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Current Affairs
(Consolidation)

June 2019

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New Cabinet Committees

Recently, the Union government has reconstituted six Cabinet Committees, along with two new ones — one on **Investment**, the other on **Employment and Skill Development**.

➤ The list of cabinet committees has been given below:

- ○ **Appointments Committee** of the Cabinet.
- ○ Cabinet Committee on **Accommodation**.
- ○ Cabinet Committee on **Economic Affairs**.
- ○ Cabinet Committee on **Parliamentary Affairs**.
- ○ Cabinet Committee on **Political Affairs**.
- ○ Cabinet Committee on **Security**.
- ○ Cabinet Committee on **Investment and Growth (new)**.
- ○ Cabinet Committee on **Employment & Skill Development (new)**.

Cabinet Committees

➤ The Cabinet Committees are **extra-constitutional** in emergence. However, the **Rules of Business** provide for their establishment.

➤ There are two types of Cabinet Committees — **Standing and Ad-hoc**. Standing cabinet committees are **permanent** whereas ad-hoc cabinet committees are **temporary** and deal with special issues.

➤ The membership varies from **three to eight**. Usually, only Cabinet Ministers are the members of these committees. But, sometimes non-cabinet ministers may also be a member or may be special invitees to the committee.

➤ The **Prime Minister constitutes Standing Committees of the Cabinet and sets out the specific functions assigned to them**. He can add or reduce the number of committees.

➤ The executive in India works under the **Government of India (Transaction of Business) Rules, 1961**.

Note: All committees except Cabinet Committee on Accom-modation and Cabinet Committee on Parliamentary Affairs are **headed by Prime Minister**.

Violation of Antitrust Law

Google and Amazon are under scrutiny for their influence on **consumer privacy, labour conditions, public discourse and violation of antitrust law**.

➤ U.S. government's antitrust enforcement agencies, the Federal **Trade Commission** and the **Department of Justice** are carrying out Antitrust Investigations against Amazon and Google respectively.

➤ In 2018, the **Competition Commission of India (CCI)** has also imposed ₹136 crore fine on Google for unfair business practices and for infringing antitrust conduct in India.

Note:

Issues with Google and Amazon

- **Amazon:** Amazon's Prime program amounts to **predatory pricing scheme** designed to choke out competitors.
  - Amazon's Marketplace platform, where third-party sellers can list products, is accused of **one-sided contracts, disputes over advertising policies,** and a **ruthless competitive environment**.
  - Amazon's continued growth also threatens to give it **monopsony power** (a market situation in which there is only one buyer) over other industries like shipping.
  - Some consumer groups and vendors have complained that **Amazon edges out new competition**, particularly as the company enters into new business lines like groceries and fashion.
- **Google:** It is accused of abusing its **dominance of the online search market** by showing its biases towards certain ads and searches.
  - In 2017, European regulators also slapped a $1.7 billion penalty on Google for barring websites from selling ads from rivals alongside some Google-served ads near search results.

Antitrust Laws

- Antitrust laws, also referred to as **competition laws**, aim to protect trade and commerce from **unfair restraints, monopolies and price fixing**.
  - These ensure fair competition in an open-market economy.
- **The Competition Act, 2002** is India's antitrust law. It replaced the **Monopolistic and Restrictive Trade Practices Act of 1969**.

The Competition Act, 2002
- The Act prohibits:
  - Anti-competitive agreements
  - Abuse of dominant position by enterprises
  - Regulates combinations (Mergers and Acquisition), which cause or likely to cause an appreciable adverse effect on competition within India

Competition Commission of India
- The Competition Commission of India was established in 2003 under the Competition Act, 2002.

- It is the duty of the Commission to eliminate practices having adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- The Commission also gives opinion on competition issues on a reference received from a statutory authority established under any law and to undertake competition advocacy, create public awareness and impart training on competition issues.

Schemes to Control FMD and Brucellosis

The Cabinet has announced a special scheme for control of **Foot and Mouth Disease (FMD)** and **Brucellosis**.
- The entire cost of the scheme is to be borne out by the **Central Government**.
- The scheme includes **vaccination coverage** to bovines, sheep, goats, and pigs.
- **Brucellosis control programme** shall extend to cover **100% vaccination** coverage of 3.6 crore female calves.
- **Economic Impact of FMD and Brucellosis:** According to the Indian Council of Agriculture Research (ICAR), **direct loss** due to milk and meat could amount to ₹20,000 crore per annum due to FMD and indirect losses may result in reduced work capacity, abortions, subsequent infertility and sterility of the livestock.

