TB.
- You can also get MDR or RR-TB if you get TB bacteria from another person who already has MDR or RR-TB. This is known as primary TB.
- It used to be believed that most people have acquired TB, but now it is realized that many more people than were previously realized have primary TB.

How/Why MDR TB emerges and spreads?

- The 2 reasons why multidrug resistance continues to emerge and spread are mismanagement of TB treatment and person-to-person transmission.
- Most people with TB are cured by a strictly followed, 6-month drug regimen that is provided to patients with support and supervision.
- Inappropriate or incorrect use of antimicrobial drugs, or use of ineffective formulations of drugs (such as use of single drugs, poor quality medicines or bad storage conditions), and premature treatment interruption can cause drug resistance, which can then be transmitted, especially in crowded settings such as prisons and hospitals.
- In some countries, it is becoming increasingly difficult to treat MDR-TB.
- Treatment options are limited and expensive, recommended medicines are not always available, and patients experience many adverse effects from the drugs.
- In some cases, even more severe drug-resistant TB may develop.
- Extensively drug-resistant TB, XDR-TB, is a form of multidrug-resistant TB with additional resistance to more anti-TB drugs that therefore responds to even fewer available medicines.
- It has been reported in 117 countries worldwide.

How to detect MDR TB?

- Drug resistance can be detected using special laboratory tests which test the bacteria for sensitivity to the drugs or detect resistance patterns.
- These tests can be molecular in type (such as Xpert MTB/RIF) or else culture-based.
- Molecular techniques can provide results within hours and have been successfully implemented even in low resource settings.

MDR-TB Statistics

How many people have MDR-TB?

- Globally in 2016 about 490,000 people are estimated to have become ill with MDR-TB.
- In addition, there were an estimated 110,000 people who had rifampicin resistant TB (RR-TB).
- So, the number of people estimated to have had MDR-TB or RR-TB in 2016 was 600,000.
- Almost half of these cases (47%) were in India, China or the Russian Federation.
- There is more about TB in India and TB in China.
- MDR-TB accounts for about 4.1% of new TB cases.
- Also, about 19% of previously treated TB cases were estimated to have either rifampicin or multi drug resistant TB in 2016.
- About 6.2% of MDR-TB cases in 2016 had additional drug resistance, which means that they may have had what is known as extensively drug resistant TB (XDR).
- This is lower than the figures for previous years (9.5% in 2015, 9.7% in 2014).
- This decrease is most likely due to improved measurements, rather than an actual decrease.

Deaths from MDR-TB

- In 2016 MDR-TB and RR-TB caused approximately 240,000 deaths.

Children with MDR TB

- It is estimated that there is a large pool of undiagnosed drug resistant infection in children.
- It is considered by some people that this may be as high as 2 million children.
- Of the estimated 850,000 children that developed TB in 2014, 25,000 probably had MDR TB. **Reported (notified) numbers of people with MDR-TB**

- The number of people actually reported (notified) to the World Health Organisation (WHO) as having MDR-TB or RR-TB was 26% of the people estimated to have become ill. This was about 153,119.
- Among MDR/RR-TB patients notified in 2016, 39% were tested for resistance to both fluoroquinolones and second line injectable drugs, a slight increase from 36% in 2015. Coverage varied widely among countries.
- The notification numbers among different WHO regions for 2016 are shown in the table below.

Solutions to control drug-resistant TB:

- Cure the TB patient the first time around
- Provide access to diagnosis
- Ensure adequate infection control in facilities where patients are treated
- Ensure the appropriate use of recommended second-line drugs.

Why in news?

- A new 3-drug regimen treatment has been announced for the treating for MDR-TB by USA's FDA.
- The FDA approval represents a victory for those suffering from highly drug-resistant forms of the world's deadliest infectious disease

Elaboration

- The three-drug regimen consists of bedaquiline, pretomanid and linezolid — collectively known as the BPaL regimen.
- The new treatment which cures highly drug-resistant strains of tuberculosis will drastically shorten the treatment period.
- With the treatment involving five pills of the three drugs daily taken over just six months, it is easier to administer.
- This compares to between 30 and 40 drugs that multiple-drug resistant TB patients take each day for up to two years.

Results

- The treatment regimen was studied at three sites in South Africa involving 109 patients and achieved a 90% success rate after six months of treatment and six months of post-treatment follow-ups.

Sources

1. <https://www.tbfacts.org/multi-drug-resistant-tb/>
2. <https://www.who.int/features/qa/79/en/>

PIB ANALYSIS

1) Swachh Survekshan 2020

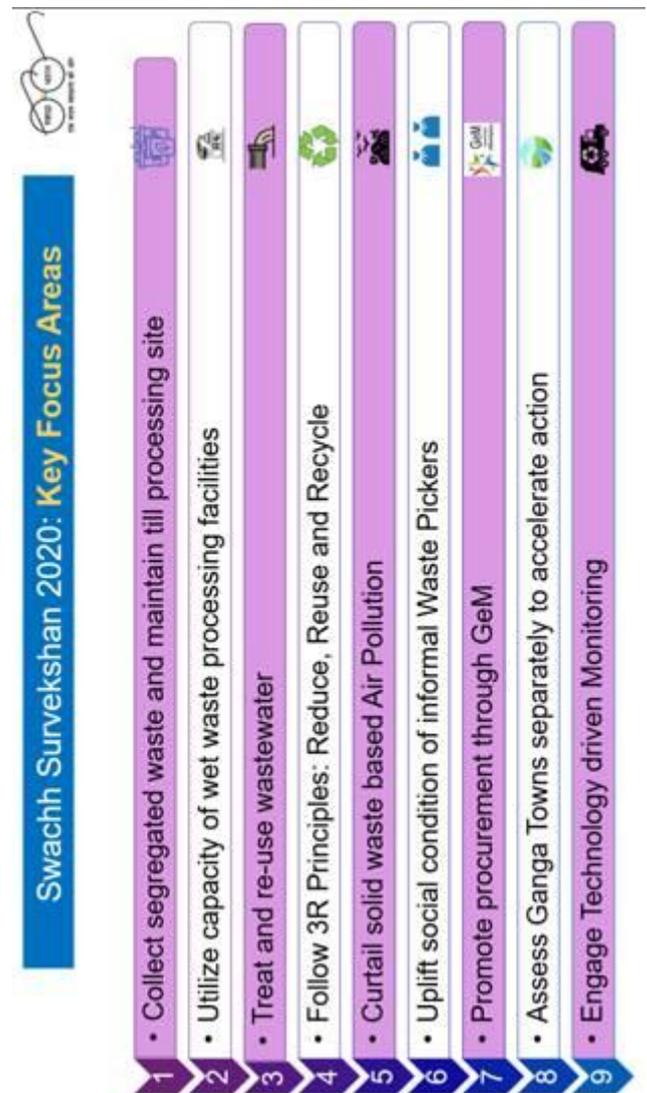
About:

