

CURRENT AFFAIRS

21ST DEC. TO 31ST DEC. 2016

JET STREAM IN THE EARTH'S OUTER CORE

A trio of ESA satellites called Swarm has discovered the jet stream in the Earth's outer core that's located 1,900 miles underneath its crust.

- The jet stream deep beneath our planet's surface is made of molten iron.
- It moves at 25 miles per year, three times faster than the speed of the other layers in the outer core and a thousand times faster than our planet's tectonic plates.
- The scientists believe it's the result of two core layers moving towards a single boundary due to buoyancy or changes in the magnetic field within the core. When the liquids meet at that boundary, the mixture is squeezed out sideways to form the jet.
- ESA's Swarm satellites (Launched in 2013) measure and track the different magnetic fields caused by the Earth's core, crust, oceans, mantle and even the ionosphere and the magnetosphere. By monitoring magnetic fields, the satellites give scientists a way to figure out how the core's layers move -- it's like having access to a detailed x-ray of the Earth.

FIRST VACCINE FOR CHIKUNGUNYA FEVER

Researchers from The University of Texas Medical Branch at Galveston have developed the first vaccine for chikungunya fever.

- The vaccine is made from an insect-specific virus that doesn't have any effect on people, making the vaccine safe and effective.
- The newly developed vaccine quickly produces a strong immune defense and completely protects mice and nonhuman primates from disease when exposed to the chikungunya virus.
- The researchers used the Eilat virus as a vaccine platform since it only infects insects and has no impact on people. They used an Eilat virus clone to design a hybrid virus-based vaccine containing chikungunya structural proteins.
- The Eilat/Chikungunya vaccine was found to be structurally identical to natural chikungunya virus. The difference is that although the hybrid virus replicates very well in mosquito cells, it cannot replicate in mammals.

GLOBAL WAGE REPORT 2016-17

Released by: International Labour Organisation (ILO)

- India had among the worst levels of gender wage disparity- men earning more than women in similar jobs -with the gap exceeding 30 per cent.
- In contrast, Singapore had among the lowest, at 3 per cent.

- Among major economies, only South Korea fared worse than India, with a gap of 37 per cent.
- In India, women formed 60 per cent of the lowest paid wage labour, but only 15 per cent of the highest wage-earners.
- The report also found that the share of women among wage earners was among the lowest in South Asia. Compared to a global average of 40 per cent, and an Asia-Pacific average of 38 per cent, in South Asia (whose dominant economy is India), only 20 per cent of wage earners were women.

'COAL MITRA' WEB PORTAL

- **Launched by:** Power Ministry to facilitate the coal swapping.
- The Coal Mitra Web Portal has been designed to bring about flexibility in utilization of domestic coal by transferring the reserves to more cost efficient State/Centre owned or Private sector generating stations, leading to lower generation costs and ultimately lesser cost of electricity for the consumers.
- It would indicate the most efficient way of utilising coal from by an end-user.
- The portal would be used by the state and central generation companies to display information about normative fixed and variable charges of electricity for the previous month as well as margin available for additional generation to enable the utilities in identifying stations for transfer of coal.
- It would host data on operational and financial parameters of each coal based station; quantity and source of supply coal to the power plant; and distance of power plant from the coal mine,

NATIONAL POLICY ON MANAGING FOREST FIRES

Parliamentary Standing Committee on Science and Technology has recommended a national policy on managing blazes.

- The report primarily focuses on the prevention and containing of fires in the Himalayan forests spread across Uttarakhand, Himachal Pradesh, and Jammu and Kashmir.
- Here, accumulated Chir pine needles which are inflammable due to their high-resin content are believed to be a “prominent factor in occurring and spreading of forest fires”.
- The report has suggested replacing these forests with “broad-leaf” plants.

Need:

- With fires raging across Central Indian forests and the Himalayan Pine forests, the frequency of such blazes has risen by a drastic 55 per cent in the past year.
- The number has touched 24,817 in 2016, a “really alarming” rise, from around 15,937 fires in 2015.
- The three central States of Odisha, Chhattisgarh, and Madhya Pradesh contribute a third of the forest fires.

Background:

The committee was formed after a series of devastating forest fires earlier this year, including the prolonged one that charred 4,000 hectares of forest land across 13 districts of Uttarakhand.

NATIONAL APPRENTICESHIP PROMOTION SCHEME (NAPS)

- The Scheme has an outlay of Rs. 10,000 crore with a target of 50 lakh apprentices to be trained by 2019-20.
- The Scheme would be implemented by the Ministry of Skill Development and Entrepreneurship (MSDE).
- It provides for incentivizing employers to engage apprentices. 25% of the total stipend payable to an apprentice would be shared with employers directly by Government of India.
- In addition, it also supports basic training, which is an essential component of apprenticeship training. 50% of the total expenditure incurred on providing basic training would be supported by Government of India.

TANSAT MISSION

- A Chinese satellite designed to track greenhouse gases in Earth's atmosphere
- China is the third country after Japan and the US to monitor greenhouse gases through its own satellite
- The satellite was sent into a sun synchronous orbit about 700 kms above the earth and will monitor the concentration, distribution and flow of carbon dioxide (CO₂) in the atmosphere.
- Using a near-infrared spectrometer, the TanSat satellite will track regional and global concentrations of carbon dioxide down to four parts per million, generating monthly maps of where the densest greenhouse gas levels are distributed worldwide.
- The 1,366-pound (620 kg-satellite) TanSat spacecraft carried three secondary payloads designed for high-resolution and hyperspectral remote sensing of Earth.
- TanSat also hosts a cloud and aerosol polarization imager to support accurate carbon dioxide calculations.
- TanSat can distinguish between changes in atmospheric carbon dioxide as small 1 percent.
- The TanSat spacecraft can turn to point its instruments straight down at Earth, pivot to aim toward the sun's glint off ocean and land surfaces, and conduct targeted observations of carbon-emitting cities and heavy industrial regions.
- The satellite will cover every part of the planet at least once every 16 days during its three-year mission.

