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NATIONAL

Bio-toilet project

The Comptroller and Auditor General's (CAG) report on bio-toilets has found 1,99,689 defects in 25,000 toilets installed in Railways. Also, according to the data released by national auditor to Parliament, the Indian Railways needs to buy 3,350 truckloads of cow dung at Rs 42 crore in 2018 to "recharge"— add bacteria to activate degradation — leaky, malfunctioning 'bio-toilets' that it has fitted on 44.8% of trains and hopes to expand to all trains by 2018.

What are Bio-toilets?

The bio-toilets are fitted underneath the lavatories and the human excreta discharged into them; these toilets incorporate microbes with an anaerobic digestion process to digest human waste. A colony of anaerobic bacteria acts upon the collected waste and converts the waste into water and biogases (mainly methane and carbon dioxide). While the gases escape into the atmosphere, the wastewater is discharged after disinfection onto the track, thus putting an end to the crisis of railway tracks strewn with excreta.

Each bio-toilet requires 60 litres — or three large bucketfuls — of inoculum, a mix of cow dung and water. This inoculum begins the process of breaking down 3,980 tons of human excreta. Anaerobic bacteria are abundantly available in cow dung.

Jal Mahotsav

India's biggest water carnival through 'Jal Mahotsav' is organised every year in Hanuwantiya Island in Madhya Pradesh. The third such 'Jal Mahotsav'

concluded this year on January 2.

About Jal Mahotsav:

What is it? The festival, held between October and January, is a celebration of Madhya Pradesh's natural beauty and its culture. It is also a great place to try out a variety of adventure sports like parasailing, paramotoring, water zorbing, and many others. The festival



also represents the culture of Madhya Pradesh – a culture that stands for rich skill set of its artisans and rich heritage.

Where is it held? Hanuwantiya island, located on the banks of the Indira Sagar dam in Madhya Pradesh, plays host to India's largest water carnival – Jal Mahotsav.

National Waterway-1

The Cabinet Committee on Economic Affairs has given its approval for implementation of the Jal Marg Vikas Project (JMVP) for capacity augmentation of navigation on National Waterway-1 (NW-1) at a cost of Rs 5369.18 crore with the technical assistance and investment support of the World Bank. The Project is expected to be completed by March, 2023.

About Jal Marg Vikas Project:

The Jal Marg Vikas Project seeks to facilitate plying of vessels with capacity of 1,500-2,000 tonnes in the Haldia- Varanasi stretch of the River Ganga. The major works being taken up under JMVP are development of fairway, Multi-Modal Terminals, strengthening of river navigation system, conservancy works, modern River Information System (RIS), Digital Global Positioning System (DGPS), night navigation facilities, modern methods of channel marking etc.

NW 1: Ganga-Bhagirathi-Hooghly river system from Allahabad to Haldia was declared as National Waterway No.1.

States covered under NW-1: States: Uttar Pradesh, Bihar, Jharkhand, West Bengal.

Benefits of this project:

Alternative mode of transport that will be environment friendly and cost effective. The project will contribute in bringing down the logistics cost in the country. Mammoth Infrastructure development like multi-modal and inter-modal terminals, Roll on – Roll off (Ro-Ro) facilities, ferry services, navigation aids. Socio-economic impetus; huge employment generation.

Govt notifies electoral bonds to replace cash donations to political parties

In an attempt to ensure more transparent financing of political parties participating in elections, the government has announced the introduction of new electoral bonds that donors can buy from the State Bank of India (SBI). The

political parties who get these bonds can in turn encash them only through a designated bank account. The bonds will be available at specified SBI branches for 10 days each in the months of January, April, July and October.

About Electoral bonds:

What are electoral bonds? Electoral bonds will allow donors to pay political parties using banks as an intermediary. Although called a bond, the banking instrument resembling promissory notes will not carry any interest. The electoral bond, which will be a bearer instrument, will not carry the name of the payee and can be bought for any value, in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh or Rs 1 crore.

Eligibility: electoral bonds, can be given to a registered political party which has secured at least 1 per cent vote in the last Lok Sabha or state assembly elections. That party will have to give one bank account to the Election Commission and it will have to be encashed within 15 days.

Need: The electoral bonds are aimed at rooting out the current system of largely anonymous cash donations made to political parties which lead to the generation of black money in the economy.

Pradhan Mantri Swasthya Suraksha Yojna (PMSSY)

The Union Cabinet has approved setting up of an AIIMS in Bilaspur in Himachal Pradesh with an outlay of Rs. 1,350 crore under the Pradhan Mantri Swasthya Suraksha Yojna (PMSSY).

What you need to know about PMSSY?

The Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) was announced in 2003 with objectives of correcting regional imbalances in the availability of affordable/ reliable tertiary healthcare services and also to augment facilities for quality medical education in the country.

- The scheme has two components: Setting up of new AIIMS and upgradation of government medical colleges.
- Under this scheme, AIIMS have been established in Bhubaneswar, Bhopal, Raipur, Jodhpur, Rishikesh and Patna while work of AIIMS Rae Bareilly is in progress. Also, three AIIMS in Nagpur (Maharashtra),

Kalyani (West Bengal) and Mangalagiri in Guntur (Andhra Pradesh) have been sanctioned in 2015 and two AIIMS have been sanctioned at Bathinda and Gorakhpur in 2016.

Arunachal declared open defecation-free State

Arunachal Pradesh has emerged as the second State in the Northeast, after Sikkim, to be declared Open Defecation Free. Arunachal has 21 districts and the State attained the feat much before the national deadline of October 2, 2019.

Background:

Arunachal Pradesh has managed to do this before the deadline of October 2, 2019. The state government had cut short the national ODF target by one year and ten months ahead of the national target and set 31 December, 2017, as the final target to achieve ODF status in Arunachal Pradesh.

About SBM:

Swachh Bharat Mission (SBM) aims to eliminate open defecation by 2019. The goal also includes conversion of insanitary toilets to pour flush toilets, eradicating of manual scavenging and Municipal Solid Waste Management (MSWM).

Significance of the mission:

Poor sanitation spreads infectious diseases that kill hundreds of thousands of children each year, and stunt the physical and cognitive development of those who survive. Announcing a goal of accelerating the reduction in open defecation was a great idea, articulating a worthy goal for serious public policy efforts.

Telecom ombudsman

A Parliamentary panel has expressed concern over delay in setting up of an ombudsman to deal with consumer grievances in the telecom sector despite the regulator TRAI recommending it twice.

Need for an ombudsman:

As per the current trends, on an average around 10 million complaints are lodged with

the TSPs each quarter and currently complaints are characterised by high volumes, low-value and from users in diverse geographic locations. Therefore, arrangements like ombudsman are required to address to consumers in a speedy manner. This is also necessary keeping in view of the major changes that has taken place in the Indian telecom sector in the recent past.