- Swachh Survekshan is a ranking exercise taken up by the Government of India to assess rural and urban areas for their levels of cleanliness and active implementation of Swachhata mission initiatives in a timely and innovative manner.
- The objective of the survey is to encourage large scale citizen participation and create awareness amongst all sections of society about the importance of working together towards making towns and cities a better place to live in.
- Additionally, the survey also intends to foster a spirit of healthy competition among towns and cities to improve their service delivery to citizens, towards creating cleaner cities and towns.
- The Ministry of Urban Development, Government of India takes up the Swachh Survekshan in urban areas and the Ministry of Drinking Water and Sanitation in rural areas. The Quality Council of India (QCI) has been commissioned the responsibility of carrying out the assessment.

Focus areas of Swachh Survekshan 2020

- Collect segregated waste and maintain till processing site
- Utilising capacity of wet waste processing facilities
- Treat and reuse waste water
- Curtail solid waste based air pollution
- Uplift social condition of informal waste pickers
- Promote procurement through GeM
- Assess Ganga Towns separately to accelerate action
- Engage technology driven monitoring

Difference between Swachh Survekshan 2020 and 2019



Why in News?

- Minister of State (Independent Charge) for Housing & Urban Affairs launched the Swachh Survekshan 2020 (SS 2020), the fifth edition of the annual cleanliness survey conducted by the Ministry of Housing and Urban Affairs (MoHUA).
- <http://vikaspedia.in/health/sanitation-and-hygiene/swachh-survekshan>
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=192601>

2) CSR expenditure to be made tax deductible

About CSR

- Corporate Social Responsibility (CSR) is referred to as a corporate initiative to assess and take responsibility for the company's effects on the environment and impact on social welfare and to promote positive social and environmental change.

Recommendation

- The main recommendations include, making Corporate Social Responsibility (CSR) expenditure tax deductible, provision for carry forward of unspent balance for a period of 3 – 5 years.
- The other recommendations include developing a CSR exchange portal to connect contributors, beneficiaries and agencies, allowing CSR in social benefit bonds, promoting social impact companies, and third party assessment of major CSR projects.
- The Committee has emphasized on not treating CSR as a means of resource gap funding for government schemes.
- It has emphasized on CSR spending as a board driven process to provide innovative technology based solutions for social problems.
- The Committee has also recommended that companies having CSR prescribed amount below Rs. 50 lakh may be exempted from constituting a CSR Committee.
- The Committee has also recommended that violation of CSR compliance may be made a civil offence and shifted to the penalty regime.

Why in News?

- Shri Injeti Srinivas, Secretary (Corporate Affairs), presented the Report of the High Level Committee on CSR to the Union Minister of Finance and Corporate Affairs, Smt. Nirmala Sitharaman.
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=192613>

3) 41% reduction in stubble burning

What is Stubble Burning?

- Stubble burning is intentionally setting fire to the straw stubble that remains after grains, like paddy, wheat, etc. have been harvested. The practice was widespread until the

1990s, when governments increasingly restricted its use.

Beneficial features

- Quickly clears the field and is cheap.
- Kills weeds, including those resistant to herbicide.
- Kills slugs and other pests.
- Can reduce nitrogen tie-up.

Harmful effects

- Loss of nutrients
- Pollution from smoke
- Damage to electrical and electronic equipment from floating threads of conducting waste
- Risk of fires spreading out of control

Government initiatives for awareness on Stubble Burning

- Government funds have been released to the Governments of Punjab, Haryana and Uttar Pradesh respectively, for distribution of in-situ crop residue management machinery to the farmers on subsidy, establishment of Custom Hiring Centres (CHCs) of in-situ crop residue management machinery and undertaking Information, Education and Communication (IEC) activities for creating awareness among farmers.
- ICAR is implementing the scheme through 60 Krishi Vigyan Kendras (KVKs) by conducting awareness campaigns by organizing 1000s of demonstrations, putting up hoardings, banners and wall paintings all across the States.
- In addition to the above Scheme, separate funds are being allocated to the States for crop residue management under Sub-Mission on Agriculture Mechanization by the Department of Agriculture Cooperation and Farmers Welfare.
- The State Governments have also been directed that Rs. 4000/ Hectare shall be used from the funds available for demonstration of machines under the Sub-Mission on Agricultural Mechanization for demonstration of straw management machinery at farmers' fields.

Why in News?

- The paddy residue burning events have reduced by 15% and 41% in 2018 as compared to that in 2017 and 2016, respectively in all these States. More than

4500 villages in Punjab and Haryana were declared as Zero Stubble Burning Villages during 2018 as not a single crop burning incident was reported from these villages during the year.

- <http://pib.gov.in/newsite/erelease.aspx>

4) Report of the Competition Law Review Committee

About Competition Act

- The Competition Act, 2002, as amended by the Competition (Amendment) Act, 2007, follows the philosophy of modern competition laws. The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations (acquisition, acquiring of control and M&A), which causes or likely to cause an appreciable adverse effect on competition within India.