Foot and Mouth Disease

- **Foot and mouth disease (FMD)** is a highly **contagious viral disease of livestock** that has a significant **socio-economic impact**.
- The disease affects **cattle, swine, sheep, goats and other cloven-hoofed ruminants** and in rare cases, **humans** are also susceptible.
- FMD can spread when infected animals bring the virus into **physical contact** with susceptible animals.

Brucellosis

- Brucellosis is an **uncontrolled serious public health problem** in many developing countries including India, where it is very common but often neglected.
- Brucellosis is a **bacterial disease** caused by various brucella species, which mainly infect cattle, swine, goats, sheep and dogs.

Note:

- ➤ **Humans** generally acquire the disease through **direct contact** with **infected animals**, by **eating or drinking contaminated** animal products, by inhaling airborne agents or by ingesting **unpasteurized milk** or **cheese** from infected goats or sheep.

- ➤ **Person to person transmission is rare.**

- ➤ The disease causes flu-like symptoms, including fever, weakness, malaise and weight loss.

India's Livestock Sector

- ➤ India's livestock sector is one of the largest in the world.

- ➤ Livestock contributed to **4% of the GDP and 26%** of the agricultural GDP during 2010-11.

- ➤ India **ranks first** among the world's milk-producing Nations.

- ➤ It is the **largest contributor** to the **National GDP** among agricultural commodities.

Government Initiatives

- ➤ **FMD Control Programme (FMDCP),** was initiated in the 10th plan period and was extended to 11th and 12th plan period.

- ➤ The Ministry of Agriculture, Department of Animal and Husbandry had initiated **'FMD Mukt Bharat'** under **Rashtriya Krishi Vikas Yojana (RKVY)** during 2016-17, a programme to cover all the states which were not covered under the six monthly vaccination scheme.

Indian Council of Agriculture Research (ICAR)

- ➤ ICAR is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare.

- ➤ It was **established on 16 July 1929** as a registered society under the Societies Registration Act, 1860.

- ➤ The Council is the apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country and includes a network of 101 institutes and 71 agricultural universities, considered as one of the largest national agricultural systems in the world.

Reduced Groundwater Contamination Under SBM: UNICEF

United Nations Children's Fund (UNICEF), in a report, revealed that groundwater is **11.25 times** less likely to be contaminated in Open Defecation Free (ODF) villages than non-ODF village.

- ➤ Under the "Environmental impact of the Swachh Bharat Mission (Grameen) on Water, Soil, and Food" by UNICEF, groundwater samples were collected and studied from ODF and non-ODF villages of Odisha, Bihar and West Bengal.

Key Findings

- ➤ Soil contamination was found to be 1.13 times more likely in non-ODF villages as compared to ODF villages.

- ➤ Non ODF villages are 1.48 times more likely to have their food contaminated.

- ➤ Non ODF villages are 2.68 times more likely to have household drinking water contaminated compared to ODF villages.

- ➤ Study indicated that these substantial reductions can be attributed to the
  - ○ Improvement in sanitation and hygiene practices.
  - ○ Regular monitoring
  - ○ Behaviour change messaging

United Nations Children's Fund (UNICEF)

- ➤ **The UNICEF,** originally known as the United Nations International Children's Emergency Fund, **was created by the United Nations General Assembly** in **1946**, to provide emergency food and healthcare to children and mothers in countries that had been devastated by World War II.

- ➤ In **1950**, UNICEF's **mandate was extended** to address the long-term **needs of children and women in developing countries** everywhere.

- ➤ It consists of **36-member executive board**, which establishes policies, approves programs and oversees administrative and financial plans. The members are government representatives who are elected by the **United Nations Economic and Social Council (ECOSOC)**, usually for three-year terms.

- ➤ UNICEF relies on **contributions** from governments and private donors.

Tamil Nadu Health System Reform Program

The **Central Government, Tamil Nadu state government and the World Bank** have signed a $287 million loan agreement for the **"Tamil Nadu Health System Reform Program"**.

➢ The Tamil Nadu Health System Reform Program will support the state government:
  ○ To achieve **national accreditation** for primary, secondary, and tertiary-level health facilities in the public sector. Strengthen physicians, nurses and paramedics through continuous medical education.
  ○ To strengthen the **feedback loop between citizens** and the state by making quality and other data accessible to the public.
  ○ To improve the **quality of healthcare**, reduce the burden of Non-Communicable Diseases (NCDs), and fill equity gaps in reproductive and child health services.
  ○ To promote **population-based screening,** treatment and follow-up for NCDs, and improve monitoring and evaluation.
  ○ To strengthen the **lab services** and health provider capacity to address mental health.
  ○ To tackle road injuries, the programme will improve in- hospital care, **strengthen protocols, strengthen the 24×7 trauma care services** and establish a trauma registry.