What has been proposed?

A three-stage grievance redress mechanism for telecom sector is proposed that includes — resolution by telecom service providers (TSPs), resolution by Consumer Grievance Redressal Forum (CGRF) — and determination by Telecom Ombudsman.

The ombudsman can be established under rules framed by the Centre, similar to the institution of the insurance ombudsman under the Redress of Public Grievances Rules, 1998 (RPG Rules). The government may, by notification, make rules for carrying out the purposes of this Act. Alternatively, the government can choose to create the ombudsman office through a legislation to be passed by Parliament.

Role of ombudsman:

According to the recommendations, the consumer should in the first instance approach the complaint centre of the TSP to seek a solution. It will be the duty of the TSP to look into the request and address the consumer's concerns within the time frames stipulated by the Authority.

In case, the TSP fails to resolve the complaint in a manner that is satisfactory to the consumer; or does not provide a response; or fails to do so within the prescribed time lines laid down by TRAI, the customer will have the option to seek further redress through an independent mechanism. This would consist of a process of a resolution based on fact finding by Consumer Grievance Redressal Forum (CGRF), followed by, if necessitated, determination by the telecom ombudsman.

Funding:

A portion of the existing, not in addition, licence fee, is recommended as the funding mechanism for Ombudsman. And in addition to this fixed fee, there will be a variable component payable by each telecom service provider (TSP) depending on the volume of complaints being filed against it and admitted before the ombudsman's office.

National Register of Citizens

The much-awaited first draft of the National Register of Citizens (NRC) was published with the names of 1.9 crore people out of the 3.29 crore total applicants in Assam recognising them as legal citizens of India. The NRC is being compiled following a Supreme Court directive to identify illegal immigrants in Assam.

Background:

Assam, which faced influx from Bangladesh since the early 20th century, is the only state having an NRC, first prepared in 1951. The Supreme Court, which is monitoring the entire process, had ordered that the first draft of the NRC be published by December 31 after completing the scrutiny of over two crore claims along with that of around 38 lakh people whose documents were suspect.

What's the issue?

The NRC was last updated in Assam way back in 1951. Then, it had recorded 80 lakh citizens in the State. Since then, the process of identification of illegal immigrants in Assam has been debated and become a contentious issue in the State's politics.

A six-year agitation demanding identification and deportation of illegal immigrants was launched by the All Assam Students' Union (AASU) in 1979. It culminated with the signing of the Assam Accord on August 15, 1985.

About NRC:

What is it? The National Register of Citizens (NRC) contains names of Indian citizens. The NRC was prepared in 1951, after the Census of 1951. It was prepared by recording particulars of all the persons enumerated during that Census.

OCI and PIO cards

The Govt has stopped the scheme of free conversion of PIO cards to OCI. The scheme of converting the Person of Indian Origin (PIO) cards to OCI cards free of cost comes to an end as a decision has been taken not to give any more extension beyond December 31. However, the change of PIO cards to OCI cards would continue on payment of fees.

Who are NRIs, PIO and OCI?

Non-Resident Indians (NRI), Person of Indian Origin (PIO) and Overseas Citizen of India (OCI) are the three major categories in which the people from India go and live abroad can be categorised.

While NRIs is essentially a term used for Indians that live in another country, PIOs and OCIs are people who want to stay connected and involved with India more closely.

Need for conversion:

Simultaneous existence of PIO and OCI cards led to confusion among People of Indian Origin residing abroad. Thus, merging PIO and OCI will lead to simplification of the rules under a single umbrella. It would facilitate visa-free travel to India, rights of residency and participation in business and educational activities in the country. This is aimed at simplifying the visa-free entry for people of Indian origin into India.

The merger of the two cards could make PIO cardholders eligible for benefits already enjoyed by OCI cardholders. Merging of the two cards will also facilitate travel of Indians staying abroad and their participation in various activities in India.

Benefits of a PIO card:

- A PIO card holder doesn't need a visa to visit India. The holder also doesn't require a student or employment visa to acquire employment or academic opportunities in India.
- The holder is also exempted from registering at the foreigner regional registration office (FRRO) during the duration of stay in India.
- The holder also enjoys parity with NRIs in concern to economic, financial and educational matters. These may include matters related to property transfer or acquisition, holding, disposal, investment, admission of children in educational institutions under general category quota for NRIs.
- Separate immigration counters are provided at all International airports in India for PIO card holders.

Drawbacks of PIO card:

It does not provide voting rights to the holder. Prior permission is needed to undertake mountaineering expeditions or any such related research work in protected areas.

The benefits of OCI cards are substantial:

- OCI is essentially a lifetime visa status offered by India to an Indian person who has given up his citizenship. OCI cards give lifetime multiple entry visa to India.
- If one remains an OCI for 5 years, he/she can attain Indian citizenship and then live in India for a period of one year including short breaks.
- Special immigration counters are provided at all international airports in India for OCI card holders.
- An OCI cards holder can open special bank accounts in India just like NRIs and make investments. OCI holders can also buy non-farm property and exercise ownership rights.
- An OCI card allows to apply for a driver's license, PAN card or open a bank account in India. They get same economic, financial and educational benefits like NRIs and can also adopt children.

Restrictions for OCI card holders:

An OCI card holder cannot vote, hold a government job or purchase agricultural or farm land. The person can also not run for public office or travel to restricted areas without permission.

Zojila Pass tunnel

The Union Cabinet has approved the construction of Asia's longest bi-directional Zojila Pass tunnel at an estimated cost of Rs 6,089 crore.

About the Zojila pass tunnel:

What is it? It is a 14.2-km long tunnel project in Jammu and Kashmir to provide all-weather connectivity between Srinagar, Kargil and Leh, which remains cut-off from the rest of India during winters due to heavy snowfall. "Zojila tunnel will be the longest bi-directional tunnel in Asia.

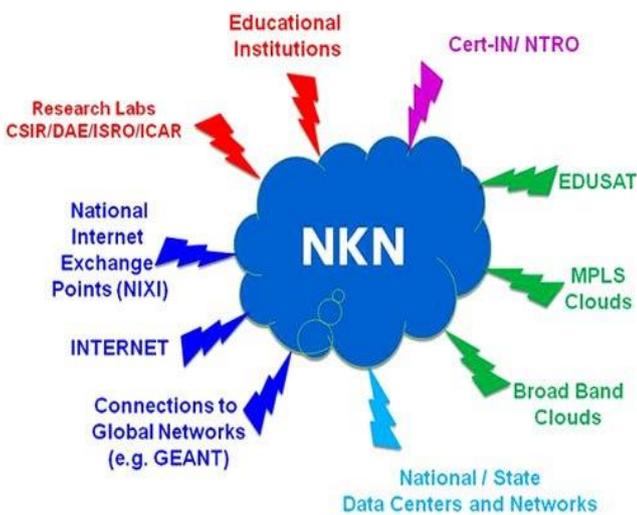
Implementation: The project will be implemented by the ministry of road transport and highways (MoRT&H) through the National Highways and Infrastructure Development Corporation Limited (NHIDCL).