INDIA'S FIRST SECOND GENERATION ETHANOL BIO-REFINERY

India's first second generation ethanol bio-refinery is being set up by Hindustan Petroleum Corp (HPCL) at Bathinda in Punjab.

Expected Benefits:

The government is encouraging production of second generation ethanol from agricultural residues:

- to provide additional sources of remuneration to farmers,
- address the growing environmental concerns and

- support the Ethanol Blended Petrol (EBP) programme for achieving 10% Ethanol Blending in Petrol.
- generate employment
- to help in reducing CO2 emissions from the paddy straw which currently is being burnt after harvesting
- The bio-refinery will also produce about 30,000 tonnes of bio-fertiliser per annum that can be used as soil nutrient.
- It will also produce more than 1 lakh kilograms of Bio-CNG per annum which can cater to transport and clean cooking requirements.

1st generation Bio fuels:

Biofuels made by converting food crops grown on prime cropland into biodiesel or ethanol, using transesterification, or yeast fermentation, or through blending vegetable oils with fossil fuels, or using pure vegetable oils in an engine.

2nd generation Bio fuels:

Biofuels made from marginal croplands unsuitable for food production, or using non-food crops and residues, where the biomass is consumed in production. Cellulosic ethanol technology fits in here, as do non-food crop technologies such as jatropha-based biofuels.

3rd generation Bio fuels:

Biofuels made using using non-arable land, based on integrated technologies that produce a feedstock as well as a fuel (or fuel precursor, such as pure vegetable oil), and require the destruction of biomass. 3G biofuels are mostly algae-based.

'PERFORMANCE ON HEALTH OUTCOMES' INDEX

- **Launched by:** Niti Aayog to nudge states to improve health outcomes and improve data collection systems.
- The index is launched along with Ministry of Health and Family Welfare.
- It is envisioned to bring about the much required improvements in the social sector outcomes, which have not kept pace with the economic growth in the country.
- It is meant to capture the annual incremental improvements by states rather than focus on historical achievements.
- The exercise involves the participation of several partners including technical assistance from the World Bank, mentor agencies to hand-hold states, where required, during the exercise and third party organisations to validate the data submitted prior to calculation of the index.

ENEMY PROPERTY (AMENDMENT AND VALIDATION) ORDINANCE, 2016

In news: The President of India has promulgated the Enemy Property (Amendment and Validation) Ordinance, 2016 for the fifth time.

There are 16,547 enemy properties worth Rs 1 lakh crore across India. The Union Home Ministry acts as the custodian of the enemy properties.

Background:

- After the Indo-China aggression in 1962, specific properties of Chinese nationals in India were vested in the Custodian in terms of Defence of India Rules, 1962.
- Subsequently, after the Indo-Pak conflict in 1965 & 1971, the movable / immovable properties of Pakistani nationals automatically got vested in the Custodian of Enemy Property for India and their vesting was continued in the Custodian by the Enemy Property Act, 1968.
- Taking advantage of the interpretations of various judgments passed by the courts, claims are being made to regain these properties by the legal heirs and successors of the enemy nationals.
- The amendments are aimed at plugging the loopholes in the principal Act to ensure that the enemy properties worth thousands of crores of rupees vested in the Custodian do not revert to the enemy, enemy subject or enemy firm.
- The government decided to amend the 1968 law after Raja of Mehmoodabad M A M Khan approached the Supreme Court to reclaim his property.

JNANPITH AWARD 2016

In news: Veteran Bengali poet Shankha Ghosh has been selected for this year's Jnanpith Award

- It is India's highest literary award.
- The Jnanpith Award is an Indian literary award presented annually by the Bharatiya Jnanpith to an author for their "outstanding contribution towards literature".
- Instituted in 1961, the award is bestowed only on Indian writers writing in Indian languages included in the Eighth Schedule to the Constitution of India and English, with no posthumous conferral.

NEW EBOLA VACCINE: RVSV-ZEBOV

In news: An experimental Ebola vaccine tested on humans in the waning days of the West African epidemic has been shown to provide 100 percent protection against the lethal disease.

The vaccine is the first to prevent infection from one of the most lethal known pathogens. The vaccine has not yet been approved by any regulatory authority

- The vaccine, known as rVSV-ZEBOV, was developed over a decade ago by the Public Health Agency of Canada and the United States Army and is now licensed to Merck.

- The trial was led by WHO, together with Guinea's Ministry of Health, Medecins sans Frontieres and the Norwegian Institute of Public Health, in collaboration with other international partners.
- The trial used an innovative design, a so-called "ring vaccination" approach - the same method used to eradicate small pox.
- The vaccine works by replacing a gene from a harmless virus known as vesicular stomatitis virus (VSV) with a gene encoding an Ebola virus surface protein. The vaccine does not contain any live Ebola virus.
- Earlier trials have shown the vaccine to be protective in animals, and be safe and produce an immune response in humans.
- Since Ebola virus was first identified in 1976, sporadic outbreaks have been reported in Africa. But the 2013–2016 West African Ebola outbreak, which resulted in more than 11 300 deaths, highlighted the need for a vaccine.
- The new vaccine has some flaws. It appears to work only against one of the two most common strains of the Ebola virus, and it may not give long-lasting protection. Some of those who get it report side effects like joint pain and headaches.
- The Ebola virus has five known subtypes, the most common of which are Ebola-Zaire, the one that caused the West African outbreak, and Ebola-Sudan. Ebola is also related to Marburg virus, which is similarly lethal. An ideal vaccine would protect against all Ebola strains and Marburg.