Need for the review:

- The Government constituted a Competition Law Review Committee on 1st October, 2018 to review the existing Competition law framework and make recommendations to further strengthen the framework to inter alia meet new economy challenges.

Key Recommendations:

- Introduction of a 'Green Channel' for combination notifications to enable fast-paced regulatory approvals for vast majority of mergers and acquisitions that may have no major concerns regarding appreciable adverse effects on competition. The aim is to move towards disclosure based regime with strict consequences for not providing accurate or complete information.
- Combinations arising out of the insolvency resolution process under the Insolvency and Bankruptcy Code will also be eligible for "Green Channel" approvals.
- Introducing a dedicated bench in NCLAT for hearing appeals under the Competition Act.
- Introduction of express provisions to identify 'hub and spoke' agreements as well as agreements that do not fit within typical horizontal or vertical anti-competitive structures to cover agreements related to business structures

and models synonymous with new age markets.

- Additional enforcement mechanism of 'Settlement & Commitments" in the interests of speedier resolution of cases of anti-competitive conduct.
- Enabling provisions to prescribe necessary thresholds, inter alia, deal-value threshold for merger notifications
- CCI to issue guidelines on imposition of penalty to ensure more transparency and faster decision making which will encourage compliance by businesses
- Strengthening the governance structure of CCI with the introduction of a Governing Board to oversee advocacy and quasi-legislative functions, leaving adjudicatory functions to the Whole-time Members
- Merging DG's Office with CCI as an 'Investigation Division' as it aids CCI in discharging an inquisitorial rather than adversarial mandate. However, functional autonomy must be protected.
- Opening of CCI offices at regional level to carry out non-adjudicatory functions such as research, advocacy etc. and interaction with State Governments and State regulators.

Why in News?

- Shri Injeti Srinivas, Secretary (Corporate Affairs), presented the Report of the Competition Law Review Committee to the Union Minister of Finance and Corporate Affairs, Smt. Nirmala Sitharaman.
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=192629>

5) National Youth Awards

Why is it given?

- National Youth Award is conferred on young men and women and voluntary organization every year in recognition of their outstanding work in the field of national development and social service given by The Ministry of Youth Affairs and Sports, Department of Youth Affairs.

Objectives of the Award

- To motivate young persons (aged between 15 - 29 years) to achieve excellence in the field of national development or social service.

- To encourage young people to develop a sense of responsibility to the community and thus to improve their own personal potential as good citizens.
- To give recognition to the outstanding work done by voluntary organizations working with the youth for national development and / or social service.

Cash prize:

- The individual award comprises of a medal, a certificate and a cash prize of Rs. 50,000/-. The award to a youth organisation includes a medal, a certificate and a cash prize of Rs. 2,00,000/-.

Why in News?

- The Union Minister for Youth Affairs & Sports Kiren Rijiju conferred the National Youth Awards 2016-17 upon the following 20 individuals and 3 organizations.
- <https://innovate.mygov.in/national-youth-award/>
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=192595>

6) Operation Number Plate

Objective:

- To identify and verify all vehicles parked in Railway premises, circulating area, parkings and even in the 'No Parking' areas for longer duration.
- It has been launched by Railway Protection Force (RPF) of Indian Railways with active cooperation of the Local Police and Commercial Department of Railways.

What is the need?

- The unidentified vehicles are considered as a serious threat to security and safety of passengers and other stakeholders of railways.

Why in News?

- Railway Protection Force (RPF) launched a Special Drive with a Code Named Operation "Number Plate" across Indian Railways, a Drive against unattended/unclaimed vehicles in all Railway Premises.
- <http://pib.gov.in/newsite/PrintRelease.aspx?relid=192612>
- <https://www.thehindu.com/news/cities/Kochi/rpf-seizes-28-vehicles-under-operation-number-plate/article29087790.ece>

News in Depth

AIR NEWS

1) Lead in PVC pipes

About NGT

- The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto.
- It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues.
- The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by the principles of natural justice.
- The Tribunal's dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help reduce the burden of litigation in the higher courts.
- The Tribunal is mandated to make and endeavour for disposal of applications or

appeals finally within 6 months of filing of the same.

What is the issue?

- A bench headed by NGT Chairperson Justice Adarsh Kumar Goel expressed concern that the notification has not been finalised despite its direction. It directed the Ministry of Environment and Forests to submit a report
- The NGT in March 2019 had directed the Centre to finalise within two months the standards for using lead in PVC pipes.
- The NGT was earlier informed that water passing through PVC pipes commonly used in most buildings may contain toxic materials like lead, which has a hazardous effect on human health.

Why in News?

- The National Green Tribunal has directed the Centre to submit a report on standards of lead and to phase out lead as a stabiliser in Polyvinyl Chloride (PVC) pipes that are commonly used in most buildings.
- <http://www.newsonair.com/News?title=NGT-directs-govt-to-submit-a-report-on-standards-for-lead-in-PVC-pipes&id=370001>
- <http://www.greentribunal.gov.in/history.aspx>

Hindu Editorial Analysis

1. Rethinking water governance strategies

- GS PAPER II & III: Governance and Environment

Context:

- Water crisis is being witnessed for quite some time in our Indian cities (eg. Chennai) with annually increasing disasters like floods and droughts.
- The groundwater level has been depleting continuously and has almost gone to nil.
- Last year Niti Aayog has released a Composite water management Index which observes that 21 major cities of India are expected to run out of groundwater by 2020 affecting nearly 100 million people. This is a high alarm and the need to have a robust water governance strategy has come to limelight.

What is the crisis and what is the nature of crisis?

- Water shortage had been a burgeoning problem directly proportional to the aspects like economic acceleration, urbanization, population outburst etc. since few decades.
- The levels and different aspects of crisis has been expanding ranging from river drying up, lack of proper monsoon to depletion of groundwater.
- Therefore it becomes necessary to chart out a completely scientifically dynamic model to understand the various facets of the problem, devise innovative resource management model to deal with the crisis.