Benefits of the tunnel: The project would enhance the safety of travellers crossing Zojila Pass and reduce the travel time from 3.5 hours

to 15 minutes. This pass is most strategic for the entire Kargil sector which has seen intrusion and war in the past. It will further increase the employment potential for the local labourers for the project activities.

Facts for Prelims: Zojila pass is situated at an altitude of 11,578 feet on Srinagar-Kargil-Leh National Highway which remains closed during winters (December to April) due to heavy snowfall and avalanches cutting off Leh-Ladakh region from Kashmir.

National Knowledge Network (NKN)



India has kicked off the process of appointing a telecom company that will connect and extend its state-of-the-art National Knowledge Network (NKN) to research and education networks in six South Asian Association of Regional Cooperation member states — Afghanistan, Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka. Pakistan is the only Saarc nation that has been left out of this initiative.

Background:

India has for long suspended official talks with Pakistan due to continuing terrorist attacks launched by groups from across the border and chill in the relations is now evident in sphere of research cooperation too.

About NKN:

What is it? NKN is a multi-gigabit pan-India network which facilitates the development of India's communications infrastructure, stimulates research and creates next generation applications and services.

Aim: With its multi-gigabit capability, NKN aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country to address such paradigm shift.

TRAI issues interconnect rules

The Telecom Regulatory Authority of India (Trai) has issued the Telecommunication Interconnection Regulations, 2018, that are effective from February 1. It lay down the ground rules for telcos to enter into initial interconnect pacts, provision points of interconnection (POIs) needed to complete calls, undertake augmentation of such points and the associated charges. It has termed interconnection the "lifeline of telecommunication services".

New regulations:

- Phone companies have to ink interconnect pacts on a non-discriminatory basis within 30 days of receiving a request from any licensed carrier. Also, a telco receiving an interconnection request has to offer a draft interconnect pact within five days to the requestor, who, in turn, can submit suggestions/objections in the next five days. Currently, there is no explicit timeline for inking of interconnect agreements.
- Telcos flouting Trai's interconnection regulations would "be liable to pay an amount, by way of financial disincentive", capped at "Rs 1lakh per day per licensed service area. A telco seeking POIs will be liable to furnish a six-month bank guarantee from the date of initial interconnection for the total number of ports sought, if such a demand is made by the telco offering interconnection.
- However, interconnection levies such as set-up charges and infrastructure charges "may be mutually negotiated" between service providers as long as they are "reasonable, transparent and non-discriminatory". But Trai has mandated a detailed process for disconnection of POIs, directing a telco to initially issue a show cause

notice of 15 working days citing reasons for the same.

About Trai:

What is it? It is the independent regulator of the telecommunications business in India. It was established in 1997 by an Act of Parliament to regulate telecom services and tariffs in India.

What was it for? The TDSAT was set up to resolve any dispute between a licensor and a licensee, between two or more service providers, between a service provider and a group of consumers. In addition, any direction, TRAI orders or decisions can be challenged by appealing to TDSAT.

Disputes settlement: In January 2000, TRAI act was amended to establish the Telecom Disputes Settlement Appellate Tribunal (TDSAT) to take over the adjudicatory functions of the TRAI.

What it does? It enables collaboration among researchers from different educational networks such as TEIN4, GARUDA, CERN and Internet2. It also enables sharing of scientific databases and remote access to advanced research facilities. The leading mission oriented agencies in the fields of nuclear, space and defence research are also part of NKN.

International connectivity:

India has now decided to extend the NKN to the global research and education networks in Saarc nations.

NKN will be connected from Afghanistan to Delhi or Mumbai, from Bangladesh to Kolkata or Delhi, from Bhutan to Kolkata or Delhi, from Nepal to Kolkata or Delhi, from Maldives to Chennai or Mumbai and from Sri Lanka to Chennai or Mumbai. A state-of-the-art management centre and Network Operations Centre will also be set up to run the NKN network. The connection from Afghanistan, Maldives and Sri Lanka to India would be through a submarine cable for international connectivity.

Nagaland declared as 'disturbed area' for 6 more months

The entire Nagaland has been declared as "disturbed area" for six more months, till June-end, under the controversial AFSPA. The decision to continue the declaration of Nagaland as "disturbed area" has been taken as killings,

loot and extortion have been going in various parts of the state which necessitated the action for the convenience of the security forces operating there.

Background:

The AFSPA has been in force in Nagaland for several decades. It has not been withdrawn even after a framework agreement was signed in August 2015 between the Naga insurgent group NSCN-IM and the government. The framework agreement came after over 80 rounds of negotiations spanning 18 years with the first breakthrough in 1997 when the ceasefire agreement was sealed after decades of insurgency in Nagaland.

What is AFSPA?

AFSPA, enacted in 1958, gives powers to the army and state and central police forces to shoot to kill, search houses and destroy any property that is "likely" to be used by insurgents in areas declared as "disturbed" by the home ministry.

The Act provides army personnel with safeguards against malicious, vindictive and frivolous prosecution. Security forces can "arrest without warrant" a person, who has committed or even "about to commit a cognizable offence" even on "reasonable suspicion".

What are 'disturbed' areas?

The state or central government considers those areas as 'disturbed' "by reason of differences or disputes between members of different religious, racial, language or regional groups or castes or communities.

How is a region declared 'disturbed'?

Section (3) of the Afspa empowers the governor of the state or Union territory to issue an official notification in The Gazette of India, following which the Centre has the authority to send in armed forces for civilian aid. Once declared 'disturbed', the region has to maintain status quo for a minimum of three months, according to The Disturbed Areas (Special Courts) Act, 1976."

NABARD Bill

The National Bank for Agriculture and Rural Development (Amendment) Bill, 2017, was recently passed by voice vote in the Rajya

Sabha. The bill was passed by the Lok Sabha in August, 2017.

Highlights of the Bill:

The Bill seeks to amend the National Bank for Agriculture and Rural Development Act, 1981.

Increase in capital of NABARD: Under the 1981 Act, NABARD may have a capital of Rs 100 crore. This capital can be further increased to Rs 5,000 crore by the central government in consultation with the Reserve Bank of India (RBI). The Bill allows the central government to increase this capital to Rs 30,000 crore. The capital may be increased to more than Rs 30,000 crore by the central government in consultation with the RBI, if necessary.

Transfer of the RBI's share to the central government: Under the 1981 Act, the central government and the RBI together must hold at least 51% of the share capital of NABARD. The Bill provides that the central government alone must hold at least 51% of the share capital of NABARD. The Bill transfers the share capital held by the RBI and valued at Rs 20 crore to the central government. The central government will give an equal amount to the RBI.

