

NATIONAL**Vehicle tracking devices, emergency buttons mandatory for public transport vehicles**

- Vehicle location tracking devices and emergency buttons have been made mandatory for all new public transport vehicles registered on or after January 1, 2019.
- All new public service vehicles except auto rickshaws and eRickshaws, registered on and after January 1, 2019, will have to be equipped with Vehicle Location Tracking (VLT) with emergency buttons.
- In case of older public service vehicles, registered up to December 31, 2018, the respective State Governments will notify the date by which these vehicles have to install Vehicle Location Tracking Device and Panic Buttons.
- The Ministry has sent an advisory to all the states as well in this regard. The States are required to ensure execution of this order and check fitment and functional status of the VLT device in the public service vehicles at the time of checking of the vehicles for fitness certification.
- Command and Control Centres will be setup by the State or VLT manufacturers or any other agency authorised by the State Government.
- These centres will provide interface such as state emergency response centre, the transport department or Regional Transport Offices and its designated agencies.
- These centres will also provide feed to the 'VAHAN' data base or the relevant data base of the State with regard to the over speeding device 'healthstatus'.
- The details of each VLT device will be uploaded on the VAHAN database by the VLT device manufacturer using its secured authenticated access.
- The VLT device manufacturers or their authorised dealers will install the VLT devices in public service vehicles and register the devices along with details of vehicle on the corresponding backend systems in real-time.
- VLT device manufacturers will get their devices tested for conformity of production every year after the first certification from the testing agencies referred to in Rule126 of the Central Motor Vehicles Rules, 1989.

VAHAN: The Integrated Solution for Vehicle Registration

VAHAN is a highly flexible and comprehensive system that takes care of all the activities of Vehicle Registration, leaving the Transport Department to deal with more important business issues.

The software enables the processes at RTO/DTO/MLO/SDM involving vehicle registration, fitness, taxes, permits and enforcement to get computerised.

The State Transport Department is governed by both Central Motor Vehicle Regulation (CMVR) and state specific Motor Vehicle Regulation (State MVR). Consequently, VAHAN was conceptualized as a product that would capture the functionalities as mandated by CMVR as well as state MVRs.

INS Arihant

India's first indigenous nuclear submarine INS Arihant has successfully completed its first deterrence patrol. The development signifies that underwater warship has completed its maiden long-range mission with live nuclear-tipped missiles.

During deterrence patrol, a nuclear submarine carries nuclear missiles on board, where command and control protocols for its operations are fully tested by its crew. The term deterrence patrol is meant to deter an adversary from launching a first nuclear-strike since SSBN (Ship Submersible Ballistic Nuclear) can launch retaliatory strike within minutes. With this, India completed its survivable nuclear triad by adding maritime strike capability to land and air-based delivery platforms for nuclear weapons. It makes India sixth country — after US, Russia, UK, France and China — to have fully operational nuclear triad.

INS Arihant

INS Arihant is India's first indigenously-designed, developed and manufactured nuclear-powered ballistic missile submarine, and three more such submarines are reportedly under various stages of construction. It was designed in 1990s and its development project was officially acknowledged in 1998. Its design is based on the Russian Akula-1 class submarine.

It was launched in 2009 and its nuclear reactor went critical in 2013 and it was commissioned in 2016. It is strategic asset developed for over two decades with Russia's help under Advanced Technology Vessel (ATV) programme, which comes directly under Nuclear Command Authority headed by the Prime Minister.

INS Arihant is 6,000-tonne submarine with length of 110 metres and breadth of 11 metres. It is powered by 83 MW pressurised light water nuclear reactor with enriched uranium fuel. It can carry 12 Sagarika K 15 submarine launched ballistic missiles (SLBMs) having range of over 700 km.

As it powered by nuclear reactor it can function submerged for months without having to surface. This feature allows it to travel further and with greater stealth capability. It assures second strike capability to India i.e. capability to strike back after being hit by nuclear weapons first. In case of India, second strike capability is important as it had committed to 'No-First-Use' policy as part of its nuclear doctrine.