SMART ANTI-AIRFIELD WEAPON (SAAW)

In news: The Defence and Research Development Organization (DRDO) successfully flight tested the Smart Anti-Airfield Weapon (SAAW), from an Indian Air Force (IAF) aircraft.

- It is an indigenously designed and developed 120 kg class smart weapon, developed by DRDO,
- It is capable of engaging ground targets with high precision up to a range of 100 kms.
- The light-weight high precision guided bomb is one of the world class weapons systems.

AGNI-V

In news: India tested its Agni-V in its final operational configuration from Wheeler Island off Odisha, paving the way for its eventual induction into the Strategic Forces Command (SFC) after user-trials.

- It is classified as Intermediate Range Ballistic Missile (IRBM) but with smaller payloads, it can reach targets of up to 8000kms making it an Inter Continental Ballistic Missile (ICBM).
- It can carry a nuclear warhead of 1.5 tonnes across more than 5000 km.
- It is surface to surface missile and is nuclear-capable.
- It is 17m long and weighs 50 tonnes, powered by solid fuel.
- It can even reach the northernmost parts of China with its strike range of over 5,000 km
- Once the Agni-V is inducted, India will join the super exclusive club of countries with ICBMs (missiles with a range of over 5,000-5,500 km) alongside the US, Russia, China, France and the UK.

- The bouquet of five Agnis form the bulwark of India's nuclear deterrence capability. While Agni-I has a range of 700 km, Agni-II 2,000 km, and Agni-III 3,000 km, Agni-IV can take out targets 4,000 km away.
- DRDO is developing Agni-VI capable of carrying multiple warheads.

WORLD'S MOST HEAT RESISTANT MATERIAL: HAFNIUM CARBIDE

Researchers from Imperial College London in the UK discovered that the melting point of hafnium carbide (nearly 4,000 degrees Celsius) is the highest ever recorded for a material.

- Tantalum carbide (TaC) and hafnium carbide (HfC) are refractory ceramics, meaning they are extraordinarily resistant to heat.
- The researchers developed a new extreme heating technique using lasers to test the heat tolerance of TaC and HfC. They used the laser-heating techniques to find the point at which TaC and HfC melted, both separately and as mixed compositions of both.
- The compound TaC melted at 3,768 degrees Celsius, and HfC melted at 3,958 degrees Celsius.
- **Application:**
 - Their ability to withstand extremely harsh environments means that refractory ceramics could be used in thermal protection systems on high-speed vehicles and as fuel cladding in the super-heated environments of nuclear reactors.
 - The findings may pave the way for the next generation of hypersonic vehicles, meaning spacecraft could become faster than ever. The friction involved when travelling above Mach 5 -hypersonic speeds – creates very high temperatures.

'SMART CONSUMER' APP AND AN 'ONLINE CONSUMER MEDIATION CENTRE (OCMC)'

- **Launched By:** Consumer Affairs Ministry
- Aim to provide speedy redressal of consumer grievances.
- The mobile app of the Consumer Helpline and the Smart Consumer App will provide for accessing product information.
- will help consumers for being vigilant, not falling prey to cyber frauds

FIRST BIOLOGICAL PACEMAKER

Scientists have developed the first functional pacemaker cells from human stem cells which can regulate heart beats with electrical impulses, paving the way for alternate, therapy.

- The researchers used a developmental-biology approach to establish a specific protocol for generating the pacemaker cells.
- Based on previous findings in animal models, the researchers tested and mapped out the specific developmental pathway of how human pluripotent stem cells become pacemaker cells.
- This was achieved by testing different signalling molecules at different times throughout
- These human pacemaker cells were tested in rat hearts and were shown to function as a biological pacemaker, by activating the electrical impulses that trigger the contraction of the heart.

- Pluripotent stem cells have the potential to differentiate into more than 200 different cell types that make up every tissue and organ in the body.
- Sinoatrial node pacemaker cells are the heart's primary pacemaker, controlling the heartbeat throughout life.
- Defects in the pacemaker can lead to heart rhythm disorders that are commonly treated by implantation of electronic pacemaker devices.
- Learning how to generate pacemaker cells could help in understanding disorders in pacemaker cells, and provide a cell source for developing a biological pacemaker.
- Biological pacemakers represent a promising alternative to electronic pacemakers, overcoming such drawbacks as a lack of hormonal responsiveness and the inability to adapt to changes in heart size in pediatric patients.

KEN-BETWA ILR PROJECT

In news: The National Board for Wildlife (NBWL) has given its much-awaited clearance, paving the way for work to begin for linking Ken and Betwa rivers, which will benefit six districts of Uttar Pradesh and Madhya Pradesh in terms of meeting their irrigation, drinking water and electricity needs.

Since the project requires diversion of forest land of Panna Tiger Reserve (M.P), it was required to be formally cleared by the board.