Micro, small and medium enterprises (MSME): The Bill replaces the terms 'small-scale industry' and 'industry in the tiny and decentralised sector' with the terms 'micro enterprise', 'small enterprise' and 'medium enterprise' as defined in the MSME Development Act, 2006. Under the 1981 Act, NABARD was responsible for providing credit and other facilities to industries having an investment of upto Rs 20 lakh in machinery and plant. The Bill extends this to apply to enterprises with investment upto Rs 10 crore in the manufacturing sector and Rs five crore in the services sector.

Under the 1981 Act, experts from small-scale industries are included in the Board of Directors and the Advisory Council of NABARD. Further, banks providing loans to small-scale, tiny and decentralised sector industries are eligible to receive financial assistance from NABARD. The Bill extends these provisions to the micro, small, and medium enterprises.

Consistency with the Companies Act, 2013: The Bill substitutes references to provisions of the Companies Act, 1956 under the NABARD Act, 1981, with references to the Companies Act, 2013. These include provisions that deal with: (i) definition of a government company, and (ii) qualifications of auditors.

Nabard:

It is an apex development and specialized bank established on 12 July 1982 by an act by the parliament of India. Its main focus is to uplift rural India by increasing the credit flow for elevation of agriculture & rural non farm sector. It was established based on the recommendations of the Committee set up by the Reserve Bank of India (RBI) under the chairmanship of Shri B. Shivaraman. It replaced the Agricultural Credit Department (ACD) and Rural Planning and Credit Cell (RPCC) of Reserve Bank of India, and Agricultural Refinance and Development Corporation (ARDC).

It has been accredited with "matters concerning policy, planning and operations in the field of credit for agriculture and other economic activities in rural areas in India".

INTERNATIONAL/ BILATERAL

ASEAN India Pravasi Bharatiya



The annual ASEAN India Pravasi Bharatiya Divas is being celebrated

at Singapore. The conference, which will be attended by top leaders and businessmen from Singapore and India, will discuss the contribution of the Indian diaspora community in Southeast Asia.

Aim of the event: To highlight the "ancient human, maritime, cultural, commercial and religious links between India and Southeast Asia" and to promote greater economic, cultural and diplomatic cooperation between the two regions.

Theme: "Ancient Route, New Journey: Diaspora in the Dynamic Asean-India Partnership."

Significance of the event:

The event coincides with the 25th anniversary of India-Asean dialogue partnership, which will be marked by a summit on Jan. 25 in New Delhi. Asean leaders have been invited by India

to be chief guests at the Republic Day parade in New Delhi on Jan. 26.

About Pravasi Bharatiya Divas:

Pravasi Bharatiya Divas (PBD) is celebrated every year on January 9 to mark the contribution of overseas Indian community in the development of India. January 9 was chosen as the day to celebrate this occasion since it was on this day in 1915 that Mahatma Gandhi, the greatest Pravasi, returned to India from South Africa, led India's freedom struggle and changed the lives of Indians forever. These conventions provide a platform to the overseas Indian community to engage with the government and Indian communities in India for mutually beneficial activities. These conventions are also very useful in networking among the overseas Indian community residing in various parts of the world and enable them to share their experiences in various fields.

Latte levy

Britain is considering implementing a "latte tax" to curb the consumption of disposable coffee cups. The fee would amount to 50 cents on top of every coffee sold, and it's intended to encourage people to use reusable coffee cups.

Need for levy on this:

In the UK, 500 takeaway coffee cups are thrown away every minute. Most takeaway cups aren't recyclable; they're laminated with plastic or polyethylene that is difficult to strip away and most recycling facilities aren't equipped to recycle them.

Iceland becomes first country to legalise equal pay

A new law making it illegal to pay men more than women has taken effect in Iceland. The legislation makes Iceland the first country in the world to legalise equal pay between men and women.

Key facts:

- Under the new rules, companies and government agencies employing at least 25 people will have to obtain government certification of their equal-pay policies. Those that fail to prove pay parity will face fines.
- The move is part of a bid to eradicate the gender pay gap by 2022 in the

Nordic nation where 38% of parliamentarians are female – above the global average – including Prime Minister Katrin Jakobsdottir.

Background:

Iceland, an island country in the North Atlantic Ocean that is home to approximately 323,000 people, has a strong economy, based on tourism and fisheries. For the past nine years, it has been ranked by the World Economic Forum (WEF) as the world's most gender-equal country.

Facts for Prelims:

The WEF Global Gender Gap Report uses markers such as economic opportunity, political empowerment, and health and survival to gauge the state of gender equality in a country.

- According to the latest WEF report, the top five best performers in the global gender gap are Iceland, Norway, Finland, Rwanda and Sweden. Yemen, on the other hand, is currently the lowest-ranked of the 144 countries measured in the report. India is ranked 108.
- Fifty-two countries fell below the global average in 2017, including China, Liberia and the United Arab Emirates, while 60 saw their overall gender gap decrease. Hungary was the only European country to be ranked lower than the global average, having scored poorly on political empowerment.

US puts Pakistan on Special Watch List

The US has placed Pakistan on a 'Special Watch List' for "severe violations" of religious freedom, making it the only country to be put under the newly-formed list.

What is Special Watch List?

The Special Watch List is for countries that engage in or tolerate severe violations of religious freedom but may not rise to the level of the 'Countries of Particular Concern' (CPC). The Special Watch List designation is being seen as a step below designating it as Country of Particular Concern, which would have automatically kicked in economic and political sanctions.

Background:

Special watch list is a new category created by the Frank R Wolf International Religious

Freedom Act of 2016. The 2016 Frank R Wolf International Religious Freedom Act amended the IRF Act to require the President to designate a 'Special Watch List' of countries deemed not to meet all of the CPC criteria but who engaged in or tolerated severe violations of religious freedom. IRF stands for International Religious Freedom.

Why was Pakistan placed in this list?

As per the US, Pakistan was placed in this list because the country continues to harass its religious minorities, has state-sanctioned discrimination against groups such as the Ahmadis, and tolerates extra-judicial violence in the guise of opposing blasphemy.

"Countries of Particular Concern" (CPC)

The US State Department has unveiled its list of countries designated as the worst offenders against religious liberty. These countries are labeled as "Countries of Particular Concern" (CPC).

The list includes Burma, China, Eritrea, Iran, North Korea, Sudan, Saudi Arabia, Tajikistan, Turkmenistan, and Uzbekistan.

About CPC:

What is it? A country is labeled as a CPC after it engages in "systemic, ongoing, [and] egregious" violations of religious liberty. This declaration is in accordance with the International Religious Freedom Act of 1998.