NITI Aayog Health Index

➢ Tamil Nadu **ranks third** among all Indian states in the NITI Aayog Health Index.
➢ The state's maternal mortality rate has declined from 90 deaths per 100,000 live births in 2005 to 62 deaths in 2015-16.
  ○ Infant mortality has declined from 30 deaths per 1000 live births to 20 in the same period.

Three-Language Formula

The draft National Education Policy, 2019, prepared by a committee headed by scientist **Dr. Kasturirangan** has recommended the three-language formula at the primary level.

Three-Language Formula

➢ **First language:** It will be the mother tongue or regional language.
➢ **Second language:** In Hindi speaking states, it will be other modern Indian languages or English. In non-Hindi speaking states, it will be Hindi or English.
➢ **Third Language:** In Hindi speaking states, it will be English or a modern Indian language. In the non-Hindi speaking states, it will be English or a modern Indian language.

Need for Three-Language Formula

➢ The committee's report observes that learning languages is an important part of a child's cognitive development.
➢ The primary aim is to promote multilingualism and national harmony.

Issue in Implementation

➢ The states like Tamil Nadu, Puducherry and Tripura were not ready to teach Hindi and Hindi-speaking states did not include any south Indian language in their school curriculum.
➢ State governments often do not have adequate resources to implement the three – language formula.
  ○ The inadequacy of resources is one of the most important aspects of the challenge.

Constitutional Provisions

➢ **Article 29** of the Constitution of India protects the interests of minorities. The Article states that any section of the citizens who have a "distinct language, script or culture of its own shall have the right to conserve the same".
➢ **Article 343** is about the official language of the Union of India. According to this Article, it is to be Hindi in Devnagri script, and numerals should follow the international form of Indian numerals.
➢ **Article 346** is about the official language for communication between the states and between a state and the Union.
➢ **Article 347** gives the President the power to recognise a language as an official language of a given state.
➢ **Article 350A** provides for the facilities for instruction in mother-tongue at the primary stage.
➢ **Article 350B** provides for the establishment of a Special Officer for linguistic minorities.

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➢ **Article 351** gives power to the union government to issue a directive for the development of the Hindi language.

➢ **Eighth Schedule** of the Constitution of India contains a list of 22 languages recognised as schedule languages.

Swachh Survekshan 2020

The Ministry of Housing & Urban Affairs has launched the **Swachh Survekshan 2020 (SS 2020) league**, a **quarterly** cleanliness assessment of cities and towns in India.

➢ **SS 2020** league will be integrated with **Swachh Survekshan** 2020, the 5th edition of the annual cleanliness survey of urban India to be conducted from January – February 2020 by the **Ministry of Housing & Urban Affairs** under the aegis of **Swachh Bharat Mission- Urban (SBM-U)**.

➢ Parameters pertaining to **wastewater treatment & reuse** and **fecal sludge management** have been given special focus.

SS 2020: Quarterly Evaluation Mechanism

➢ There will be a **weightage of 2000 marks for each quarters** to be evaluated on the basis of two parameters:

➢ **Ranks** will be assigned in **two categories**, namely:
  ❍ Cities with a population of **one lakh and above**
  ❍ Cities with a population of less than **one lakh**

➢ The performance of cities in SS League 2020 will be crucial to their ranking in Swachh Survekshan 2020 as the **25% weightage of the quarterly assessments** will be included in the annual survey in January 2020.

Need for a Quarterly Evaluation Mechanism

➢ **Annual survekshan survey** conducted once in a year, fails to **sustain the behavioural change**, as cities clean themselves up just before a survey and **slips down** after that.

➢ **Continuous monitoring element,** that involves monitoring of cleanliness drives throughout the year was missing in the Annual survekshan surveys.

First National Party from North-East

The **National People's Party (NPP)** has been recognised as the **eighth national party** by the Election Commission of India, making it the **first regional party from the north-east** to be accorded the status.

➢ The National People's Party (NPP) was **formed in 2013** by the current Meghalaya Chief Minister Conrad K Sangma's father and former Lok Sabha Speaker, late Purno Agitok Sangma.

Sl. No.	Name of the Party (Abbreviation)	Symbol Reserved
1.	Bahujan Samaj Party (BSP)	Elephant (In all States/U.T.s except in Assam)
2.	Bharatiya Janata Party (BJP)	Lotus
3.	Communist Party of India (CPI)	Ears of Corn and Sickle
4.	Communist Party of India (Marxist) (CPM)	Hammer, Sickle and Star
5.	Indian National Congress (INC)	Hand
6.	Nationalist Congress Party (NCP)	Clock
7.	All India Trinamool Congress (AITC)	Flowers and Grass
8.	National People's Party (NPP)	Book

Conditions for Recognition as a National Party

➢ A party is recognised as a national party if any of the following conditions is fulfilled:
  ❍ If it secures 6% of valid votes polled in any four or more states at a general election to the Lok Sabha or to the legislative assembly; and, in addition, it wins four seats in the Lok Sabha from any state or states; or
  ❍ If it wins 2% of seats in the Lok Sabha at a general election; and these candidates are elected from three states; or
  ❍ If it is recognised as a state party in four states.