Different causes of the problem:

- 1) Water exploitation, overuse and contamination by industries and urban areas – demand side issue
- 2) Water scarcity – drying up of rivers and lakes – supply side problem
- 3) Monsoonal irregularity – climate change related catastrophic problem
- 4) Contradicting scenario of parts of country facing monsoon deluge whereas the same or other parts facing water crisis.

5) Inter- state river water disputes, siltation of river channels, reservoirs etc

6) Depletion of water reserves – serious threat in the groundwater availability

7) Principal migrations of water – agriculture to industry; rural to urban; food to cash crops; poor to rich; livelihood to lifestyle.

- These range of aspects have led to shift of the issue from water stress to water scarcity and subsequent crisis.

Reports –

- The CGWB in 2013 estimated that the groundwater development in India is just about 62% of the utilizable groundwater reserves.
- CCWB annual book has stated that 1034 out of 6584 blocks of groundwater has been over-exploited.
- 3. The goal of the Composite water management report is to propose a tool, and index to monitor the states' water resource management strategies and provide the necessary course-shift beyond supply augmentation.

Piped transportation of water: an analysis

- Recently the water crisis of Chennai is being managed by transporting water from distant places by trains (2.5 million litres). This raises the question of feasibility of this solution. These are very expensive options and require a lot of energy. Such innovative models in Greece and US to ferry iceberg, pipeline, mega sprang bag etc.
- The most suitable option is to transport water using water that is through inland waterways. But this is difficult in India as our rivers don't have the breadth and depth to carry large barrage, siltation of rivers and waste water disposal of rivers is another problem. Therefore there is a need to invent innovative technologies to water management.

What is lacking in effective resource conservation and management?

- Institutional accountability

- Confusion regarding the jurisdiction of different stakeholders like public, local bodies, industry, state and centre.
- Continuous monitoring mechanisms are inadequate to keep a check on groundwater at local level.
- The responsibility regarding Solid waste management is also lacking
- Availability of scientific methods to the general public
- Incapacity of the industries to ethically and responsibly use resources.
- Desalination plants can be used by big industries for economic purpose instead the problem of economies of scale surface when these are installed for public drinking water usage.
- A conducive mechanism to tackle the interstate river water problem is vital
- Resource management should be a continuous linkage from river origin, its geography and channel management, canal irrigation, and downstream management like treating wastewater and groundwater conservation etc. lack of such continuous chain of governance is the biggest hurdle in effective water management.

Approaches: a way forward

- The fulcrum of change of action to be with the states.
- Change of strategy from supply augmentation to demand management
- Real time monitoring, Conservation and regulation.
- Focus of water security as the national agenda.
- Jal jeevan abhiyan focusing on local infrastructure for water sustainability.

2. Rooting AI in ethics

GS PAPER IV: ETHICS IN GOVERNANCE

Context:

- The NITI Aayog has a National Strategy on Artificial Intelligence. It aims to guide research and development in new and emerging technologies.
- NITI Aayog has identified five sectors — healthcare, agriculture, education, smart cities and infrastructure and transportation — to focus its efforts towards implementation of AI.
- In the above context it becomes important to understand the ethical

perspective in using artificial intelligence because it is the next big thing. When the emerging technologies have much greater and direct human interface, its ethical usage is vital. And with rapid technological transformation there is need to draw boundaries of its integration into human lives for which ethics is the basis.

AI & NITI

- Artificial intelligence is the use of computers to simulate human intelligence. AI amplifies our cognitive abilities — letting us solve problems where the complexity is too great, the information is incomplete, or the details are too subtle and require expert training.
- Union Budget-2018 mandated NITI Aayog to come up with a national programme on employing Artificial Intelligence towards national development. NITI has published a National Strategy for Artificial Intelligence.
- National Strategy lays down the vision of India for evolving a robust ecosystem for AI research and adoption. The Strategy is termed #AI For All as it is focused on leveraging AI for inclusive growth in line with the Government policy of *Sabka Saath, Sabka Vikas*.

Ethics and its perspectives

- Ethics are simply moral principles that govern a person's behavior or the conducting of an activity. These principles mostly govern the conduct of a society at large and prevent or rectify maladaptive behavior and evils of society.

Egoistic principle -

- It states that we take actions that result in greatest good for oneself. For example. A cigarette company is likely to sell more cigarettes, assuming that the new product wins over more new customers. From an egoistic perspective, hence, the company should launch the new cigarette.

Utilitarian perspective -

- It states that we take actions that result in the greatest good for all. Launching the new cigarette is good for the company. The new brand of cigarette also provides a 'healthier' choice for smokers. And more

choice is good for customers. Hence, the company should launch the product.

- The egoistic and utilitarian perspectives together form the 'teleological perspective', where the focus is on the results that achieve the greatest good.

Deontological perspective –

- It focuses more on the intention of the maker than the results. The company deceives the customer when it says that the new cigarette is 'healthier'. Knowingly endangering the health of humans is not an ethical intention. So, the company should not launch this cigarette.

AI system uses teleological perspective

- The author says that most of the AI system technology uses teleological perspective instead of deontological perspective. Let us consider the example of facial recognition system.
- An AI system introduced in 2015 with much fanfare in the U.S. failed to recognize faces of African Americans with the same accuracy as those of Caucasian Americans. Google, the creator of this AI system, quickly took remedial action.
- However, from a teleological perspective, this flawed AI system gets a go ahead. According to the 2010 census, Caucasian Americans constitute 72.4% of the country's population. So an AI system that identifies Caucasian American faces better is useful for a majority of Internet users in the U.S., and to Google. However, from a deontological perspective, the system should have been rejected as its intention probably was not to identify people from all races, which would have been the most ethical aim to have.
- Facial recognition system is used in various fields:
 1. Identification – Aadhar card
 2. Economic transactions authentication
 3. Social benefits- healthcare sector
 4. Criminal justice system – prisons and database of criminals
 5. Security infrastructure etc.
- The ethical basis of AI, for the most part, rests outside the algorithm. The bias is in the data used to train the algorithm. It stems from our own flawed historical and cultural perspectives —

sometimes unconscious — that contaminate the data.