Implications: The governments that have been designated as CPCs are subject to 'Presidential Actions', such as sanctions, which may include economic or political measures directed against a government to encourage it to improve the state of religious freedom in its country.

Significance of this move: The designation of these countries is a key step in ensuring continued U.S. engagement in support of international religious freedom. Also, these designations are aimed at improving the respect for religious freedom in these countries.

Official languages of the UN

India is pushing forward its proposal to include Hindi as one of the official languages of the United Nations. The ministry of external affairs [MEA] is currently reviewing a draft advocacy paper to present the Indian case with regard to introducing Hindi in the UN.

Procedure for language to be recognised as an official one of UN:

The procedure for getting any language recognized as one of the Official Languages of the UN involves obtaining approval of the General Assembly. Such a proposal has to be approved by more than half of the members of the General Assembly where every member-State has a vote. In addition, recognizing any language as the official language of the UN entails a substantial increase in the expenditure of the UN necessitating an enhanced contribution by every member country, which is why most of the members remain reluctant to support such a proposal.

Need for recognition:

According to the estimates around 340 million to 500 million speak, and as many as 800 million people understand Hindi language. Outside India there are countries like Nepal South Africa, Mauritius, the United Kingdom, the United States, Yemen, and Uganda where a significant number people speak Hindi. Also, the government believes that at a time when Indian economy is shining and the country is emerging as next global power it is the best time for the country to promote its national language and get it recognised as an official language of United Nations.

Official languages of the UN:

There are six official languages of the UN. These are Arabic, Chinese, English, French, Russian and Spanish. These languages are used at meetings of various UN organs, particularly the General Assembly, the Economic and Social Council, and the Security Council.

- Each representative of a country may speak in any one of these six languages, or may speak in any language and provide interpretation into one of the six official languages. The UN provides simultaneous interpretation from the official language into the other five official languages, via the United Nations Interpretation Service.
- The six official languages are also used for the dissemination of official documents. Until a document is available in all six official languages, it is not published. Generally, the texts in each of the six languages are equally authoritative.
- The six official languages spoken at the UN are the first or second language of 2.8 billion people on the

planet, less than half of the world population. The six languages are official languages in more than half the nations in the world.

Multilingualism and the UN:

Multilingualism enables communication between the UN's linguistically and culturally diverse Member States within the meeting rooms and halls of the UN. By promoting tolerance, multilingualism also ensures increased participation of all Member States in the Organization's work, as well as greater effectiveness, better outcomes and more involvement.



What's India doing in this regard?

India has already started diplomatic efforts to promote Hindi at international level and to gain the support of other countries. The MEA has set up the World Hindi Secretariat in Mauritius along with the ministry of external affairs has prepared Hindi-Chinese, Hindi-Arabic, Hindi-French, and Hindi-Spanish dictionaries to promote Hindi. A consolidated Hindi-based dictionary of UN languages is also under compilation.

Indo-Myanmar agreement on land border crossing

The Union Cabinet has approved an agreement between India and Myanmar on land border crossing which the government said would enhance economic interaction between people of the two countries.

Significance of the agreement:

- The agreement will also facilitate movement of people on the basis of valid passports and visas which will enhance economic and social interaction between the two countries.
- It is expected to provide connectivity and enhance interaction of the people from north-eastern states of India with those of Myanmar.
- The agreement will also safeguard the traditional rights of the largely tribal communities residing along the border which are accustomed to

free movement across the land border.

Background:

India shares a 1643-km long border with Myanmar in Arunachal Pradesh, Nagaland, Manipur and Mizoram. Despite threats, the India-Myanmar border has the Free Movement Regime (FMR), which allows the tribes living along the border to travel 16 km across the boundary without visa restrictions. There are over 250 villages with over 300,000 people living within 10 km of the border who frequently cross the border through 150 small and large, formal and informal, border crossings.

H-1B visa

The US government is considering a proposal that could potentially lead to large-scale deportation of foreigners on H-1B visas for high-specialty workers waiting for their Green Card — mostly Indians — and drastically alter the way high-tech companies operate in the United States.

Background:

The United States grants 85,000 non-immigrant H-1B visa every year — 65,000 to foreigners hired abroad and 20,000 to foreigners enrolled in advanced degree courses in US schools and colleges. An estimated 70% of these visas go to Indians — hired mostly by American companies such as Facebook, Microsoft and Google and some by American arms of Indian tech giants Infosys, Wipro and TCS.

What's the proposal?

The proposal intends to end the provision of granting extensions to H-1B visa holders whose applications for permanent residency (Green Card) had been accepted. The administration also plans to redefine high-specialty professionals for the purpose of H-1B visas.

How will this impact Indians working abroad?

An estimated 500,000 to 750,000 Indian H-1B visa holders could be sent home if the administration decides to go ahead with the proposal which is aligned with President Donald Trump's "Buy American, Hire American" vision to boost manufacturing and protect local jobs for Americans.

The US companies, which are large employers of foreign workers but escape the scrutiny facing Indian firms, will be hit the hardest as

they are more likely to apply for Green Cards for their H-1B workers than their Indian counterparts, who tend to rotate their workers home at the end of the stipulated period.

What is H-1B Visa?

The H-1B visa is a non-immigrant visa that allows US companies to employ foreign workers in specialty occupations that require theoretical or technical expertise. The technology companies depend on it to hire tens of thousands of employees each year.

An H-1B visa is granted for three years, with the provision of three more with one extension after which visa holders return to their countries. If approved for Green Card, they wait in the US using extensions.

Criticisms:

The aim of the H1B visa programme was to supplement the US workforce with high-skilled workers to do jobs that Americans are not skilled to do, not to replace the US workers. But over time, there have been many grumblings that many companies use the H1B visa to replace American workers with foreign ones, as the latter can be hired at lower salaries without compromising on the skill sets. In some cases, American employees have alleged that they were made to train H1B holders to do their own jobs, and then fired.

India, Pakistan exchange list of nuclear installations

India and Pakistan recently exchanged, through diplomatic channels simultaneously at New Delhi and Islamabad, the list of nuclear installations and facilities under a three-decade old bilateral pact.

This is the twenty seventh consecutive exchange of such a list between the two countries, the first one having taken place on January 1, 1992.

Background:

The exchange is done each year on January 1, under the Agreement on the Prohibition of Attack against Nuclear Installations and Facilities, also referred to as the Non-Nuclear Aggression Agreement.

About the Agreement on the Prohibition of Attack against Nuclear Installations:

The agreement, which was signed on December 31, 1988, and entered into force on January 27,

1991, provides that the two countries inform each other of nuclear installations and facilities to be covered under the pact on the first of January of every calendar year.

Significance of the agreement:

The need for the agreement had been felt against the backdrop of Israel's 1981 bombing of Iraq's Osirak reactor near Baghdad. The strike, carried out by Israeli fighter jets over hostile airspace, had set Iraq's nuclear weapons programme significantly.