Conditions for Recognition as a State Party

➢ A party is recognised as a state party in a state if any of the following conditions is fulfilled:
  ❍ If it secures 6% of the valid votes polled in the state at a general election to the legislative assembly of the state concerned; and, in addition, it wins 2 seats in the assembly of the state concerned; or

Note:

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○ If it secures 6% of the valid votes polled in the state at a general election to the Lok Sabha from the state concerned; and, in addition, it wins 1 seat in the Lok Sabha from the state concerned; or

○ If it wins 3% of seats in the legislative assembly at a general election to the legislative assembly of the state concerned or 3 seats in the assembly, whichever is more; or

○ If it wins 1 seat in the Lok Sabha for every 25 seats or any fraction thereof allotted to the state at a general election to the Lok Sabha from the state concerned; or

○ If it secures 8% of the total valid votes polled in the state at a general election to the Lok Sabha from the state or to the legislative assembly of the state. This condition was added in 2011.

World Food Safety Day

The **first-ever World Food Safety Day** was celebrated on **June 7**.

➤ It was adopted by the **United Nations General Assembly in December 2018** in collaboration with the Food and Agriculture Organization.

➤ The **theme** for 2019 was **'Food safety, everyone's business'**.

➤ It aims to create awareness about the importance of maintaining safe food standards and also reducing the burden of deaths due to foodborne diseases.

➤ The United Nations has designated **two of its agencies** — the **Food and Agriculture Organization (FAO)** and the **World Health Organization (WHO)** — to lead efforts in promoting food safety around the world.

Government Initiatives

➤ **FSSAI** has developed the **first State Food Safety Index (SFSI)** to measure the performance of States on **five parameters** of food safety, which include:

○ **Human Resources and Institutional Arrangements**

○ **Compliance**

○ **Food Testing- Infrastructure and Surveillance**

○ **Training and Capacity Building**

○ **Consumer Empowerment**

➤ A new-age hand-held battery operated device called **'Raman 1.0'** to perform rapid detection (in less than 1 minute) of economically driven adulteration in edible oils, fats and ghee.

➤ An innovative solution to take food safety to schools called the **'Food Safety Magic Box' (by FSSAI)**. This do-it-yourself food testing kit comprises a manual and equipment to check for food adulterants, which school-children can use in their classroom laboratories.

➤ FSSAI has instituted the **'Eat Right Awards'** to recognize the contribution of food companies and individuals to empower citizens to choose safe and healthy food options, which would help improve their health and well-being.

Food and Agriculture Organization

➤ Created in 1945, FAO is a **specialized agency** of the United Nations that leads international efforts to defeat hunger.

➤ FAO is also a source of knowledge and information, and helps developing countries in transition to modernize and improve agriculture, forestry and fisheries practices, ensuring good nutrition and food security for all.

World Health Organisation

➤ The World Health Organization (WHO) is the United Nations' **specialized agency** for health.

➤ It was established in 1948, and is headquartered in **Geneva, Switzerland**.

➤ It is an **intergovernmental** organization and works in collaboration with its Member States usually through the Ministries of Health.

➤ WHO is responsible for:

○ Providing leadership on global health matters,

○ Shaping the health research agenda,

○ Setting norms and standards,

○ Providing evidence-based policy options,

○ Providing technical support to countries,

○ Monitoring and assessing health trends.

Foreigners Tribunals

The **Ministry of Home Affairs (MHA) has amended the Foreigners (Tribunals) Order, 1964** and has **empowered district magistrates in all States** and **Union Territories** to set **up tribunals** (quasi-judicial bodies) **to decide whether a person staying illegally in India is a foreigner or not**. Earlier, the powers to constitute tribunals were vested only with the Centre.

➤ The amended order (Foreigners (Tribunal) Order, 2019) **also empowers individuals to approach the Tribunals**. Earlier, only the State administration could move to the Tribunal against a suspect.

➤ The amendment has come **in the backdrop of Assam's final National Register of Citizens (NRC)** which is set to be published by 31st July 2019.

 ❍ If a person doesn't find his or her name in the final NRC, s/he could move to the Tribunal.

