Greater Chennai Corporation – has decided to procure ‘aqua drones’, called as the ‘waste shark’, to remove waste from water bodies.

- The design of the aqua drone resembles that of a whale shark.
- Till now, it has been used in port cities to remove plastic from docks
- It is being used to collect up to 350kg of waste from the port docks
- In Chennai, the machine can be used in temple tanks and water bodies to clear algae and other vegetation.
- The machine runs on a battery that retains charge for eight hours after a full charge and is operated by a remote
- Apart from collecting waste, the machine can be modified to collect water quality data for research.
- It can be equipped with customizable sensors that can measure depth, salinity, chemical composition, pH balance and temperature of water.
- The plan to procure and use these machines is part of the Chennai Corporation’s efforts to maintain restored water bodies.
- Adyar and Cooum rivers are getting restored by Chennai River Restoration Trust
- The corporation has also formed a committee in all 15 zones to monitor restored water bodies.
- Chennai has 210 water bodies, of which 130 have been desilted and are in various stages of restoration.
- The corporation is planning to procure 5 of these aqua drones, each costing ₹16 lakh
The first phase of civic polls, held in TN after a gap of eight years - passed off without any major incidents on December 27

- Of the 1.3 crore voters eligible to vote in 27 districts, where the polls were held, about 71.02% exercised their franchise at the end of polling day.
- Polls were held in 156 panchayat unions for the posts of 2,546 panchayat union ward members, 4,700 president posts and 37,830 village panchayat ward member
- As per the earlier election notification issued by the commission, polling of votes in rural local bodies would be held on December 27 and 30, and counting would be on January 2, 2020
- A total of 2,31,890 candidates are in the fray for both phases, of which 18,570 have already been elected unopposed

The personnel from National Disaster Response Force (NDRF), Chennai – cleared around one tonne of garbage dumped along the Cooum river

- The clean-up drive was launched by governor Banwarilal Purohit on November 1.
- NDRF personnel, student volunteers and members of non-governmental organisations have jointly undertaken the cleaning work that was scheduled for three Saturdays in a month.
- In November, the team cleared garbage from the river across three locations.
- It has collected around 7,500kg of non-biodegradable waste from the mouth of the river at Napier bridge.
- Another 2,000kg of garbage was collected near Casino Theatre and Albert Theatre.
- At Mehta Nagar and Koyambedu, the team had disposed 2,000kg of trash.
- Last week, 750kg of waste was cleared from areas adjoining Indira Nagar.
- Cleaning will be taken up in Buckingham Canal on December 28

Music maestro Ilaiyaraaja – was announced as the winner of the Travancore Devaswom Board’s Harivarasanam Award 2020.

- The ‘Worshipful Music Genius’ title will be conferred on the legendary composer at the Sannidhanam at Sabarimala on January 15.
- The Harivarasanam award, consisting of ₹1 lakh in cash, a plaque and a citation, is conferred on those individuals who contributed immensely to religious harmony and national integration
- He was earlier awarded the Padma Vibhushan in 2018.
Ilaiyaraaja as a legendary music composer, singer, conductor, song writer, instrumentalist, orchestrator and lyricist and composed more than 1,000 songs in various languages, mostly in Tamil.

**NATIONAL**

- **Vistara** - is set to become the first Indian carrier to offer in-flight WiFi from 2020.

The Tata Sons-Singapore Airlines (SIA) JV will provide this facility on the Boeing 787 Dreamliners purchased by the company recently.

The 787 Dreamliners will join its fleet from February and will be deployed on medium-haul routes like London and Tokyo from March-end.

For providing the Wi-Fi service, Vistara has tied up with Nelco (a Tata Group communication services company).

They have taken the transponder space from the Indian Space Research Organisation for providing the service.

Earlier, India has allowed both in-flight voice and data connectivity but airlines globally prefer limiting it to data to avoid inconvenience to co-passengers.

Prior to Vistara, low-cost carrier SpiceJet had planned to provide In-flight connectivity (IFC) on its Boeing 737 Max aircraft which are equipped with Satcom to deliver on-board Internet connectivity.