- It is also in the way we frame the social and economic problems that the AI algorithm tries to solve.

Way forward

- With the proliferation of AI, it is important for us to know the ethical basis of every AI system that we use or is used on us. An ethical basis resting on both teleological and deontological perspectives gives us more faith in a system. Understanding and discussing the ethical basis of AI is important for India. The transformative capability of AI in India is huge, and must be rooted in an egalitarian ethical basis. Any institutional framework for AI should have a multidisciplinary and multi-stakeholder approach, and have an explicit focus on the ethical basis.
- <https://www.thehindu.com/opinion/op-ed/rooting-ai-in-ethics/article29035692.ece>

3. Writing out a clean bill on health

- GS PAPER II – SOCIAL ISSUES AND GOVERNANCE

Context:

- The parliament has enacted the National Medical Commission bill after severe scrutiny and opposition by the medical fraternity. This bill outlines a detailed framework to completely reform the medical education and health sector in India. Let us analyze the provisions of the bill.

The bill

- The National Medical Commission Bill, 2019 was introduced by the Minister of Health and Family Welfare on July 22, 2019. The Bill seeks to repeal the Indian Medical Council Act, 1956 and provide for a medical education system which ensures:
 - (i) availability of adequate and high quality medical professionals,
 - (ii) adoption of the latest medical research by medical professionals,
 - (iii) periodic assessment of medical institutions, and
 - (iv) an effective grievance redressal mechanism.

Salient features:

- Ø Constitution of the National Medical Commission: The Bill sets up the National Medical Commission (NMC). Within three years of the passage of the Bill. State governments will establish State Medical Councils at the state level. Members of the NMC will include: (i) the Chairperson (must be a medical practitioner), (ii) Presidents of the Under-Graduate and Post-Graduate Medical Education Boards, (iii) the Director General of Health Services, Directorate General of Health Services, (iv) the Director General, Indian Council of Medical Research, and (v) five members (part-time) to be elected by the registered medical practitioners from amongst themselves from states and union territories for a period of two years.

Functions of the National Medical Commission:

- Functions of the NMC include: (i) framing policies for regulating medical institutions and medical professionals, (ii) assessing the requirements of healthcare related human resources and infrastructure, (iii) ensuring compliance by the State Medical Councils of the regulations made under the Bill, (iv) framing guidelines for determination of fees for up to 50% of the seats in private medical institutions and deemed universities which are regulated under the Bill.

Medical Advisory Council:

- Under the Bill, the central government will constitute a Medical Advisory Council. The Council will be the primary platform through which the states/union territories can put forth their views and concerns before the NMC. Further, the Council will advise the NMC on measures to determine and maintain minimum standards of medical education.

Autonomous boards:

- The Bill sets up autonomous boards under the supervision of the NMC; (i) the Under-Graduate Medical Education Board (UGMEB) and the Post-Graduate Medical Education Board (PGMEB): These Board; (ii) The Medical Assessment and Rating Board (MARB); (iii) The Ethics and Medical Registration Board

Community health providers:

- Under the Bill, the NMC may grant a limited license to certain mid-level practitioners connected with the modern medical profession to practice medicine.

Entrance examinations:

- There will be a uniform National Eligibility-cum-Entrance Test for admission to under-graduate and post-graduate super-speciality medical education in all medical institutions regulated under the Bill.
- The NMC will specify the manner of conducting common counselling for admission in all such medical institutions. The Bill proposes a common final year undergraduate examination called the National Exit Test for the students graduating from medical institutions to obtain the license for practice.
- This test will also serve as the basis for admission into post-graduate courses at medical institutions under this Bill.

A Critical Analysis

I. Primary concerns are pertaining to:

- National eligibility cum entrance test
- Empowering of community health providers for limited practice
- Regulating fee for only 50% of seats in private institutions
- Reducing the number of elected representatives in the commission
- Perception of overriding powers of the Centre.

II. The examination structure

- This Act consolidates multiple exams at the undergraduate level with a single NEET and In turn avoids multiple counseling processes.
- National Exit Test (NEXT) will act as the final year MBBS examination across India, Entrance test to the postgraduate level and as a licentiate exam before doctors can practice.
- It aims to reduce disparities in the skill sets of doctors graduating from different Institutions. It would also be a single licentiate exam for graduates across the world.
- Thus, the government has in effect implemented a 'One-Nation-One-Exam' in medical education.

III. License

- Concerns have been expressed over the limited licence to practise for community health providers.
- 70% of India's population residing in the rural areas, the present ratio of doctors in urban and rural areas is 3.8:1; 27,000 doctors serve about 650,000 villages of the country.
- A recent study by the World Health Organisation shows that nearly 80% of allopathic doctors in the rural areas are without a medical qualification. The NMC Act attempts to address this gap by effectively utilizing modern medicine professionals, other than doctors in enabling primary and preventive health care.
- However it is necessary to ensure quality and maintain uniform standards in such a system.

IV. Fee structure capping

- The capitation fee driven private colleges have been making humungous profits which will be regulated up to 50% under this act.
- The Indian Medical Council Act, 1956 has no provision for fee regulation. Until now, 'not-for-profit' organizations were permitted to set up medical colleges, a process involving enormous investments and a negotiation of cumbersome procedures.
- The NMC Act removes the discretionary quota by using a transparent fee structure. It empowers the NMC to frame guidelines for determination of not only fees but all other charges in 50% of seats in private colleges to support poor and meritorious students.
- This will make medical education more accessible to the poor.
- It will also demotivate entry of private players therefore, incentives has to be provided to attract more private players.
- The transparency of NEXT would lead to fee regulation through market forces.
- The students will be able to take informed decisions.

V. Representation

- The Act provides for a transparent search and selection process with an eclectic mix of elected and nominated representatives, both in the search committee and the Commission itself.
- The government has further addressed the concern of preponderance of selected
- Members in the commission by adding members from State medical councils and Universities.
- The Act establishes the Diplomat of National Board's equivalence to NMC-recognized degrees — a long-pending demand and promotes medical pluralism.