 ❍ The amended order also allows District Magistrates to refer individuals who haven't filed claims against their exclusion from NRC to Tribunals to decide if they are foreigners or not.

➤ As per directions of the Supreme Court, **the Registrar General of India - RGI (under the Ministry of Home Affairs)** published the final draft list of NRC on 30th July 2018 to segregate Indian citizens living in Assam from those who had illegally entered the State from Bangladesh after March 25, 1971.

 ❍ Nearly 40 lakh people were excluded from this final draft list. As many as 36 lakh of those excluded have filed claims against the exclusion.

➤ **The NRC is a fallout of the Assam Accord, 1985.** The accord states that all illegal foreigners who came to Assam after 1971 from Bangladesh, irrespective of the religion, have to be deported.

Jal Shakti Mantralaya

 National River Conservation Directorate (NRCD) has been shifted from the Ministry of Environment and Forest and Climate Change to Jal Shakti Ministry.

➤ Move aims at **consolidating** administration and bringing water-related issues like conservation, development, management, and abatement of pollution under a **single Ministry**.

➤ **National River Conservation Directorate (NRCD)** is responsible for implementing the centrally sponsored National River Conservation Plan for all rivers across the country except river Ganga and its tributaries (as issues related to Ganga and its tributaries are taken up by National Mission for Clean Ganga).

Jal Shakti Mantralaya

➤ The government has created a new Ministry called **'Jal Shakti'** after merging **Ministries of Water Resources, River Development & Ganga Rejuvenation** along with **Drinking Water and Sanitation**.

➤ Jal Shakti Ministry will encompass issues ranging from providing **clean drinking water**, international and inter-states **water disputes**, to the **Namami Gange** project aimed at cleaning Ganga and its tributaries, and sub-tributaries.

➤ The Ministry will roll out the government's ambitious **plan – 'Nal se Jal' scheme** under **Jal Jivan Plan** to provide **piped water connection to every household in India by 2024**.

Kaleshwaram Project

 The Kaleshwaram lift irrigation project is aimed to make Telangana drought proof by harnessing the flood waters of the Godavari. The project is an under-construction multi-purpose irrigation project on the **Godavari River in Kaleshwaram, Bhoopalpally, Telangana**.

➤ The project starts at the **confluence point of Pranahita River and Godavari River**.

 ❍ **Pranahita river** is a confluence of various other smaller tributaries like Wardha, Penganga and Wainganga Rivers.

➤ Waters of the Godavari will be tapped by reverse pumping and storage, thereby facilitating agriculture on over 38 lakh acres, helping rejuvenate thousands of tanks, providing water for industries, and supplying drinking water to Hyderabad and Secunderabad by creating a series of storage tanks and a network of pipelines.

➤ The Kaleshwaram project will support **Mission Kakatiya** and **Mission Bhagiratha** schemes designed to provide drinking water to many villages and improve the capacities of tanks.

Mission Kakatiya

It is a flagship programme launched by the **Government of Telangana** which aims at rejuvenation of water tanks and other water storage structures to provide assistance and help to the small and marginal farmers of the state.

Mission Bhagiratha

It is a project for safe drinking water for every village and city household in Telangana State. Its aim is to provide piped water to 2.32 crore people in 20 lakh households in urban and 60 lakhs in rural areas of Telangana. The ambitious project will supply clean drinking water to all households in the state through water sourced from River Godavari and River Krishna.

Note:

Operation Sankalp

The **Indian Navy** has launched **'Operation Sankalp'** in the **Persian Gulf** and the **Gulf of Oman** as a measure **to assure the safety and security of the Indian vessels**, following the recent maritime incidents in the region.

➢ The operation has been launched in the wake of **escalating tension in the Gulf of Oman**, where two oil tankers were attacked recently. **The U.S. considers Iran** responsible for the attacks, heightening **tensions between the two countries**.

May 13
Bandar Abbas
Main base for the Iranian navy.

Strait of Hormuz
Strategic waterway through which around a fifth of the world's oil supply is transported.

June 13
Gulf of Oman
Two oil tankers were hit in a suspected attack in the Gulf of Oman early on Thursday.

US responds to distress signals from two tankers 'under attack'.

Front Altair

Bahrain
Home of the US 5th Fleet, the main American naval force in the Middle East.

Kokuka Courageous

Fujairah
UAE and Saudi say their oil tankers were damaged in "sabotage attacks".

Gulf of Oman

250 miles

The Persian Gulf

➢ Also called the **Arabian Gulf**, it is a shallow marginal sea of the Indian Ocean that lies **between the Arabian Peninsula and the southwestern Iran**.

➢ Its length is around 990 km and its width varies from a maximum of around 340 km to a minimum of 55 km in the **Strait of Hormuz**.