The agreement had also come at a time of deep anxiety for Pakistan. Islamabad had been rattled by the memory of the 1972 defeat which dismembered the country, and military developments in India, such as Operation Brasstacks in 1987, which was a wargame exercise to prepare for deep strike offensive capabilities. Pakistan had at the time responded by putting at its nuclear installations and assets on 'high alert'.

China develops underwater surveillance networks in Indian Ocean, South China Sea

China has developed a new underwater surveillance network to help its submarines get a stronger lock on targets while protecting the nation's interests along the maritime Silk Road, which includes the Indian Ocean. The project is part of an unprecedented military expansion fuelled by Beijing's desire to challenge the United States in the world's oceans.

About the Underwater surveillance network:

What is it? It is an underwater surveillance system that is based on a network of platforms — buoys, surface vessels, satellites and underwater gliders — that gather data from the South China Sea, and the Western Pacific and Indian Oceans.

How it works? The system works by gathering information about the underwater environment, particularly water temperature and salinity, which the navy can then use to more accurately track target vessels as well as improve navigation and positioning.

GAVI

What is GAVI? Created in 2000, Gavi is an international organisation – a global Vaccine

Alliance, bringing together public and private sectors with the shared goal of creating equal access to new and underused vaccines for children living in the world's poorest countries. Gavi brings together developing country and donor governments, the World Health Organization, UNICEF, the World Bank, the vaccine industry in both industrialised and developing countries, research and technical agencies, civil society, the Bill & Melinda Gates Foundation and other private philanthropists.

interdisciplinary committee to research and to develop a regulatory framework for the sector. The committee's members included the country's central bank, the Reserve Bank of India (RBI).

Meanwhile, the Indian Supreme Court has issued an appeal to the government in November to start the drafting of a regulatory framework to 'control the flow of Bitcoin' in the country.

Despite its latest warning, the finance ministry has not implemented a total ban on virtual currency trading and has not announced any measures that will curb the adoption and trading of digital currencies in India.

ECONOMY

Cryptocurrencies are a Ponzi scheme, warns FinMin



The spurt in the prices of Bitcoin and other cryptocurrencies seems to have rung an alarm bell,

with the Finance Ministry expressing concern and likening them to Ponzi schemes.

The ministry has cautioned against investing in them. Noting the "phenomenal increase" in the price of virtual currencies (VCs), including Bitcoin, in India and globally, it said, "VCs don't have any intrinsic value and are not backed by any kind of assets. The price of bitcoin and other VCs is entirely a matter of speculation resulting in spurt and volatility in their prices."

Concerns:

Virtual currency (VC) transactions are encrypted and are likely being used for terror-funding, smuggling, drug trafficking and money laundering. Besides, VCs are not reliable as they are stored in digital/electronic format, making them vulnerable to hacking and malware attack.

Background:

The government of India is yet to introduce regulations covering the digital currency market, but it already created an

What are Ponzi Schemes?

A Ponzi can be any scheme in which the returns to promised to older investors are paid from the money collected from new investors, and not actual profits from the investments. Ponzi schemes were named after Charles Ponzi, a clerk in Boston who, almost a century ago, duped thousands of investors into speculating on phenomenal returns from the humble postage stamp.

Those running a Ponzi scheme reel in their first set of investors by introducing them to a great opportunity. They may even pay up the fanciful returns out of their personal funds. But once investors begin to bite, they build a house of cards, using money from the stream of new entrants, to pay the older patrons.

Even if profits are made from the investments, more often than not, the scheme operators siphon it off to private accounts. As long as new investors are willing to sign up, the Ponzi scheme works. But when the flow of fresh money dwindles, the house of cards collapses.

Ethereum

Ethereum has hit \$1,000 for the first time, while investors eye at alternative currencies such as ripple, ethereum and litecoin besides bitcoin.



Earlier Ethereum was the second-most valued currency after bitcoin, but now ripple has outpaced it lately. The market capitalization of ripple is \$121 billion while ethereum's market cap is little less than \$100 billion on Saturday.

Bitcoin, the big daddy of cryptocurrency, still rules the world of digital currencies with a whopping market cap of \$280 billion.

What is Ethereum?

It, like most cryptocurrencies, shares the same basic traits as bitcoin. It has underlying blockchain technology with a tethered token, which in this case is known as "Ether." Ether is the token investors are purchasing.

How is it different from other cryptocurrencies?

Unlike most blockchains, Ethereum's has an added component that's particularly attractive to enterprise clients: smart contracts. These protocols help to verify, facilitate, or enforce the negotiation of a contract in an efficient and secure manner.

About Blockchain technology:

Blockchain is the digital and decentralized ledger that records transactions without the need for a financial intermediary, which in most cases is a bank.

The advantages of blockchain technology are aplenty. First, is the potential for smaller transaction fees as a result of having no third-party involved. Secondly, the decentralization of blockchain ensures that there's no central hub cybercriminals could attack.

SCIENCE AND TECHNOLOGY/ENVIRONMENT

H5 Avian Influenza

An outbreak of H5 Avian Influenza has been reported from Dasarahalli village from Bengaluru Urban District in Karnataka. On the directions of the Centre, the Karnataka Government has notified the outbreak and initiated the control and containment operations.

A central team of Department of Animal Husbandry, Dairying & Fisheries comprising of two experts has been deputed to Bengaluru for overseeing the operation and to assist the State Government.

Avian influenza or Bird flu:

Avian influenza, commonly called bird flu, is an infectious viral disease of birds with a tendency

of causing large-scale outbreaks of serious disease. Although most influenza viruses do not infect humans, A(H5N1) and A(H7N9) have caused serious infections in people.

Symptoms: Fever, cough, sore throat, muscle, body aches, nausea can lead to severe breathing problems, pneumonia, and acute respiratory distress syndrome.

Treatment: Human infections with bird flu viruses usually can be treated with the same prescription drugs that are used to treat human seasonal flu viruses.

Risk factors involved: According to WHO, a few A(H5N1) human cases have been linked to consumption of dishes made of raw, contaminated poultry blood. However, slaughter, handling carcasses of the infected poultry, and preparing poultry for daily consumption in households are likely to be risk factors.

Swine flu

The Rajasthan government has sounded an alert in the State after more than 400 people were diagnosed positive for the swine flu virus. Nearly 11,721 people were tested for swine flu between January 1, 2017 to December 19, 2017, of which 3,214 were confirmed positive.

Swine Flu:

What is it? Swine Influenza (swine flu) is a respiratory disease of pigs caused by type A influenza viruses that causes regular outbreaks in pigs. H1N1 is a flu virus. When it was first detected in 2009, it was called "swine flu" because the virus was similar to those found in pigs.