Conclusion:

- The positive outcomes -There is a paradigm shift in the regulatory philosophy from an input-based, entry barrier for education providers without corresponding benefits, to its becoming outcome-focused.
- Both the number of doctors and their skill sets are expected to improve. Autonomy to boards and segregation of their functions will avoid a conflict of interest and reduce rent-seeking opportunities. It will end inspector raj in health sector.
- <https://www.thehindu.com/opinion/op-ed/writing-out-a-clean-bill-on-health/article29086856.ece>

4. Lessons after the great deluge

- GS PAPER II & III – Governance and disaster management

Context –

- this year is witnessing good monsoon which is taking a toll on lives in states like Maharashtra, Karnataka and Kerala. Kerala is witnessing a straight second year into monsoon deluge scenario which is going beyond the management and control capacity resulting in severe loss of life and property. Let us analyze the issue of recurring floods in Kerala the factors for it and mitigation strategies.
- **Geography of Kerala** – Kerala has wider riverine network with approximately 44 fast flowing rivers due to the steep physiographic region of

Western Ghats with a steep elevation from 900 mts to sea level. The Southwest monsoon augments the river water flow with the orographic features of the mountains. Therefore it has a vast fertile land, wide flora and fauna and a unique ecosystem appreciated by their people in a symbiotic way.

Why are the floods becoming unmanageable?

- **Urbanization** – since few years there is massive urbanization with the fading of the relevance of the rich waterways of Kerala. This is because of a linear development which has been along major road networks, by completely ignoring the ecologically sensitive landscape.
 - Substantial portions of revenue lands in the State are **wetlands and forests**, which has resulted in a shortage of buildable land parcels. This in turn is creating huge pressure on these ecologically fragile areas for conversion to government-supported infrastructure projects as well as private profit-making enterprises.
 - Most of the landslide and flood-affected areas in the State are in **Ecologically Sensitive Zones (ESZ-1)**, as categorized by the Madhav Gadgil report.
 - **The Madhav Gadgil report** - The committee had suggested that 140,000 kilometers of the Western Ghats be classified in three zones as per the requirement of environmental protection in the areas. In some areas, strong restrictions on mining and quarrying, use of land for non- forest purposes, construction of high rises etc. The report was first submitted to the government in 2011. But the Kerala government rejected the committee report and did not adopt any of its recommendations.
 - National environmental plans like Integrated Water Resources Management or Coastal Regulation Zone Notification that are linked to water management are not implemented or followed in letter and spirit.
1. There is lack of legislation for housing and land use in fragile zones.

2. Absence of a databank on paddy lands and wetlands as mandated by the law
3. Huge siltation problem of rivers and it not being cleared of before the next monsoon.
4. Lack of coordination and holistic approach in planning.

Legislative and governance measures

1. Review and revision of building bye-laws for urban and rural areas in accordance with bettering environmental sustainability.
2. Enforcing the 2017 judgment of the Kerala High Court regarding the inclusion of a clause in building rules, and which said that 'natural drains and streams shall not be obstructed by this development/building permit'.
3. Strengthening the Kerala Conservation of Paddy Land and Wetland Act, 2008 to preserve paddy land as natural watershed buffers.
4. Monitoring and devising a localized framework for Climate Change Action Plan.
5. Implementation of the integrated coastal zone management regulations.
6. Implementation of the rules of safety and audit of Dams safety bill to keep a check on the huge reservoirs which becomes a breaking point during deluge.

The way forward – a mitigation strategy

- The dire need is for watershed-based master planning and development legislated guidelines for each major river basin, especially those that impact densely populated settlements.
- There must be a demarcation of ecologically sensitive zones using existing village survey maps and public participation. There must be clear land use plan for these zones specifying flood plains, protected forest areas, agricultural and plantation zones, with details of the types of crops, building usages permitted and the density of buildings permitted.
- To compensate owners in non-buildable areas, there must be strategies such as Transfer of Development Rights to buildable zones in cities.
- Permitting only ecologically sensitive building strategies for these areas by

proposing new construction techniques. Controlled development can be proposed using building height rules, floor area ratio control, and restrictions on cutting and filling natural land.

- Strategies to make sure that all infrastructure projects are carried out in a scientific manner with strict scrutiny must be specified. This should include roads built on difficult terrain and all public infrastructure projects in wetlands and the High Ranges.
- The water footprint needs to be reinstated, and the relationship with water resources rebuilt to face the future changing weather patterns. A complete overhaul of process of hydrology driven master plan requires to hire technical expertise which allows access to necessary skills, and with a long-term vision of capacity building of local agencies, is the way forward.<https://www.thehindu.com/opinion/op-ed/lessons-after-the-great-deluge/article29103413.ece>

5. TRADE RHETORIC

- GS PAPER III – ECONOMY, WTO

Context

- The U.S is proposing to pull out of WTO if it fails to treat the U.S. fairly and blamed it for allowing too many countries to claim the status of a “developing country”.
- In a memo to the U.S. Trade Representative last month, Mr. Trump pointed out that nearly two-thirds of the 164 WTO members classified themselves as developing countries, and raised the issue of even many rich economies claiming to be “growing” rather than “grown” economies majorly pointing out at China and India.
- In a global scenario of currency and trade war ongoing between major economies and issues like non appointment of members for WTO Appellate tribunal, the WTO is seeming to lose its relevance. Hence it becomes important to preserve the multilateral democratic nature of the global institution.

What is the issue?

- Developing countries comprise a majority of the WTO membership. They are
- grouped as developing countries and least developed countries. There are no WTO definitions of “developed” and “developing” countries. Members announce for themselves whether they are “developed” or “developing” countries. However, other members can challenge the decision of a member to make use of provisions available to developing countries.
- The status of a developing country allows countries to seek partial exemptions from the WTO’s rules for free and fair trade between countries. The status, for instance, allows countries like China and India, with their special tag, to impose higher tariffs on imports from other countries and also offer more subsidies to local producers in order to protect their domestic interests. Developed countries find this to be unfair on their producers who are put at a relative disadvantage
- Countries like China have argued that their developing country status is justified given their low per capita income.