- The Ken-Betwa ILR project will transfer surplus water from the Ken river to the Betwa basin through a 221 km canal.
- The Ken-Betwa link is one of the 30 inter-linking of river (ILR) projects, conceived by the Centre.
- The project had got a green signal from the Supreme Court following the tripartite MoU involving UP, MP and the Centre.

The ILR plan has been in the pipeline since 1982 when the government set up the National Water Development Agency (NWDA) to carry out water balance and feasibility studies for river linking.

COMMITTEE ON DIGITAL PAYMENTS (RATAN WATAL COMMITTEE)

11-member Committee on Digital Payments headed by Niti Aayog principal advisor Ratan Watal made the following recommendations:

- The committee recommends that cash transaction should be disincentivised by imposing nominal charges after a certain limit.
- To encourage people to use the tools for digital payments, the committee has suggested that all charges levied by government departments and utilities on digital payments should be removed while bearing the cost of such transactions.
- It has also suggested that government departments and agencies be mandated to provide option to consumers to pay digitally.
- The committee also noted that there should be incentives for consumers for making payments, including those for fines and penalties, to government using an electronic mode.

- However, on the issue of merchant discount rate (MDR), which has been pegged to be a hindrance to incentivising credit and debit card payments, the committee noted in its report that reducing MDR would increase the disincentive to the business and have the opposite effect of slowing down the growth of card payment ecosystem.

VELA SUPERCLUSTER

In news: An international team of astronomers has found one of the universe's biggest superclusters of galaxies near the Milky Way-Vela supercluster.

- This is one of the biggest concentrations of galaxies in the universe, possibly the biggest in the neighbourhood of our galaxy, but that will need to be confirmed by further study.
- The gravity of the Vela supercluster may explain the difference between the measured motion of the Milky Way through space and the motion predicted from the distribution of previously mapped galaxies.
- The research involved astronomers based in South Africa, Australia and Europe.
- Two new Australian surveys starting in 2017 will confirm the size of the Vela supercluster:-
 - The Taipan optical survey will measure galaxy distances over a bigger area around Vela, and
 - the WALLABY radio survey will be able to peer through the densest parts of the Milky Way into the supercluster's heart.

ANNUAL REPORT OF THE MINISTRY OF TRIBAL AFFAIRS

- The tribal population in India lags behind other social groups on various social parameters, such as child mortality, infant mortality.
- Tribal population, with a vast majority engaged in agricultural labour, has a higher incidence of anaemia in women when compared to other social groups.
- While educational achievements on the whole has improved, statistics cited elsewhere in the Report shows that the gross enrolment ratio among tribal students in the primary school level has declined from 113.2 in 2013-14 to 109.4 in 2015-16. Besides, the dropout rate among tribal students has been at an alarming level.
- While the overall poverty rates among the tribal population have fallen compared to previous years, they remain relatively poorer when weighed against other social groups.
- Health infrastructure has also been found wanting in tribal areas.
- Gaps in rehabilitation: Further, it exposes the gap in rehabilitation of tribal community members displaced by various development projects.
- In 2014, the Central government initiated the Vanbandhu Kalyan Yojana for the holistic development and welfare of tribal population on a pilot basis but could not achieve much due to poor fund allocation. The Ministry has emphasised that more funds be provided for the Scheme from the year 2016-17 onwards.

ISA'S FRAMEWORK AGREEMENT

In news: The Union Cabinet has given its ex-post facto approval to the proposal of Ministry of New & Renewable Energy (MNRE) for ratification of **ISA's Framework** Agreement by India.

- ISA was launched jointly by the India and France in 2015 at Paris on the side-lines of the 21st CoP meeting of the United Nations Framework Convention on Climate Change.
- The ISA will strive to bring together more than 121 solar resource rich nations for coordinated research, low cost financing and rapid deployment.
- The foundation stone of the **ISA Headquarters** was laid at Gwal Pahari, **Guragaon** in Haryana.

Background:

The Agreement was opened for signature on the sidelines of 22nd CoP meeting at Marrakesh, Morocco. The Agreement invokes the Paris Declaration on ISA and encapsulates the vision of the prospective member nations. UNDP and World Bank have already announced their partnership with the ISA. Till now, 25 nations have signed the Framework Agreement.

ROAD CONNECTIVITY PROJECT FOR LEFT WING EXTREMISM AFFECTED AREAs

In news: The Cabinet Committee on Economic Affairs, has approved a Centrally Sponsored Scheme namely "Road Connectivity Project for Left Wing Extremism (LWE) Affected Areas" to improve the rural road connectivity in the worst LWE affected districts from security angle.

- The project will be implemented as a vertical under Pradhan Mantri Gram Sadak Yojana (PMGSY) to provide connectivity with necessary culverts and cross-drainage structures in 44 worst affected LWE districts and adjoining districts, critical from security and communication point of view.
- The roads will be operable throughout the year irrespective of all weather conditions.
- The fund sharing pattern of LWE road project will be same as that of PMGSY i.e. in the ratio of 60:40 between the Centre and States for all States except for eight North Eastern and three Himalayan States (Jammu & Kashmir, Himachal Pradesh & Uttarakhand) for which it is 90:10.
- Ministry of Rural Development will be the sponsoring Ministry as well as the implementing Ministry of this project. The likely duration of implementation of the project is four years from 2016-17 to 2019-20.
- The National Highways and the State Highways would be excluded from this project.
- The roads to be constructed under the scheme have been identified by the Ministry of Home Affairs in close consultation with the State Governments and the security agencies, by following a process of extensive consultation.