➢ It is **bordered** on the north, northeast, and east by Iran; on the southeast and south by part of **Oman** and **the United Arab Emirates**; on the southwest and west by **Qatar, Bahrain** and **Saudi Arabia**; and on the northwest by **Kuwait** and **Iraq**.

➢ The area has approximately two-thirds of the world's estimated proven oil reserves and one-third of the world's estimated proven natural gas reserves.

➢ **A considerable amount of sea trade passes through the gulf,** leading to heavy traffic in the region.

➢ There remains an incessant traffic of large tankers that carry oil from the large marine terminals situated in Iran, Kuwait, Saudi Arabia, Bahrain, United Arab Emirates and other locations to all parts of the world.

The Gulf of Oman

➢ The Gulf of Oman, northwest arm of the Arabian Sea, **lies between** the eastern portion of the **Arabian Peninsula (Oman)** and **Iran**.
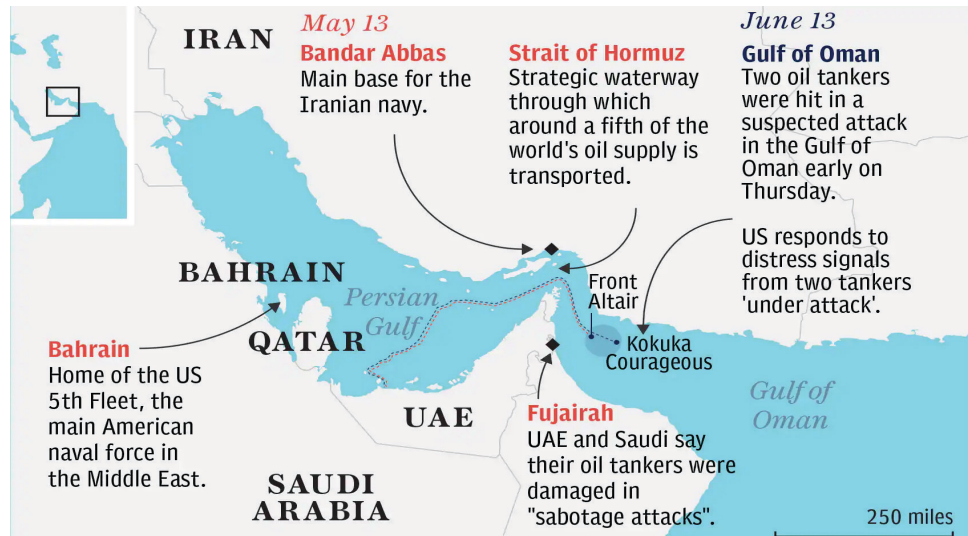
➢ It is 560 km long and **connects with the Persian Gulf** through the Strait of Hormuz.

➢ It is a shipping route for the oil-producing area around the Persian Gulf.

➢ It offers the **only entrance from the Arabian Sea and the Indian Ocean** into the Persian Gulf, thus the world's major oil exporters and importers have a joint interest in its security.

Technology and Doubling Farmers' Income

The Government has constituted an Inter-Ministerial Committee to examine issues relating to doubling of farmers' income and recommend adoption and role of technology to achieve doubling of farmers' income in real terms by the year 2022.

Major Technology Interventions Include

➢ **Kisan Suvidha Mobile Application :** The app facilitates dissemination of information to farmers on the critical parameters viz., weather; market prices; plant protection; input dealers (Seed, Pesticide, Fertilizer) farm machinery; etc.

   ❍ This helps farmers make informed decisions to sell produce at the right price and right time.

➢ **Indian Council of Agriculture Research (ICAR)** has compiled mobile apps developed by State Agricultural Universities and Krishi Vigyan Kendras. Developed in the areas of crops, horticulture, veterinary, etc., these apps offer valuable information to the farmers.

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➢ **mKisan Portal (www.mkisan.gov.in)** for sending advisories on various crop related matter to the registered farmers through SMSs.

➢ Launching of **e-National Agriculture Market** initiative to provide farmers an electronic online trading platform.

➢ Implementation of **Agricultural Marketing Infrastructure,** sub-scheme of the Integrated Scheme of Agricultural Marketing, in order to improve/create scientific storage capacity for storing farm produce, processing farm produce and to reduce post-harvest storage loss.

➢ Introduction of **Soil Health Card Scheme** to assist State Governments in providing Soil Health Cards to all farmers across the country once in a cycle of 2 years.

○ Soil Health Card provides information to the farmers on nutrient status of their soil along with recommendations on appropriate dosage of nutrients to be applied for improving crop productivity and soil fertility.