Government approves operationalisation strategy for Operation Greens

Union Ministry of Food Processing Industries (MoFPI) approved operationalisation strategy for Operation Greens. Operation Greens was announced by Union Government in Budget 2018-19 to stabilise supply of Tomato, Onion and Potato (TOP) crops. It is aimed at ensuring availability of TOP crops throughout the country round the year without price volatility.

Strategy comprises series of measures

1. Short term Price Stabilisation Measures
National Agricultural Cooperative Marketing Federation of India (NAFED) will be nodal agency to implement price stabilisation measures. MoFPI will provide 50% of subsidy two components of transportation of TOP Crops from production to storage and hiring of appropriate storage facilities for TOP Crops.
2. Long Term Integrated value chain development projects: Capacity Building of FPOs & their consortium, Quality production, Post-harvest processing facilities, Agri-Logistics, Marketing / Consumption Points, Creation and Management of e-platform for demand and supply management of TOP Crops, Assistance and eligibility.

The assistance under this strategy will comprise of grants-in-aid at rate of 50% of the eligible project cost in all areas, subject to maximum Rs 50 crores per project. Eligible organisations under it will include State Agriculture and other

Marketing Federations, cooperatives, companies, Farmer Producer Organizations (FPO), Self-help groups (SHGs), food processors, logistic operators, supply chain operators, retail and wholesale chains and central and state governments.
Operation Greens

It was announced in Union Budget 2018-19 on line of Operation Flood to promote FPOs, agri-logistics, processing facilities and professional management. It aims to promote farmer producers organisations, processing facilities, agri-logistics and professional management. It also aims to aid farmers and help control and limit erratic fluctuations in the prices of tomatoes, onions and potatoes (TOP). It is essentially price fixation scheme that aims to ensure farmers are given the right price for their produce. The idea behind it is to double the income of farmers by the end of 2022.

Its major objectives are:

- Price stabilisation for producers and consumers by proper production planning in TOP clusters.
- Reduction in post-harvest losses by creation of farm gate infrastructure, development of suitable agro-logistics, and creation of appropriate storage capacity linking consumption centres.
- Enhance value realisation of TOP farmers by targeted interventions to strengthen TOP production clusters and their FPOs,
- Increase in food processing capacities and value addition in TOP value chain.
- Set up of market intelligence network to collect and collate real time data on demand and supply and price of TOP crops.

INTERNATIONAL

India at UN says terrorism most serious violation of human rights, emanating from beyond its borders

In a veiled attack on Pakistan, India at the U.N. said that terrorism is the most serious violation of human rights emanating from beyond its borders, urging the global community to take a resolute action against the menace in all its forms and manifestations.

- A lack of consensus in the Human Rights Council's actions in situation-specific issues is a worrisome development that compromises its effectiveness and credibility, First Secretary in the Permanent Mission of India to the UN Paulomi Tripathi said at a General Assembly 3rd Committee session on 'Report of the Human Rights Council'.
- India called for the Human Rights Council to continue to strengthen its adherence to the fundamental principles of universality, transparency, impartiality, objectivity, non-selectivity and constructive dialogue for retaining its relevance and efficacy.
- The diplomat stressed that the 47-member Council also has a role in building consensus around the frontier issues such as protection of human rights in the cyberspace and impact of artificial intelligence, genetics and other emerging technologies on human rights.
- India was last month elected to the Human Rights Council and remains committed to bring in pluralistic, moderate and balanced perspectives, to bridge multiple divides in human rights discourse and in action, within the Council and beyond, Ms. Tripathi added.

NASA's historic Dawn mission to asteroid belt comes to end'

NASA's pioneering Dawn spacecraft which orbited the two largest objects in the asteroid belt has run out of fuel, ending a historic 11-year mission that unravelled many mysteries of our solar system, the US space agency said.

The USD 467 million Dawn mission, launched in 2007 to study the protoplanet Vesta and the dwarf planet Ceres, missed scheduled communications sessions with NASA's Deep Space Network on October 31 and November 1, NASA said in a statement.