The way forward

- In therefore becomes highly important to work out consensus and upgrade the WTO rules which will rightly cater to the needs of all the economies without putting anyone in disadvantage. Because by the end of the day global open trade will benefit better the current globalized world rather than unilateral measures and closed trade would prove self-destructing.
- <https://www.thehindu.com/opinion/editorial/trade-rhetoric/article29103349.ece>

6. Giving shape to and elusive strategic concept

- GS Paper III – Security

Context

- In his Independence Day address Thursday, Prime Minister announced the creation of the post of Chief of

Defence Staff to provide “effective leadership at the top level” to the three wings of the armed forces, and to help improve coordination among them.

What is the office of the Chief of Defence Staff (CDS)?

- The CDS is a high military office that oversees and coordinates the working of the three Services, and offers seamless tri-service views and single-point advice to the Executive (in India’s case, to the Prime Minister) on long-term defence planning and management, including manpower, equipment and strategy, and above all, “jointmanship” in operations.

Background

- India has had a equivalent known as the Chairman, Chiefs of Staff Committee (CoSC). The senior most among the three Service Chiefs is appointed to head the CoSC, an office that lapses with the incumbent’s retirement.
- The CoSC system is a leftover from the colonial era, with only minor changes being carried out over the years. Apprehensions in the political class about a powerful military leader, along with inter-Services bickering, have long worked to disincentives the upgrade of the post.

Recommendations:

- The creation of a CDS to act as a single-point military adviser to the Prime Minister on strategic issues was one of the in-direct recommendations of the Kargil Review Committee on higher military reforms after the 1999 conflict.
- In 2012, the Naresh Chandra committee recommended the appointment of a
- Permanent Chairman COSC as a midway to allay apprehensions over the CDS. Currently, the senior-most of the three chiefs functions as the Chairman of the COSC.
- D.B. Shekatkar Committee also recommended the formation of CDS.

Who at present advises India’s Prime Minister on military matters?

- In effect it is the National Security Adviser. This has been especially so after the Defence Planning Committee was created in 2018, with NSA Ajit Doval as its chairman, and the foreign, defence, and

expenditure secretaries, and the three Service Chiefs as members.

Significance:

- The creation of the CDS will eventually lead to the formation of tri-service theatre commands intended to create vertical integration of the three forces.
- The CDS will be a single-point military adviser to the government and synergise long-term planning, procurements, training and logistics of the three services.
- He will be instrumental in formulating the National Defence strategy in collaboration with the civilian defence leadership of the MoD.
- It is meant for greater participation of military in defence decision-making alongside the civilian bureaucracy enhancing the coherence and transparency of policies.
- The CDS is entrusted the role of developing multi-domain military strategies, strengthening tri-service system and enabling perspective planning.
- Contribute to rational defence acquisition, preventing dundancy of capacities among services and making best use of available financial resources.

Concerns:

- It would undermine the operational authority of the 3 service chiefs over their forces.
- Theatre Command structure has not been adopted by any major country in the recent past.
- . India’s military engagements in the past such as during Kargil War has not highlighted any form of major issues of cooperation or ‘Jointness’ among the various military services commands in India.
- Integrated theatre commands when adopted in developing countries have shown a greater ability of political influence by the top tier Integrated military commanders on the Government.
- An all-powerful CDS would disturb the civil-military balance in democracy.
- Insufficient indigenization and dependence on foreign acquisition being a major power.

Way forward

- A corollary of the appointment of a CDS is integration of his establishment into the MoD without which he cannot meaningfully fulfil the role assigned to him. Eventually, the three Service headquarters would also need to be suitably integrated into the Ministry. It would require changing their current functional structure as well as amending the existing rules of business of the government.
- There must be procedures and practices to ensure that every acquisition is structured in a way as to strengthen our

indigenous technological capacities, in turn aiding defence self-reliance.

The GoM recommendations of 2001 to be implemented. If carried out objectively, undistorted by turf considerations, this long-awaited reform would soothe frictions in civil-military relations and bring greater efficiency, transparency and accountability into decision-making on defence matters.

- <https://www.thehindu.com/opinion/op-ed/giving-shape-to-an-elusive-strategic-concept/article29112888.ece>

RSTV Big Picture

1. Slump in auto sector

CONTEXT –

- India's **automobile** industry is experiencing a snowballing crisis of demand that shows no signs of abating, leave alone reversing.
- Domestic sales across all vehicle categories slid 19% year-on-year in July, as passenger vehicle dispatches plunged 31% to register the segment's steepest fall in almost 19 years.
- This crisis has reached highest levels rendering 15000 works jobless. Therefore it becomes necessary to take stock of the situation and come up with a detailed plan to revive the industry which contributes highest to the manufacturing sector being a driver of economic growth.

Statistics of the current crisis-

- As per data released by the Society of Indian Automobile Manufacturers;
- Vehicle sales across categories, including passenger vehicles and two-wheelers, stood at 18.2 lakh units last month as against 22.4 lakh units in July 2018, down by nearly 19 per cent.
- The previous biggest decline across overall domestic automobile sales was recorded in December 2000 when it fell 21.81 per cent.
- Domestic PV sales also saw the biggest fall in nearly 19 years, slumping by 30.98 per cent from July 2018 to 2019. Previously, the worst decline was registered in December 2000, when wholesales had fallen 35.22 per cent. The fall in PV sales in July was also the ninth consecutive month of decline.
- Passenger car sales in July were also worst since December 2000 when the segment had declined by 39.86 per cent.
- Last month, domestic car sales were down 35.95 per cent at as against July 2018

Causes of the crisis-

- **Global** – there is a global slowdown in automobiles especially in Europe.
- **Environmental** – introduction of BS VI to be achieved before April 2020 has seriously contributed to the crisis as

Diesel cars are getting out of the market. This is a serious concern as 45% of the crude refinery output is Diesel. Diesel cars being less costing have been the largest share in automobile sector coming from middle income group, tractors of farmers and large trucks used for transportation of goods. This has a huge impact on the slowdown in the sector.