Background:

- **Pradhan Mantri Gram Sadak Yojana (PMGSY)** was launched in 2000 as a Centrally Sponsored Scheme with the objective to provide all-weather road connectivity to all eligible unconnected habitations in rural areas of the country.
- The programme envisages connecting all eligible unconnected habitations with a population of 500 persons and above (as per 2001 Census) in plain areas and 250 persons and above (as per 2001 Census) in Special Category States.

NATIONAL INDUSTRIAL CORRIDOR DEVELOPMENT & IMPLEMENTATION TRUST
(NICDIT)

In news: The Centre has approved the re-designation of the Delhi-Mumbai Industrial Corridor Project Implementation Trust Fund as National Industrial Corridor Development & Implementation Trust (NICDIT).

- It will be the apex body to oversee development of all industrial corridors across the country.
- NICDIT will implement all the five proposed industrial corridors, together covering 15 States. The Delhi-Mumbai Industrial Corridor, the first of the planned corridors, is under development. The Chennai-Bengaluru Industrial Corridor, Bengaluru-Mumbai Economic Corridor, Amritsar-Kolkata Industrial Corridor and the Vizag-Chennai Industrial Corridor are in various stages of planning.
- NICDIT will help streamline activities and better coordination of the industrial corridor projects which are essential to our goal of becoming a global manufacturing hub.

INTEGRATED VOICE RESPONSE SYSTEM (IVRS) SYSTEM

In news: the government has launched an Integrated Voice Response System (IVRS) system at multiple locations to obtain direct feedback from subscribers on call quality. IVRS system would be extended to the entire country very soon.

- To address the issue of mobile call drops faced by telecom consumers in the country,
- platform is a channel to capture direct feedback from the consumers and this voice of the customer can be used to improve services that are being offered to them.
- The IVRS system will be initially used for call drops and subsequently on its uses will be extended to capture consumer feedback in other areas.

SUPERVIEW-1 (GAOJING-1) 01/02

In news: A pair of high-resolution remote sensing satellites launched by China.

- SuperView-1, also known as GaoJing-1 is a constellation of Chinese civilian remote sensing satellites.
- It operates at an altitude of 500 km and provides imagery with 0.5 m panchromatic resolution and 2 m multispectral resolution.

- These satellites will be spaced by 180° on the same orbit.
- A second group of two satellite of this type is planned for 2017, bringing the constellation to four satellites phased 90° from each other on the same orbit.

FINANCIAL DATA MANAGEMENT CENTRE BILL 2016

In news: A committee set up under the Department of Economic Affairs to study the financial data management legal framework in India has recommended the creation of a statutory body- Financial Data Management Centre.

Financial Data Management Centre:

- It shall be the duty of the Data Centre to take measures to standardise data from regulators in consultation with the regulators.
- It is supposed to enable financial service providers to submit data in a standardised electronic format, analyse the data and maintain a financial system database.
- The body will also provide analytical support to the Financial Stability and Development Council (FSDC) on issues relating to financial stability.

Background:

In 2015, when the FSDC first suggested the creation of such a body, the Reserve Bank had objected to sharing company-specific data with the body as it was not statutory in nature, and sharing such data would be a breach of confidentiality.

Keeping the concerns in mind, the Department of Economic Affairs re-examined the issue and obtained the Finance Minister's approval to establish a statutory FDMC, following which a committee was formed to recommend the way forward.

'SWACHH SWASTH SARVATRA'

- An inter-ministerial joint initiative between the Ministry of Drinking Water and Sanitation and the Ministry of Health and Family Welfare
- The objective of the 'Swachh Swasth Sarvatra' initiative is to build on and leverage achievements of two complementary programmes – Swachh Bharat Mission (SBM) and Kayakalp – of the Ministry of Drinking Water and Sanitation and Ministry of Health and Family Welfare, respectively.
- The two will be able to move the needle from hospital-care to healthcare, i.e. from treatment of diseases to prevention of diseases by focussing on improved overall health.

'Swasth Bacche Swasth Bharat'

- Joint initiative between Ministry of Health and Family Welfare and the Ministry of Human Resource Development
- Aims for focused action in the sector of school sanitation.

ORDINANCE TO AMEND THE PAYMENT OF WAGES ACT, 1936

In news: President has approved the ordinance to amend the Payment of Wages Act, 1936.

- The Payment of Wages (Amendment) Bill, 2016, seeks to amend Section 6 of the principal Act to enable employers to pay wages to employees through cheques or by crediting it to their bank accounts electronically.
- The Bill was introduced by Labour Ministry.
- Employers will also have the option to pay wages in cash.
- It will also allow state governments to specify industrial or other establishments that adopt cashless way for salary payments.

Background:

- The Act had come into force on April 23, 1936, providing for payment of wages in coin or currency notes, or in both.
- At present, the Act covers all those employees in certain categories of establishments whose wage does not exceed Rs 18,000 per month.
- The provision for payment of wages by cheque or crediting it into bank account after obtaining the requisite authorisation of employee was inserted in 1975.
- At present, with the written authorisation of an employee, wages can be given through cheque or transferred to his or her bank account.

FARC AMNESTY LAW

In news: Colombia's Congress passed a law granting amnesty to Marxist FARC rebels.

- It comes after referendum to ratify the negotiated peace deal got defeated in order to give effect to the peace accord signed with FARC.
- The measure grants special legal treatment, amnesty and pardons to members of the Revolutionary Armed Forces of Colombia (FARC) accused of political and related crimes.
- It grants immunity to FARC fighters from prosecution for committing minor crimes and those accused of major crimes will be tried by a special tribunal.