- After the flight team eliminated other possible causes for the missed communications, mission managers concluded that the spacecraft finally ran out of hydrazine, the fuel that enables the spacecraft to control its pointing.
- It was an expected end to the mission, although the spacecraft lasted two years longer than originally planned.
- Dawn can no longer keep its antennae trained on Earth to communicate with mission control or turn its solar panels to the Sun to recharge, according to the US space agency.
- The spacecraft launched 11 years ago to visit the two largest objects in the main asteroid belt. Currently, it is in orbit around the dwarf planet Ceres, where it will remain for decades.
- Dawn launched in 2007 on a journey that put about 6.9 billion kilometers on its odometer. Propelled by ion engines, the spacecraft achieved many firsts along the way.
- The data Dawn beamed back to Earth from its four science experiments enabled scientists to compare two planet-like worlds that evolved very differently.
- Among its accomplishments, Dawn showed how important location was to the way objects in the early solar system formed and evolved.
- Dawn also reinforced the idea that dwarf planets could have hosted oceans over a significant part of their history and potentially still do.
- Because Ceres has conditions of interest to scientists who study chemistry that leads to the development of life, NASA follows strict planetary protection protocols for the disposal of the Dawn spacecraft.
- Dawn will remain in orbit for at least 20 years, and engineers have more than 99% confidence the orbit will last for at least 50 years.

Oceans are heating up 60% faster than IPCC claims: study

- The seas are getting hotter – and researchers have thought again about just how much faster ocean warming is happening. They believe that in the last 25 years the oceans have absorbed at least 60% more heat than previous global estimates by the UN's Intergovernmental Panel on Climate Change (IPCC) had considered.
- And they calculate this heat as the equivalent to 150 times the annual human electricity generation in any one year.
- While those studies relied on tallying the excess heat produced by known man-made greenhouse gas emissions, a team of U.S.-based scientists focussed on two gases found naturally in the atmosphere – Oxygen and carbon dioxide.
- The world's oceans have absorbed 90% of the temperature rise caused by man-made carbon emissions.
- Both gases are soluble in water, but the rate at which water absorbs them decreases as it warms.

Warming Of Indian Ocean Reportedly Threatening India's Fisheries

- Warming of the Indian Ocean at a fast pace owing to climate change poses a threat to the multi-million dollar blue economy of India
- Increased water temperature and higher carbon dioxide concentration make the ocean more acidic
- There would be a drop in productivity of marine species as there was a gradual damage being caused to the ecosystem and biodiversity
- Indian Ocean is warming at 0.11C per decade faster than the Atlantic (0.07C) and the Pacific (0.05C) and the temperature of the sea surface of the Indian Ocean would increase by 0.60 C by 2050
- However, Indian marine fish harvesting is more eco-friendly than the global scenario. Our marine fisheries is emitting 17.5 per cent less carbon footprints than the global average when it comes to fishing material involved in fishery

Global Drug Survey set to cover Indians

- Now in its eighth year, the GDS for 2019 will survey, for the first time, consumption trends in alcohol, cannabis and opiates in India.
- The 2019 survey, which will launch in November and be available online until December 30, will investigate drug habits across 35 countries, and its findings will be translated into 20 languages.
- The GDS uses an encrypted, online platform to conduct annual anonymous surveys. No IP addresses are collected and the survey is independent of governments.
- The GDS 2019 will probe social issues, including how the police treat people who use drugs, and the complex problem of sexual assault, consent and drug use. How cannabis health warning labels might be an important part of drug regulation, how much people trust their person they get drugs from, how much do people in different countries pay for drugs and whether they think they are good value for money are among the questions that the GDS 2019 will investigate.
- A key objective of the survey is to understand how advances in technology are influencing drug use and the complexities this pose in determining the levels of harmful dosage and how those who sought to reduce drug-related harm responded.
- With countries, including Canada, legalising cannabis, the survey attempts to open doors to understanding the therapeutic potential of drugs such as MDMA (3,4-Methylenedioxymethamphetamine), better known as 'ecstasy,' and LSD (lysergic acid diethylamide).
- Few studies have looked at use of alcohol and illicit drugs and consequences faced by drug users in India. A 2004 survey by the Union Ministry of Social Justice on the extent and pattern and trends of drug abuse left out women.
- That study found the prevalence of alcohol use to be 21% and current use of cannabis at 3%. Among the alcohol and cannabis current users, 16% and 25% respectively were dependent