Transmission from Pigs to Humans: The H1N1 virus is currently a seasonal flu virus found in humans. Although it also circulates in pigs, one cannot get it by eating properly handled and cooked pork or pork products.

Pandemic: In 2009, H1N1 was spreading fast around the world, so the World Health Organization called it a pandemic.

Spread: Swine flu is contagious, and it spreads in the same way as the seasonal flu. When people who have it cough or sneeze, they spray tiny drops of the virus into the air. If a person comes in contact with these drops or touch a surface that an infected person has recently touched, the person can catch H1N1 swine flu.

Pregnant women who contract the H1N1 infection are at a greater risk of developing complications because of hormonal changes,

physical changes and changes to their immune system to accommodate the growing foetus.

Perihelion': Earth closest to sun

On January 3, the Earth will be at closest to the sun in a phenomenon called 'Perihelion'. The event, however, cannot be observed. At 11.05 am on January 3rd, the earth will be at the closest point to the sun in its annual elliptical



orbit, at a distance of 14,70,97,237 km approximately

What you need to know? Perihelion is an important

event for research and educational purposes although the public cannot observe it. Commonly it is believed that the distance of the earth from the sun decides the season or temperature on the earth. But this is not true. The axial tilt (approx. 23.5 degrees) of the earth on its axis while revolving around the Sun regulates seasons on the earth with one of the hemispheres facing away or towards the Sun. So, while the earth is closest to Sun this time in January, it is winter in India and countries in Northern Hemisphere, it is summer in the Southern Hemisphere.

On July 6, the earth will be at 'Aphelion' at 15,20,95,571 km from the sun, i.e. it will be at the farthest point from the sun.

Retrotransposons

They are the recently identified special genes which could help Symbiodinium adapt more rapidly to heat stress.

About Symbiodinium:

Symbiodinium is a unicellular algae that provides its coral host with photosynthetic products in return for nutrients and shelter.

Coral bleach: High sea temperatures can cause the breakdown of the symbiotic relationship between the algae and corals and lead to the widespread expulsion of Symbiodinium from host tissues, an event known as coral bleaching. If bleached corals do not recover, they starve to

death, leaving only their white, calcium-carbonate exoskeleton.

What is Coral Bleaching?

Bleaching occurs when abnormal environmental conditions, such as warmer sea temperatures, cause corals to expel tiny photosynthetic algae, draining them of their colour. Corals can recover if the water temperature drops and the algae are able to recolonise them.

NASA launches 2 missions to explore nearest space

U.S. space agency National Aeronautics and Space Administration (NASA) is all set to launch two missions to explore a little-understood area 60 miles (96 KM) above Earth's surface. The missions are named GOLD and ICON. The Global-scale Observations of the Limb and Disk (GOLD) mission will be launched aboard a commercial communications satellite in January 2018, and the designed spacecraft Ionospheric Connection Explorer (ICON) will be launched later this year.

About the missions:

What are they? GOLD and ICON will team up to explore the ionosphere, a boundary area between Earth and the space where particles have been cooked into a sea of electrically-charged electrons and ions by the Sun's radiation. These layers of near-Earth space are increasingly becoming a part of human domain as it is home to radio signals used to guide airplanes, ships and Global Positioning System satellites.

Goals: Among others, the missions' goals is to measure how upper atmosphere changes in response to hurricanes and geomagnetic storms. GOLD will also explore how the upper atmosphere reacts to geomagnetic storms, which are temporary disturbances of Earth's magnetic field set off by solar activity. The agency is hoping to find evidences for a theoretical model about El Nino's repercussions on the ionosphere.

Orbits: The two missions are complementary. ICON in low-Earth orbit, at 350 miles (560 km) above Earth, flies through and just above the ionosphere, like a close-up camera. GOLD runs in geostationary orbit over the Western Hemisphere, 22,000 miles (about 35,398 km) above the planet's surface. It will build up a

full-disk view of the ionosphere and the upper atmosphere beneath it every half hour.

“Bomb Cyclone”

A massive winter storm called a “bomb cyclone” is hammering the eastern coast of the US, bringing snow, ice, flooding, and strong winds.

What is a Bomb cyclone?

The term is used by meteorologists to indicate a mid-latitude cyclone that intensifies rapidly. A bomb cyclone happens when atmospheric pressure in the middle of the storm drops at least 24 millibars over 24 hours, quickly increasing in intensity. The lower the pressure, the stronger the storm.

How it works?

Deep drops in barometric pressure occur when a region of warm air meets one of cold air. The air starts to move and the rotation of the earth creates a cyclonic effect. The direction is counterclockwise in the Northern hemisphere leading to winds that come out of the northeast.

What's the difference between hurricanes, cyclones and typhoons?

Hurricanes, cyclones and typhoons are all tropical storms. They are all the same thing but are given different names depending on where they appear. When they reach populated areas they usually bring very strong wind and rain which can cause a lot of damage.

Hurricanes are tropical storms that form over the North Atlantic Ocean and Northeast Pacific. Cyclones are formed over the South Pacific and Indian Ocean. Typhoons are formed over the Northwest Pacific Ocean.

Typbar TCV

It is a Typhoid conjugate vaccine developed by Bharat Biotech Ltd (BBL).

Why in news?

The World Health Organisation (WHO) has pre-qualified its typhoid conjugate vaccine. The new vaccine was found to have given a longer immunity from typhoid than older vaccines and it required fewer doses for childhood immunisation.

What does this mean? The pre-qualification by WHO allows for the sale of the vaccines to UN agencies such as UNICEF and GAVI.

About the vaccine:

Typbar TCV is reportedly the world's first typhoid vaccine clinically proven for use on recipients who can be as young as six months. A single dose offers 87% protective efficacy against typhoid.

About Typhoid:

Typhoid fever is caused by food and water contaminated by Salmonella Typhi (S. Typhi)

bacteria. The symptoms of the disease include fever, headache, nausea, loss of appetite, constipation and sometimes diarrhoea. According to the World Health Organisation, typhoid affects about 21 million people per year and kills around 222,000.



World's first 'speed breeding' technique to boost production of wheat

Australian scientists have developed the world's first 'speed breeding' technique that can boost the production of the crop by up to three times.

DS Faraday: The scientists have used the technique to develop the new 'DS Faraday' wheat variety due for release to industry this year. DS Faraday is a high protein, milling wheat with tolerance to pre-harvest sprouting.

Significance of the technique: By using speed breeding techniques in specially modified glasshouses scientists could grow six generations of wheat, chickpea and barley plants, and four generations of canola plants in a single year – as opposed to two or three generations in a regular glasshouse, or a single generation in the field. The quality and yield of the plants grown under controlled climate and extended daylight conditions was as good, or sometimes better than those grown in regular glasshouses.

About the speed breeding technique:

How it works? This technique uses fully controlled growth environments and can also be scaled up to work in a standard glass house. It uses LED lights optimised to aid photosynthesis in intensive regimes of up to 22 hours per day.