It had received its first of the planned 205 ‘B737’ Max planes in October 2018 but then the rules for IFC were not announced in India.

- **The Centre** - has proposed to make Bharat Stage (BS) VI emission norms mandatory for quadricycles from April 1, 2020.

In 2016, the government announced that it will be skipping BS V norms altogether and move from BS IV to BS VI by 2020.

The Supreme Court had banned the sale and registration of motor vehicles conforming to the emission standard Bharat Stage IV in the entire country from April 1, 2020.

The proposed emission limits are according to the Euro 5 mass emission limits, which will be applicable from January 1, 2020 in Europe.

In April 2019, Bajaj Auto launched India’s first quadricycle ‘Qute’.

The Bharat Stage (BS) are the emission standards proposed by the government to regulate emission of air pollutants from motor vehicles.
INTERNATIONAL

- Russia - deployed its first regiment of hypersonic nuclear-capable missiles on December 27 at the military base in the Orenburg area of Urals

- The new system, called Avangard, consists of a hypersonic glided vehicle which will be kept on top of an intercontinental ballistic missile (ICBM)
- This is the first of its kind missile in the world, that includes features of both cruise and ballistic missiles.
- These new generation of nuclear weapons can hit almost any point in the world
- The Avangard system can also penetrate both existing and any future missile shield and defence systems, especially that of US.
- Hypersonic glide vehicles are launched from the top of on a rocket to heights of between 40 km and 100 km above the earth before detaching to glide along the upper atmosphere towards their target
- They can follow an unpredictable course and manoeuvre sharply as they approach impact, due to the presence of an advanced control system.
- It goes out of the Earth's atmosphere into a parabolic path and enters the Earth's atmosphere again.
- This makes them much harder to detect early with radar, giving missile shields less time to respond
- The direction of this missile can be changed even in the air.
- It had achieved a speed of Mach 27, which is equivalent to about 33,000 kilometers per hour, during the test.
- At present, Russia, USA and China have the capacity of hypersonic missiles.

SCIENCE, TECHNOLOGY & ENVIRONMENT

- China - launched one of the world’s most powerful rockets on December 27 ahead of its planned mission to Mars in 2020.
  - The heavy lift Long March 5 rocket carrying a test satellite payload, Shijian 20, blasted off from the Wenchang launch site in China
  - The Long March 5 rocket will undertake a series of China’s key missions, including launching China’s first Mars probe, the Chang’e-5 lunar probe and a core module for the manned space station
DEFENCE

- Indian Air Force – bids an emotional farewell to the iconic MiG-27, which played a key role during the 1999 Kargil war

- The Russian-made fighter jet roared across the skies for one last time on December 27 after serving IAF since 1985.

- It was bid adieu at the Jodhpur Airforce Station after the last fleet of the mighty MiG-27s flew its last sortie in a five aircraft ‘Arrowhead’ formation

- These last 7 aircrafts of MiG-27 had been operational at the Jodhpur base of IAF

- After the phasing out of these jets, the IAF’s combat strength has now fallen to 28 fighter squadrons, much below than the authorised strength of 42.

- The last fleet of the upgraded variant of the variable sweep, swing-wing MiG-27 was escort-landed by the Sukhoi Su-30, followed by the traditional water cannon salute at the airbase.

- The Jodhpur based, No. 29 Squadron (SCORPIOS) is the only unit in the IAF operating the MiG-27 Upgrades

- It was established on March 10, 1958 at the Air Force Station Halwara with ‘Ouragan’ (Toofani) aircraft.

- All other variants, such as MiG-23 BN and MiG-23 MF and the pure MiG-27 have already retired from IAF

- The upgraded MiG-21 Bisons and MiG-29s only remain in service now, of which the MiG-21s are also scheduled to be phased out very soon

- The IAF will continue to operate 3 squadrons of the upgraded MiG-29UPG, while it is also negotiating for another squadron from Russia

- The Navy operates 2 squadrons of the MiG-29K/KUB off its aircraft carriers.