U.S. imposes 'toughest ever' sanctions on Iran

- The Trump administration's tough new sanctions on Iran took effect but eight major importers of Iranian oil were spared from immediate penalties.
- The sanctions target Iran's energy, financial and shipping sectors and are aimed at crippling the country's economy following President Donald Trump's withdrawal from the 2015 nuclear deal.
- The measures restore all the U.S. sanctions that had been lifted under the accord that gave Iran billions of dollars in sanctions relief in exchange for curbs on its nuclear programme.
- The sanctions freeze any assets that those targeted have in U.S. jurisdictions and bar Americans from doing business with them. They will also affect non-Iranian companies that deal with sanctioned Iranian firms and officials.
- President Trump says that he wants to get Iran back to the negotiating table on the nuclear issue. The Trump administration also says it wants to stop what it calls Tehran's "malign" activities including cyber attacks, ballistic missile tests, and support for terror groups in the Middle East.
- India and China the two biggest buyers of Iranian crude, have so far appeared to have skipped the punitive American sanctions targeting the Iranian oil and financial sectors.
- The two Asian giants are believed to be among the eight countries that have been given the rare temporary exemptions from the Iranian sanctions that kicked off on Monday.
- India, which is the second biggest purchaser of Iranian oil after China, is willing to restrict its monthly purchase to 1.25 million tonnes or 15 million tonnes in a year (300,000 barrels per day), down from 22.6 million tonnes (452,000 barrels per day) bought in 2017-18 financial year, sources in New Delhi had said last week.

China taps India as digital economy partner

In tune with its rise as an internet giant, China is roping in India as a niche digital partner, as part of Beijing's drive to cyber-connect with Eurasia its new frontier for trade and investments.

At a conference on defining common international standards for two-dimensional (2D) barcodes the gateways for linking genuine buyers and sellers, as well making digital payments by scanning QR codes Chinese officials say that India is already on board in this global exercise.

Last November, Zheng Chao, Executive Director of the Global Unified Two-Dimensional Code Registration Management Center (UTC), based in Beijing, signed a "strategic cooperation" agreement on 2D coding with his Indian counterpart. As a result UTC (India) was formed.

Analysts say that China appears more inclined to source pharmaceuticals and agro-products from India, following an unabated trade war with the United States.

India's favourable demography is also helping in building a growing digital-connect with China.

But with demand for its outdated products collapsing in recent years, the once heavily industrialised region has become the core of China's rust belt.

Chinese officials spotlight that Beijing has already become a heavyweight in cyberspace, leading to its natural emergence as one of the focal points of the global digital economy.

Ozone layer is recovering, says UN

The ozone layer that shields life from cancer-causing solar rays is recovering at a rate of one to three percent per decade, reversing years of dangerous depletion caused by the release of harmful chemicals, a U.N. study said.

The ozone layer is showing signs of continuing recovery from man-made damage and is likely to heal fully by 2060

The measures taken to repair the damage will also have an important beneficial effect on climate change, as some of the gases that caused the ozone layer to thin and in places disappear also contribute to warming the atmosphere. Phasing them out could avoid as much as 0.5C (0.9F) of warming this century.

Recovery from the holes and thinning caused by aerosol chemicals has progressed at a rate of about 1% to 3% a decade since 2000, meaning the ozone layer over the northern hemisphere and mid-latitudes should heal completely by the 2030s, if current rates are sustained.

Over the southern hemisphere and in the more problematic polar regions, recovery will take longer, until the middle of this century in the former and about 2060 in the latter case.

Ozone in the upper layers of the atmosphere protects the earth's surface from most of the harmful ultraviolet rays from the sun. Without it, skin and eye damage can occur, and evidence suggests a rise in skin cancers associated with the thinning of the ozone layer.

Scientific evidence of the depletion of the ozone layer over the Antarctic was first presented in 1985, and in 1987 the Montreal protocol was signed, binding world governments to reduce and phase out the harmful chemicals identified as causing the problem. The careful mix of authoritative science and collaborative action that has defined the protocol for more than 30 years and was set to heal our ozone layer is precisely why the Kigali amendment holds such promise for climate action in future.