➢ Providing subsidies under **National Food Security Mission** (Oil Seeds and Oil Palm) to farmers on seed components, transfer of technologies, production inputs and water carrying devices.

○ Financial assistance is also being provided under this scheme for block demonstration, frontline demonstration, farmers training to educate farmers to adopt modern techniques of farming to yield good crop economically.

➢ Use of **space technology** for various programmes/ areas such as forecasting agricultural output using space, agro-meteorology and land-based Observations project, National Agricultural Drought Assessment and Monitoring System, Rice-Fallow Area Mapping and intensification, geo tagging of infrastructure and assets created under Rashtriya Krishi Vikas Yojana, and Crop Insurance.

➢ Using **machine learning process** along with different computer algorithm for crop classification and area estimation.

➢ Setting up of **Krishi Vigyan Kendras and Agricultural Technology Management Agencies** at district level for dissemination of technologies among farm community.

○ In addition, farmers are provided information through focused publicity campaigns, Kisan Call Centres, Agri-Clinics and Agri-Business Centres of entrepreneurs, Agri fairs and exhibitions, Kisan SMS Portal, etc.

Petition for Protection of Non-Nagas in Dimapur

A petition filed before the Supreme Court has sought a direction to the Centre and the Nagaland government to take appropriate steps for the protection of life and liberty, properties and other fundamental rights of non-Nagas living in Dimapur following the imposition of the Inner Line Permit (ILP).

➢ The plea has challenged certain sections of the **Bengal Eastern Frontier Regulation, 1873** which gives unbridled power to a State to prescribe ILP.

○ **The act empowers a State government to prescribe 'Inner Line'** to prohibit citizens of India or any class of such citizens going beyond the prescribed line without a pass.

○ The colonial-era regulation was passed by the then British government to prohibit Indian citizens to move in selected districts to create monopoly in business.

○ However, it continues to be used in India, officially to protect tribal culture in north-eastern India.

Inner Line Permit

➢ ILP is an official travel document issued by the Government of India **to grant inward travel of an Indian citizen into a protected area** for a limited period. Visitors are not allowed to purchase property in these regions.

➢ Restrictions are imposed on the entry of outsiders **to maintain the original identity of indigenous people of Mizoram, Nagaland and Arunachal Pradesh**. The entry of outsiders are not allowed without ILP.

➢ The document is issued under the Bengal Eastern Frontier Regulation, 1873 and the conditions and restrictions vary from state to state.

Background

➢ Recently, the State Cabinet had taken a decision to extend the operation of the 1873 Regulation in Dimapur.

➢ Therefore, many non-Nagas who have landed properties with commercial shops, godowns, etc. and who are staying in as tenants, and many locals who earn their income by means of collecting rent from tenants would be adversely affected.

Note:

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➤ Many non-nagas have been regarded as outsiders by the government of Nagaland, which is racial discrimination.

Smart Policing Survey

The Quality Council of India (QCI) executed the survey by assessing 87 shortlisted police stations across the country.

➤ The assessment was based on parameters like performance in controlling crime, the infrastructure of the police building, mess, optimal use of technology, and citizen feedback.

➤ The Kalu police station in Rajasthan's Bikaner has been ranked first in the country for crime prevention, investigation and disposal of cases, crime detection, community policing and maintenance of law and order.
  ○ It also has recreational facilities for police personnel, and a helpdesk for women besides being equipped with wi-fi servers.

➤ The major criterion chosen for the rankings this time (the survey was started in 2015) was the upgradation of police stations on the Crime and Criminal Tracking Network System (CCTNS) portal.

➤ Fourteen police stations were placed in the A++ category, 12 in the A+, and the remaining 11 in A category as per the SMART policing concept norms.

SMART Police

➤ The concept was introduced by the Prime Minister during the 49th annual conference of Directors-General and Inspectors-General of Police in Guwahati on November 30, 2014.

➤ The term SMART stands for S-Sensitive and Strict; M-Modern with mobility; A- Alert and Accountable; R-Reliable and Responsive; T- Trained and Techno-savvy.

➤ Some of the features of a SMART Police Station are:
  ○ Basic amenities for visitors, waiting area, toilets, drinking water, receptionist whom the visitors can meet.
  ○ Restroom for constables, including a separate room for women constables.
  ○ Natural lighting and ventilation, solar lighting, energy saving features.
  ○ CCTNS, CCTV, safe & secure Armoury, Record Room, Communication Room for wireless, computers etc.

○ Automated kiosks for filing of complaints by the public (with a back-end system for tracking follow up action).

Rashtriya Gokul Mission

Government has sanctioned funds under the **Rashtriya Gokul Mission** for setting up of 21 **Gokul Grams** as Integrated Cattle Development Centres.