- The MiG-27 fleet achieved glory in the historic 1999 Kargil conflict, when it delivered rockets and bombs with accuracy on enemy positions

- From 1985 onwards, the IAF has commissioned 165 MiG-27 fighters, licence-manufactured by the Hindustan Aeronautics Limited.

- Each fighter jet can carry 4,000 kilograms of weapons while flying at a maximum speed of 1700 kilometers per hour

- The MiG-class aircraft was purchased from Soviet Russia while it was first inducted into the Indian Air Force in 1981.

- It is based on the Mikoyan-Gurevich MiG-23 fighter jets but it is optimized to carry out air-to-ground attacks, unlike the MiG-23s.

- The MiG-27 was one of the most versatile and advanced aircraft of its time as it was equipped with the French Agave or Russian Komar radar that made it anti-ship and air-to-air fighting jet.
**ECONOMY**

- From January 2020, State Bank of India (SBI) customers will be able to make ATM withdrawal of above ₹10,000, only after completing an OTP verification during 8 PM to 8 AM.
- The OTP-validated ATM transaction has been introduced by the bank to minimise the number of unauthorized transactions.
- This additional ‘security’ feature of authentication will protect SBI cardholders from unauthorized ATM cash withdrawals.
- However, this facility will not be applicable for transactions, where a SBI cardholder withdraws cash from another bank’s ATM, as this functionality has not been developed in National Financial Switch (NFS).
- NFS is the largest interoperable ATM network in the country.
- It manages more than 95% of the domestic interbank ATM transactions in the entire country.

**OBITUARY**

- Justice S Mohan, a former judge of the Supreme Court - passed away in Chennai on December 27
- He was 89 years old.
- Justice Mohan, born at Udumalpet in Tirupur district, was elevated as a Judge to the Supreme Court in October 1991.
- He served as Judge in the SC till February 1995.
- Born in 1930, Justice S Mohan enrolled as an advocate in August 1954 at the Madras High Court.
- Seventeen years later, he became an Advocate General in 1971.
- He was later appointed as an Additional judge in the Madras high court in February 1974 and was made permanent on August 1, 1975.
- In October 1989, he was appointed Chief Justice of the Karnataka high court.
- For a few months in 1990, he served as the Governor of Karnataka following the removal of P. Venkatasubbiah.
- Justice Mohan authored more than 10 books, which includes collections of poems, both in English and Tamil.
- He was made chairman of 4 inquiry commissions constituted by the State government, including one on the death of 17 persons during a police crackdown in Tirunelveli in July 1999.
Justice Mohan was president of the World Congress of Poets for 6 years during 2004-2010. 
He has also headed renowned institutions including Kalakshetra Foundation and St. John’s Ambulance Association (State chapter).

SPORTS

➤ Russia - formally decided to contest a four year ban from major sporting events over doping violations imposed by WADA.
➤ The formal statement of disagreement with WADA will initiate an appeal process against the ban at the Lausanne-based Court of Arbitration for Sport (CAS).
➤ Russia was banned by WADA for four years from major global events, including the 2020 Tokyo Olympics and the 2022 World Cup in Qatar, over manipulated doping data.

➤ Former India captain and member of the 1983 World Cup winning team Krish Srikkanth - will receive this year’s prestigious CK Nayudu Lifetime Achievement Award given by the BCCI during the BCCI Awards Nite in Mumbai on January 12.
➤ Former India women’s captain Anjum Chopra will be the co-recipient of the lifetime achievement award for the year 2019.

➤ Srikkanth represented the country between 1981 to 1992
➤ He played 43 Tests, scoring 2062 runs with two hundreds and 12 half-centuries. 
➤ His crowning glory was the top score of 38 in the Prudential World Cup final in 1983 against a formidable West Indies attack comprising Malcolm Marshall, Joel Garner, Andy Roberts and Michael Holding.
➤ He also scored a half-century against Pakistan in the Benson and Hedges World Championship of Cricket final in 1985.
➤ Srikkanth was appointed captain in 1989 for a tough tour of Pakistan where Sachin Tendulkar made his international debut
➤ He retired in 1992 after the World Cup in Australia and New Zealand.