What is Kigali Agreement?

In the 28th meeting of the Parties to the Montreal Protocol, negotiators from 197 nations have signed a historic agreement to amend the Montreal Protocol in Kigali, a capital city of a tiny African country, Rwanda on 15th October 2016.

As per the agreement, these countries are expected to reduce the manufacture and use of Hydrofluorocarbons (HFCs) by roughly 80-85% from their respective baselines, till 2045.

This phase down is expected to arrest the global average temperature rise up to 0.5o C by 2100.

Kigali agreement is an amendment to Montreal Protocol.

Why is Kigali Agreement significant?

It strengthens the Paris Agreement which sets an ambitious target of restricting the rise in global temperature below 20 Celsius, as compared to pre-industrial level.

Unlike Paris agreement, it gives clear, concrete and mandatory targets with fixed timelines to the signatory parties to achieve their targets.

It would prevent the emission of HFCs equivalent to 70 billion tons of CO2.

Kigali Amendment and India

India played a very flexible and cooperative role in the whole negotiating process.

It has agreed on a lenient schedule as it consumes only 3% of HFCs as compared to the other nations like the USA (37%) and China (25%).

It would be tough for Indian to adhere to this agreement along with Paris Pact especially when it has embarked on an ambitious "Make in India" Programme to increase its industrial production.

It should also take into consideration the hot climatic conditions and growing demand for air conditioners, refrigerators, and cars with growing middle-class incomes while implementing the program.

Still, as a responsible nation with a global perspective, the Indian government has voluntarily passed the order to stop the production of HFC-23 which is a byproduct of commonly used refrigerant. This will reduce the emission by 100 million tons equivalent of Carbon dioxide in next 15 years.

ODISHA

'Mo bus service' launched in Odisha

On 6th November 2018, Odisha Chief Minister Naveen Patnaik launched the technology-driven and citizen-friendly 'Mo bus' service in Bhubaneswar, Odisha.

Mo bus service has facilities like: free wi-fi, CCTV surveillance, public information display system and on board announcements.

Mo bus service will cover 9 routes in Bhubaneswar in the first phase. Mo Bus mobile app will also be launched through which passengers can book tickets and find the locations of the vehicle.

Mo bus service has been launched for the residents of Bhubaneswar, Cuttack and Puri. Nearly 300 buses will be launched in 3 phases.

MISCELLANEOUS

An entire island is missing from Japan

- An entire island went missing 500 meters off the coast of Sarafutsu village, Hokkaido, Japan. The uninhabited island called Esambe Hanakita Kojima just disappeared into the sea, without anybody even noticing for the longest time.
- Its absence was first noticed by author Hiroshi Shimizu, who produced a picture book on hidden islands and had travelled to the area in search of inspiration. He asked the locals about the island, who told him that the island was not visible from land or nearby boats any longer.
- The island, known as Esambe Hanakita Kojima was only officially surveyed and registered by Japan's Coast Guard in 1987, who couldn't even say exactly how big it was.
- Even though the island is no longer visible and some people might doubt that it ever even existed, given the fact that it was only 1.4 metres above sea level, evidence suggests that the island did indeed exist in the past.
- The disappearance of the island "may affect Japan's territorial waters a tiny bit.
- Japan pours resources into protecting its outer islands, particularly the remote Okinotori islands in the Pacific, which secures a significant portion of the nation's exclusive economic zone.



- Prone to earthquakes and severe weather, Japan has found itself not only losing, but sometimes gaining territory thanks to natural disasters. In 2015, a 300-metre strip of land emerged from the sea and attached itself to the coast of Hokkaido.

Seychelles raises \$15 million with world's first blue bond

- Seychelles has raised \$15 million by offering the world's first blue bond, raised from investors to finance ocean-based projects, to expand its marine protected areas and boost its fisheries sector.
- The 10-year bond was sold directly to three social impact investors based in the United States; Calvert Impact Capital, Nuveen, and Prudential, through Standard Chartered which served as the placement agent.