- Introduction and push for electronic vehicles for environmental cause has also been a factor.
- **Urban situation** – the rise of rapid sharing transportation system, the problems of congested spaces, lack of parking spaces etc has reduced the usage of personal vehicles.
- **Domestic economic factors** – consumption demand has fallen since few years. This is a major contributor as the demand was predominantly coming from tier II and tier III areas. Tight liquidity problems and NBFC crisis is a factor on the finance available to sustain this sector on both the demand and supply end.
- The automobile sector – cost of the vehicles has increased due to:
 1. GST rate at 28% highest tax net
 2. Road tax being a state tax is increasing and not stable
 3. Insurance rates and safety norms are also increasing.
- The entry level vehicles face the biggest slowdown and the resale value in such an economic situation has also declined.

What can be done?

- In short term transferring of the liquidity in banks to the market and NBFCs is very crucial.
- Bringing down the GST rates and stabilizing the road tax.
- Finding out an ecosystem approach to deal with the problem of diesel vehicles.
- A smooth transition into BS VI be ensured to the industry and also by handholding the existing vehicle users by some concessions.
- Technology up gradation regarding efficient fuel usage should be made

affordable and accessible to tier II and III cities.

- Skill up gradation programs for the workforce has to be undertake.
- In the long run more domestic private savings and investment will be the key to revive the automobile sector.
- <https://www.youtube.com/watch?v=yCrIPRqV4io>
- <https://www.thehindu.com/opinion/editorial/symptom-as-cause/article29095068.ece>

2. Revisiting 10th schedule

- GS PAPER II- CONSTITUTION AND POLITY

CONTEXT –

- The Vice President has highlighted the need to revisit the provisions of 10th schedule of the constitution the Anti-Defection law. Over the recent years Allegations of legislators defecting in violation of the law have been made in several states including Karnataka, Andhra Pradesh, Arunachal Pradesh, Goa, Manipur, Nagaland, Telangana and Uttarakhand and latest being Sikkim. This is in a way diluted the parliamentary democracy of our country and undermined the constitutional responsibility of representation bestowed on the legislators and also lowering the credibility of free and fair elections.
- The Vice President said, “We should discuss this and come to a conclusion. Legislatures are for debate, discussion without disruption. Further, credibility, capability and capacity should be the yardstick for anyone to enter the legislature and not caste, cash and criminality.” A comprehensive relook on the statute is required.
- What is 10th Schedule and Anti-Defection law?
- The Tenth Schedule was inserted in the Constitution in 1985. It lays down the process by which legislators may be disqualified on grounds of defection by the Presiding Officer of a legislature based on a petition by any other member of the House. A legislator is

deemed to have defected if he either *voluntarily gives up the membership of his party or disobeys the directives of the party leadership on a vote*. This implies that a legislator defying (abstaining or voting against) the party whip on any issue can lose his membership of the House. The law applies to both Parliament and state assemblies.

How did the law come about?

- *Aaya Ram Gaya Ram* was a phrase that became popular in Indian politics after a Haryana MLA Gaya Lal changed his party thrice within the same day in 1967.
- This practice was on the rise in many places. Around this time with the rise of regional parties and minority governments in power there was instability in the parliament.
- The definition of split and merger was unclear. Subsequently the cap on council of ministers has been another move on this regard.

Challenges:

- The role of the Presiding officer whose decision is final regarding disqualification of MLA/MP is under scrutiny. This lack of transparency in decision making is an issue of concern. The complete power lies only within legislature and it is concentrated.
- No time limit for the decision to be taken is another challenge. For example some cases of MLAs have been pending over 12 years.
- This issue has interconnection with other legislative matters due to which its quality and credibility is undermined:
 1. Office of profit
 2. Criminalization of politics and criminal cases pending against legislators.
 3. Absence of debate and frequent walkouts
 4. Protests at the well of the house.
 5. Frequent adjournments’ etc.
 6. Privileges of the MP/MLA come in question.
- A manufactured mandate is becoming the norm and there is no room for dissent.
- This is the biggest issue is the ground for disqualification. By strictly adhering

to the party's opinion while voting dissolves the individual capacity of a people's direct representative. In cases where the manifesto differs or the party propaganda varies from the original people's mandate it would amount to lack of representation. This is diluting the democratic principles.

Conflict with the judiciary –

- Article 122 and article 212 are some insulations built regarding the courts not to intervene in the proceedings of the house.
- The order of presiding officer with respect to the disqualification for defection was also immune from judicial review. The law initially stated that the decision of the Presiding Officer is not subject to judicial review. This condition was struck down by the Supreme Court in 1992, thereby allowing appeals against the Presiding Officer's decision in the High Court and Supreme Court. However, it held that there may not be any judicial intervention until the Presiding Officer gives his order.

Has the law outlived its utility?

- The Vice President's opinion to revisit the law has highlighted the fact that the law has outlived its utility. He emphasized that credibility, capacity and capability should be the parameter

to enter legislature and not case, criminality and cash.

- Some aspects of the law which gives that if it is an individual it amounts to defection but in group it is far more a contradiction and needs attention.

What needs to be done?

1. A set of rules and regulations to be framed and have a transparent procedure for the disqualification.
 2. Setting up a time frame to look into disqualification by the presiding officer.
 3. To set up a committee to look into the question of defection. The committee should consist of people from various organs like the presiding officer, a former member of the judiciary, election commission, representative from the respective constituency etc.
 4. To safeguard the individual integrity and autonomy of the people's representatives.
 5. Right to recall which will exercise restraint over defection practices.
 6. Creation of a mechanism to provide for dissent of legislators.
 7. Maintain integrity of the proceedings to inspire the confidence of electors.
 8. Distinction between the political party and the party in power has to be defined which undermines the electoral processes.
- <https://www.youtube.com/watch?v=fCZBZmnEJVA>