SPECIFIED BANK NOTES (CESSATION OF LIABILITIES) ORDINANCE, 2016

In news: President approved the promulgation of the Specified Bank Notes (Cessation of Liabilities) Ordinance, 2016.

- It extinguishes the liability of the government and the central bank on the demonetised high-denomination notes to prevent future litigations.
- The ordinance makes holding, transferring or receiving these old notes as illegal, with provisions for penalty for contravention.
- In 1978, a similar ordinance was issued to end the government's liability after Rs 1,000, Rs 5,000 and Rs 10,000 notes were demonetized.

LEAP SECOND

In news: A ‘leap second’ was added to the Indian clock to synchronise with the Earth’s rotational clock.

- Since 1972, 36 leap seconds have been added at intervals varying from six months to seven years and this will be 37th year.
- Council of Scientific & Industrial Research (CSIR) -National Physical Laboratory (CSIR-NPL) is the custodian of Indian Standard Time (IST) and has the responsibility for realization, establishment, maintenance and dissemination of IST through an act of Parliament.
- Adding a second barely has an impact on the daily life, but it does matter in the fields of satellite navigation, astronomy and communication.

Purpose of adding a leap second:

- A “Leap Second” is added every now and then to Coordinated Universal Time (UTC) in order to synchronize clocks worldwide with the Earth's ever slowing rotation.
- UTC consists of a time scale that combines the output of more than 300 highly precise Atomic clocks worldwide, including the one at CSIR-NPL.
- Atomic clocks are very accurate and are stable within 1 second over a period of millions of years.
- On the other hand, the Astronomical Time known as Universal Time (UT1) refers to the Earth's rotation around its own axis and determines the length of a day.
- However, the Earth's rotation around its own axis is not regular, as sometimes it speeds up and sometimes it slows down, due to various factors including the moon’s gravitational Earth-braking forces that often results in ocean tides.
- As a result, Astronomical Time (UT1) gradually falls out of synch with Atomic time (UTC), and as and when the difference between UTC and UT1 approaches 0.9 seconds, a “Leap Second” is added to UTC through Atomic clocks worldwide.

B.N. SRIKRISHNA COMMITTEE

In news: The law ministry formed a 10-member panel led by former Supreme Court judge B.N. Srikrishna to review and create an institutional framework for the arbitration mechanism in India. The committee will submit its report within 90 days.

The move could help improve India’s score in the World Bank’s doing business rankings. In the 2016 rankings, India stood at 130 out of 190 countries.

Terms of reference for the committee:

- Suggest measures for institutionalization of arbitration mechanism, national and international, in India so as to make the country a hub of international commercial arbitration.
- Identify amendments in other laws that are needed to encourage International Commercial Arbitration (ICA).
- Devise an action plan for implementation of the law to ensure speedier arbitrations.

- Recommend revision in institutional rules & regulations and funding support thereof.
- Advise empanelment of national and international arbitrators for time bound arbitral proceedings.
- Focus on the role of arbitrations in matters involving the Union of India, including bilateral investment treaties (BIT) arbitrations and make recommendations where necessary.

Background:

- The government in 2015 amended arbitration law, introducing faster timelines for proceedings to conclude.
- The Centre, through the NITI Aayog and other departments, also conducted an international conference in October.

The Arbitration and Conciliation (Amendment) Act, 2015 envisages quick enforcement of contracts, easy recovery of monetary claims, reduce the pendency of cases in courts and hasten the process of dispute resolution through arbitration, so as to encourage foreign investment by projecting India as an investor friendly country having a sound legal framework and ease of doing business in India.

INDIA AND SINGAPORE

In news: India and Singapore Sign a Third Protocol for Amending the Double Taxation Avoidance Agreement (DTAA).

Amendment in DTAA:

- India and Singapore have amended the DTAA for the avoidance of double taxation and prevention of fiscal evasion with respect to taxes on income.
- The India-Singapore DTAA at present provides for residence based taxation of capital gains of shares in a company.
- The Third Protocol amends the DTAA with effect from 1st April, 2017 to provide for source based taxation of capital gains arising on transfer of shares in a company. This will curb revenue loss, prevent double non-taxation and streamline the flow of investments.
- In order to provide certainty to investors, investments in shares made before 1st April, 2017 have been grandfathered subject to fulfillment of conditions in Limitation of Benefits clause as per 2005 Protocol.
- Further, a two year transition period from 1st April, 2017 to 31st March, 2019 has been provided during which capital gains on shares will be taxed in source country at half of normal tax rate, subject to fulfillment of conditions in Limitation of Benefits clause.

The Third Protocol also inserts provisions to facilitate relieving of economic double taxation in transfer pricing cases. This is a taxpayer friendly measure and is in line with India's commitments under Base Erosion and Profit Shifting (BEPS) Action Plan to meet the minimum standard of providing Mutual Agreement Procedure (MAP) access in transfer pricing cases.

UNSC RESOLUTION 2334

- Condemns Israel's settlement activity in the occupied territory of the West Bank and East Jerusalem
- Malaysia, New Zealand, Venezuela and Senegal sponsored the resolution, which was passed by the 15 member Security Council with 14 votes in favour and one abstention (the U.S.).
- It is the first UN resolution adopted since 1979 to condemn Israel over its settlement policy in West bank.
- The resolution demands that "Israel immediately and completely cease all settlement activities in the occupied Palestinian territory, including East Jerusalem".
- It states that Israeli settlements have "no legal validity" and are "dangerously imperilling the viability of the two-state solution".
- The resolution contains no sanctions.