Important names behind the creation of Blue Bond

- The Seychelles blue bond is partially guaranteed by a USD 5 million guarantee from the World Bank (IBRD) and is further supported by a USD 5 million concessional loan from the Global Environment Facility (GEF) which will partially cover interest payments for the bond.
- A World Bank team comprising experts from its Treasury, Legal, Environmental and Finance groups worked with investors in structuring the blue bond.
- The business case for a sovereign blue bond was initially identified through support to Seychelles from HRH Prince of Wales' Charities International Sustainability Unit.
- Standard Chartered acted as placement agent for the bond and Latham & Watkins LLP advised the World Bank as external counsel.
- Clifford Chance LLP acted as transaction counsel for the bond.

The Indian Ocean archipelago's economy is dependent on the ocean and on fisheries for food, nutrition and livelihoods, marine habitats, and other blue economy sectors like tourism.

Oceans play a significant role in everyone's lives, but no one is more dependent on them than small, vulnerable and isolated island developing states. Unfortunately, the "deadly trio" of acidification, warming and declining oxygen levels is posing a risk to marine and coastal resources and threatening the livelihoods of millions living in these countries. To address this challenge, the Republic of Seychelles has launched the 'Blue Bond', a novel financing initiative which taps into capital markets to fund ocean-related environmental projects.

The Seychelles is a small archipelago in the Indian Ocean. Like other Small Island Developing States (SIDS), the country faces sustainable development challenges including small but growing populations, limited resources, susceptibility to natural disasters, vulnerability to external shocks, and fragile environments.

Due to its limited land resources, the Seychelles relies heavily on its coastal and marine resources for employment, socioeconomic development and foreign exchange earnings. The fisheries sector is one of the country's top economic drivers, accounting for 30% of the country's GDP and 17% of employment.

Unfortunately, fisheries in the country are facing increased pressure from anthropogenic factors such as piracy, over-fishing and illegal fishing, as well as natural factors such as rising sea temperatures, ocean acidification, deterioration of biodiversity, habitat loss and worsening pollution. If no action is taken to conserve ocean resources, fisheries stocks will most likely decline to a point where they collapse or become unviable. This will directly threaten the country's socioeconomic growth and development.

EARTH BIO GENOME PROJECT

International biologists have launched Earth BioGenome Project (EBP)- an ambitious project to read all the DNA in each of the world's known animal, plant and fungal species over the next 10 years, sequencing 1.5m different genomes at an estimated cost of \$4.7bn.

Scientists have proposed Earth Bio Genome project, a massive project to sequence, catalog and analyze the genomes of all Eukaryota species on the planet.

EUKARYOTA

- Eukaryotas include all organisms except bacteria and archaea. It includes plants, animals, fungi and other organisms whose cells have a nucleus that houses their chromosomal DNA. There are an estimated 10-15 million Eukaryota species on Earth.
- Grass, potatoes, and pine trees are all Eukaryotas, as are algae, mushrooms, and tapeworms. And, of course, moles, fruit flies, and you are also examples of Eukaryotas.

PROKARYOTIC

- A prokaryotic is a unicellular organism that lacks a membrane bound nucleus, mitochondria, or any other membrane-bound organelle
- The first living organisms are thought to have been prokaryotic.

About the Earth BioGenome Project (EBP):

- The Earth BioGenome Project is an initiative that aims to sequence and catalog the genomes of all of Earth's currently described eukaryotic biodiversity over a period of ten years. The initiative would produce a database of biological information that provides a platform for scientific research and supports environmental and conservation initiatives.
- The Earth BioGenome Project plans to record the genomes — the DNA blueprint of life — of 1.5 million species of animal, plant, protozoa and fungi within a decade.
- So far, 19 research institutions around the world have signed up to take part in the EBP and more plan to join.

SIGNIFICANCE OF THE PROJECT

- The benefits of the project promise to be a complete transformation of the scientific understanding of life on Earth and a vital new resource for global innovations in medicine, agriculture, conservation, technology and genomics.
- The project is also being seen essential for developing new drugs for infectious and inherited diseases as well as creating new biological synthetic fuels, bio materials, and food sources for growing human population.
- The project will likely enable the development of new technologies, such as portable genetic sequencers and instrumented drones that can go out, identify samples in the field, and bring those samples back to the laboratory.