Why LED? LED lights significantly reduce the cost compared to sodium vapour lamps which have long been in widespread use but are ineffective because they generate much heat and emit poor quality light.

Significance: The speed breeding technique has largely been used for research purposes but is now being adopted by industry. There has been a lot of interest globally in this technique due to the fact that the world has to produce 60-80% more food by 2050 to feed its nine billion people. The new technology could also have some great applications in future vertical farming systems, and some horticultural crops.

Astronauts Identify Unknown Microbes in Space For First Time

Astronauts aboard the International Space Station (ISS) have for the first time identified microbes in space without having to samples back to Earth for tests.

Significance of this discovery:

The ability to identify microbes in space could aid in the ability to diagnose and treat astronaut ailments in real time, as well as assisting in the identification of DNA-based life on other planets.

It could also benefit other experiments aboard the orbiting laboratory. Identifying microbes involves isolating the DNA of samples, and then amplifying – or making many copies – of that DNA that can then be sequenced, or identified.

About the International space station (ISS):

What is it? The International Space Station (ISS) is a space station, or a habitable artificial satellite, in low Earth orbit. The ISS is now the largest artificial body in orbit. The ISS consists of pressurised modules, external trusses, solar arrays and other components. ISS components have been launched by Russian Proton and Soyuz rockets as well as American Space Shuttles.

What is it for? The ISS serves as a microgravity and space environment research laboratory in which crew members conduct experiments in biology, human biology, physics, astronomy, meteorology and other fields. The station is suited for the testing of spacecraft systems and equipment required for missions to the Moon and Mars.

Orbit: The ISS maintains an orbit with an altitude of between 330 and 435 km by means of reboost manoeuvres using the engines of the

Zvezda module or visiting spacecraft. It completes 15.54 orbits per day.

Joint project: The ISS programme is a joint project among five participating space agencies: NASA, Roscosmos, JAXA, ESA, and CSA. The ownership and use of the space station is established by intergovernmental treaties and agreements. The station is divided into two sections, the Russian Orbital Segment (ROS) and the United States Orbital Segment (USOS), which is shared by many nations.

ISS is the ninth space station to be inhabited by crews, following the Soviet and later Russian Salyut, Almaz, and Mir stations as well as Skylab from the US.

China to become world's first country to launch a lunar probe on far side of moon

China announced its plans to launch a lunar probe in 2018 to achieve the world's first soft landing on the far side of the moon to showcase its ambitious space programme. The mission is called Chang'e 4 project.

About the mission:

Chang'e 4 is the fourth mission in the country's lunar mission series which is being named after the Chinese moon goddess.

A Long March 4C rocket will start its course to 60,000 kilometers behind the moon carrying a 425-kilogram relay satellite. This relay satellite will act as an initial communication link between earth and the lunar far side. Once China's space agency succeeds in establishing the link, China will trigger the second part of the mission i.e. sending a lander and rover to the unexplored region of the moon.

Significance of the mission:

According to experts, landing on the far side of the moon is undoubtedly one of the most challenging missions ever launched by any of the world's superpowers. The far side of the moon known as 'South Pole-Aitken Basin' still remains a mystery among space scientists and by sending a probe there, China will outdo the historical achievements of the US and USSR.

Difficulties:

Communication difficulties will be the main problem faced by the Chinese team as they try to land on the other side of the moon. China is expected to consider using options like radio

telescopes developed by Heino Falcke of Radboud University to communicate in the absence of a transmitting medium.

History of China's lunar exploration programmes:

China began their lunar exploration program in 2007 by launching a simple lunar orbiter named 'Chang'e 1'. The second mission in the program named 'Chang'e 2' was launched in 2010, and it was later followed by the third mission 'Chang'e 3'. 'Chang'e 3' made headlines all around the world as it marked the first soft moon landing since 1976.

China starts collecting environment tax:

China has started collecting an environment tax to better protect the environment and cut pollutant discharge, as the country's Environmental Protection Tax Law took effect on Jan. 1, 2018. This is China's first tax clearly designed for environmental protection, which will help establish a "green" financial and taxation system and promote pollution control and treatment of pollutants.

Under the Environmental Protection Tax Law, which targets enterprises and public institutions that discharge listed pollutants directly into the environment, companies will pay taxes for producing noise, air and water pollutants as well as solid waste. Individuals do not need to pay the tax as it is applicable only to enterprises, public institutions and other business operators.

Parker solar probe

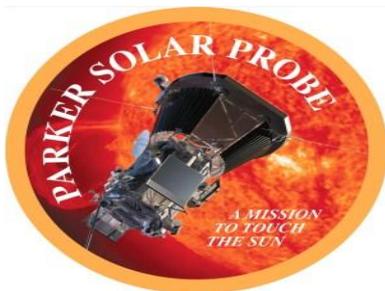
NASA's Parker Solar Probe is scheduled for launch in 2018 to explore the Sun's outer atmosphere.

About the Parker solar probe:

What is it?

NASA's historic

Parker Solar Probe mission will revolutionize our understanding of the sun, where changing conditions can propagate out into the solar system, affecting Earth and other worlds. Parker Solar Probe will travel through the sun's atmosphere, closer to the surface than any spacecraft before it, facing brutal heat and radiation conditions — and ultimately providing



humanity with the closest-ever observations of a star.

Journey: In order to unlock the mysteries of the sun's atmosphere, Parker Solar Probe will use Venus' gravity during seven flybys over nearly seven years to gradually bring its orbit closer to the sun. The spacecraft will fly through the sun's atmosphere as close as 3.9 million miles to our star's surface, well within the orbit of Mercury and more than seven times closer than any spacecraft has come before.

Goals: The primary science goals for the mission are to trace how energy and heat move through the solar corona and to explore what accelerates the solar wind as well as solar energetic particles.

Why do we study the sun and the solar wind?

- The sun is the only star we can study up close. By studying this star we live with, we learn more about stars throughout the universe.
- The sun is a source of light and heat for life on Earth. The more we know about it, the more we can understand how life on Earth developed.
- The sun also affects Earth in less familiar ways. It is the source of the solar wind; a flow of ionized gases from the sun that streams past Earth at speeds of more than 500 km per second (a million miles per hour).
- Disturbances in the solar wind shake Earth's magnetic field and pump energy into the radiation belts, part of a set of changes in near-Earth space known as space weather.
- Space weather can change the orbits of satellites, shorten their lifetimes, or interfere with onboard electronics. The more we learn about what causes space weather – and how to predict it – the more we can protect the satellites we depend on.
- The solar wind also fills up much of the solar system, dominating the space environment far past Earth. As we send spacecraft and astronauts further and further from home, we must understand this space environment just as early seafarers needed to understand the ocean.