Likely Impact on Israel:

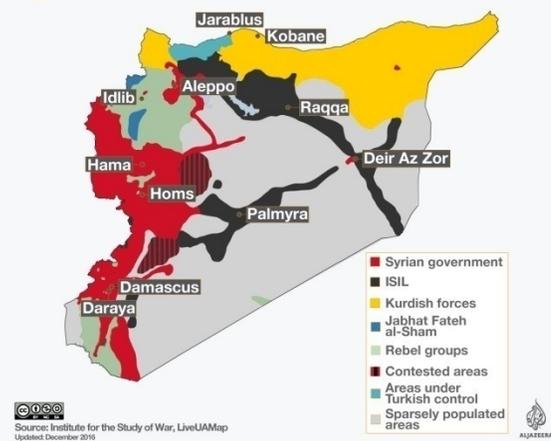
- Israel is concerned it could widen the possibility of prosecution at the International Criminal Court (ICC).
- It could encourage some countries to impose sanctions against Israeli settlers and products produced in the settlements.

Israel-Palestine Conflict:

- In 1967, Israel seized the West Bank, East Jerusalem and the Gaza Strip — parts of Palestine that had been outside its control.
- The UN Security Council passed a series of resolutions (242, 252, 298) within the next decade, asking Israel to withdraw from this land and — in resolution 446 (1979) — to desist from building settlements on the occupied territory in violation of the Fourth Geneva Convention.
- Most countries view Israeli West Bank settlements as illegal and an obstacle to peace.
- Israel disputes that settlements are illegal and says their final status should be determined in talks on Palestinian statehood. The last round of US-led peace talks between the Israelis and Palestinians collapsed in 2014.
- The two-state solution, the international consensus for the Israel-Palestine conflict, is premised on Israeli withdrawal from this land occupied in 1967.

CEASEFIRE IN SYRIA

The ceasefire has been reached between Syria's government and Opposition, with the mediation of Turkey and Russia. This comes after both brokered the deal that evacuated rebel-held eastern Aleppo.

Syria: Who controls what?

- Russia, Iran and Turkey had agreed that the priority in Syria was to fight terrorism and not to remove Assad's government.
- Russian-led talks are likely to take place in Astana, Kazakhstan.
- The talks would exclude groups labelled as terrorists by Moscow, a group that would exclude al-Nusra, the al-Qaida franchise in Syria, and Isis, the Sunni group based in Raqqa in north-east Syria.
- Turkey is likely to demand that the Kurdish-led Syrian Democratic Forces (SDF) are also excluded from the Astana talks, even though with the help of the US they have led the offensive against Isis in Raqqa.

- Russia has insisted its peace negotiations will complement the UN-led talks in Geneva rather than conflict with them.

2016 SASTRA-RAMANUJAN

- This year the prize has been jointly given to Kaisa Matomaki of University of Turku, Finland and Maksym Radziwill of McGill University, Canada for their 'revolutionary' collaborative work on short intervals in number theory.
- Professor Matomaki is the second woman to receive the prize since it was instituted in 2005.

About the Award:

- SASTRA University presents the Ramanujan award to a leading mathematician under 32 years.
- Prize money of the award is \$5,000

PRATIKAR-1

- It is the First ever joint military exercise of Nepal with China.
- The focus of the military exercise, named Pratikar-1, will be on training Nepali forces in dealing with hostage scenarios involving international terror groups.
- Analysts say that though the military drill with China does not violate the 1950 India-Nepal treaty of peace and friendship, it does appear unconventional.

NUCLEAR-CAPABLE CRUISE MISSILE 'NIRBHAY'

In news: India's cruise missile Nirbhay has failed in its test flight. Three out of four of its test flights have failed.

- The missile, designed and developed by the DRDO (Defence Research and Development Organisation), is expected to strengthen India's air defence capability.
- A terrain-hugging missile, Nirbhay can fly almost at the level of tree-tops to evade detection by radars.
- It was built to identify and strike targets in heavily populated areas with pin-point accuracy and is capable of carrying a nuclear warhead.
- With a range of more than 1,000 kilometers, Nirbhay is considered an equal to the Tomahawk missile of the US.
- When successful, Nirbhay will help India join the exclusive club of nations that have mastered the elusive technology. Apart from US, Russia, France and China, Pakistan has a functional cruise missile (The Babur medium-range subsonic cruise missile has been inducted by the Pakistan army in 2005. It has a range of 700 km.)
- India has made already ballistic missile - the indigenously developed nuclear-capable Agni and the supersonic BrahMos developed jointly with Russia -- and tactical missiles of different capacities. But is yet to master the making of a subsonic cruise missile.

Sub Sonic Cruise Missile:

- A sub sonic missile travels vastly slower than a supersonic missile. Therefore it'd take much longer to reach a target.
- And the efficient engine it has, compared to the supersonic missile would allow it to 'loiter' over a target area.
- In other words, once the missile is overhead and is put on a "loiter" pattern, the government can make a decision as to whether a strike still needs to be carried out or not. If they choose not to, the missile can be safely self destructed well above the target.
- Also, by virtue of their slower speed, the sub-sonic missiles can fly closer to the ground using the "terrain hugging" tactic and more efficiently evade enemy radar detection (because of the earth's curvature, radar waves after a certain distance will be unable to detect low flying aircrafts or missiles).
- While the advantage of a supersonic missile is its speed, which means reduced reaction time for the enemy, the advantage for the sub-sonic missile is greater range/payload and greatly reduced odds of detection.

CHINA-PAKISTAN

Matiari-Lahore power transmission line:

- Pakistan and China signed an investment agreement for Pakistan's first high-voltage, direct current (HVDC) \$1.5-billion power line to be built by China.
- It will enable the transmission of 4,000 megawatts of electricity from the country's north to south.
- The power transmission line would link the national grid between the southern Pakistani town of Matiari and easternmost city of Lahore, some 1,000 km (620 miles) apart.

Pakistan's fourth nuclear power plant has also been inaugurated as a result of joint collaboration with China.

CPEC:

It will link China's far-western Xinjiang region to Pakistan's Gwadar port with a series of infrastructure, power and transport upgrades.

FINANCIAL STABILITY REPORT 2016

- **Published by:** Reserve Bank of India biannually
- It has warned against a sharp rise in the non-performing assets (NPAs) of banks as the banking stability indicator shows that the risks to the banking sector remained elevated due to continuous deterioration in asset quality, low profitability and liquidity.
- Among institutional risks, credit growth and cyber risk were seen as two key "high risk factors".

1267 SANCTIONS COMMITTEE

In news: China blocks India's bid to get the UN to list Jaish-e-Mohammed chief Masood Azhar as a designated terrorist under the 1267 Sanctions Committee of the UN Security Council.

About the Sanctions Committee:

- The Security Council passed a resolution known as "Resolution 1267" or "1267 Regime" under Article 41 of the UN which establishes a sanctions regime to cover individuals and entities associated with Al-Qaida, and/or the Taliban wherever located.
- The UNSCR 1267 (1999) requires countries to immediately freeze funds, financial assets or economic resources of individuals and entities who are designated by the United Nations Security Council based on such person's / entity's connections with terrorism and terrorist financing.
- Under the SCR 1267, there is no scope for judicial review of the Security Council decision. No full reasons for designating individuals or organisations as terrorists need be given to the individuals or the entities concerned.

- The Committee comprises all 15 members of the UNSC and makes its decision by consensus and secretly.
- The committee is being criticised for being non transparent and in recent time there is demand for its reforms to address procedural shortcomings especially from India.

NATIONAL RAILWAY SAFETY FUND (RASHTRIYA RAIL SANRAKSHA KOSH)

In news: The Ministry of Railways has sent a proposal to the Ministry of Finance to set up a Rashtriya Rail Sanraksha Kosh worth Rs 1.19 lakh crore.

- The basic thrust of this fund will be to go for a modern signalling system and elimination of unmanned level crossings to prevent accidents.
- This has become necessary also because Indian Railways has decided to increase the average speed of trains.
- The Indian Railways is planning to impose a "safety cess" to mop up funds for its proposed non-lapsable National Railway Safety Fund (NRSF) so as to upgrade its infrastructure to improve safety standards and avoid accidents.
- Indian Railways has been under pressure to overhaul its safety network in the wake of an increasing number of accidents. The accidents took place because of a lack of upgradation and proper maintenance of the track and signalling system.

Other measures for ensuring safety:

- **Anil Kakodkar Committee:** A High Level Safety Review Committee (HLSRC) under the chairmanship of Anil Kakodkar was constituted in 2011 to look into all technical and technology related aspects for the safe running of trains. The HLSRC made 106 recommendations covering various aspects of Indian Railways.
- **Train Collision Avoidance System (TCAS)** is a radio communication based system, with continuous update of movement authority. This system is aimed at providing the ability of preventing train accidents caused due to signal bypassing or non observance of speed restrictions by train drivers. The signal aspect is also displayed on the DMI (Driver Machine Interface) screen inside the locomotives in the train's system.
- The **Train Protection and Warning System (TPWS)** is a proven automatic train protection system to avoid train accidents due to human error of signal bypassing or over-speeding. It is being implemented as a pilot project.

ORAL VACCINE AGAINST SALMONELLA

- Scientists, including one of Indian origin, have developed an oral vaccine against Salmonella - the deadly bacteria responsible for one of the most common food-borne illnesses in the world.
- Taking this vaccine by mouth also has the added advantage of using the same pathway that salmonella uses to wreak havoc on the digestive system.
- There is no vaccine currently available for salmonella poisoning. Antibiotics are the first choice in treating salmonella infections, but the fact that some strains of salmonella are quickly developing antibiotic resistance is a serious concern.
- Salmonella infection in people with compromised immune systems and children under the age of three are at increased risk of invasive non-typhoidal salmonellosis, which causes systemic infection. There are about one million cases globally per year, with a 25 per cent fatality rate.

BHIM — BHARAT INTERFACE FOR MONEY

- A new digital payments app named BHIM- Bharat Interface for Money- after Babasaheb Dr Bhimrao Ambedkar.
- The BHIM app is supposed to support Aadhaar-based payments, where transactions will be possible with just a fingerprint impression, but that facility is yet to start.
- BHIM is a digital payments solution app based on the Unified Payments Interface (UPI) from the National Payments Corporation of India (NPCI), the umbrella organisation for all retail payments systems in India.
- BHIM will let you send and receive money to other UPI accounts or addresses.
- BHIM also has options to transfer via IFSC and MMID as well for non-UPI banks. It indicates the government has decided to go with one app that will enable digital payments via UPI.
- There's also the option of creating your own QR (Quick Response) code for a fixed amount of money, which the merchant can scan to make the deduction.