➤ As of now, 4 Gokul grams (Varanasi, Mathura, Patiala, and Phora) have been completed and work is under progress in remaining 17 Gokul grams.

Rashtriya Gokul Mission

➤ Rashtriya Gokul Mission comprises of two components namely:
  ○ National Program for Bovine Breeding.
  ○ National Mission for Bovine Productivity.

➤ Underlying objectives of the Mission:
  ○ **Development and conservation** of indigenous breeds in a focused and scientific manner.
  ○ Undertake **breed improvement** program for indigenous cattle breeds so as to improve the genetic makeup and increase the stock.
  ○ Enhance **milk production and productivity**.
  ○ Distribute **disease free** high genetic merit bulls for natural service.

Significant initiatives under Rashtriya Gokul Mission

➤ Awards for encouraging farmers/breeder societies to rear indigenous breeds of bovines:
  ○ **Gopal Ratna Awards:** For farmers maintaining the best herd of Indigenous Breed and practicing best management practices.
  ○ **Kamdhenu Awards:** For best managed Indigenous Herd by Institutions/Trusts/ NGOs/ Gaushalas or best-managed Breeders' societies.

➤ **Gokul Gram:** The Rashtriya Gokul Mission envisages the establishment of **integrated cattle development centers, 'Gokul Grams'** to develop indigenous breeds including up to 40% nondescript breeds (belonging or appearing to belong to no particular class or kind) with objectives to:
  ○ Promote **indigenous cattle rearing** and conservation in a scientific manner.

Note:

- ○ Propagate high **genetic merit bulls** of indigenous breeds.
- ○ Optimize modern **farm management practices** and promote common resource management.
- ○ Utilize **animal waste** in an economical way i.e. cow dung, cow urine
- ➢ **National Kamdhenu Breeding Centre:** (NKBC) is being established as a Centre of Excellence to develop and conserve Indigenous Breeds in a holistic and scientific manner.
- ➢ **"E-Pashu Haat" – Nakul Prajnan Bazaar:** An e-market portal connecting breeders and farmers, for quality-disease-free bovine germplasm.
- ➢ **Pashu Sanjivni:** An animal wellness program encompassing the provision of **animal health cards** (Nakul Swasthya Patra) along with UID identification and uploading data on National DataBase.
- ➢ **Advanced Reproductive Technology:** Including Assisted Reproductive Technique- In-vitro Fertilization (IVF)/ Multiple Ovulation Embryo Transfer (MOET) and sex-sorted semen technique to improve the availability of disease-free female bovines.
- ➢ **National Bovine Genomic Center** for Indigenous Breeds (NBGC-IB) will be established for selection of breeding bulls of high genetic merit at a young age using highly precise gene-based technology.

Implementing Agency

- ➢ Rashtriya Gokul Mission will be **implemented through the "State Implementing Agency (SIA viz Livestock Development Boards)**.
- ➢ State Gauseva Ayogs will be given the mandate to sponsor proposals to the SIA's (LDB's) and monitor implementation of the sponsored proposal.
- ➢ All Agencies having a role in indigenous cattle development will be the "Participating Agencies" like ICAR, Universities, Colleges, NGO's, Cooperative Societies and Gaushalas.

Why conservation of Indigenous breeds is the need of the hour

- ➢ Indigenous bovines are **robust** and **resilient** and are particularly suited to the climate and environment of their respective breeding tracts and productivity

of indigenous breeds is less likely to be impacted by the adversities of **climate change**.

- ➢ The milk of indigenous animals is high in **fat and SNF content** (The substances in **milk** other than butterfat and water in the form of casein, lactose, vitamins, and minerals which contribute significantly to the nutritive value of **milk**).

First Resilient Kerala Program

The Government of India, the Government of Kerala and the **World Bank** have signed a Loan Agreement of USD 250 million for the **First Resilient Kerala Program** to enhance the State's resilience against the impacts of natural disasters and climate change.

- ➢ The Resilient Kerala Program will focus on strengthening the State's institutional and financial capacity to protect the assets and livelihoods of poor and vulnerable groups through an inclusive and participatory approach.
- ➢ The New Program is part of the Government of India's support to Kerala's **'Rebuild Kerala Development Programme'** aimed at building a green and resilient Kerala. This partnership will identify key areas of policy and institutional strengthening to maximize development impact.
- ➢ It is the first of two **Development Policy Operations** aiming to mainstream disaster and climate resilience into critical infrastructure and services.
  - ○ State partnership is a key pillar of the Bank's new **Country Partnership Framework** for India. Through such partnerships, the Bank will support selected states striving to bring about systemic improvements in the way development initiatives are planned and executed.

Objectives of the Program

- ➢ It aims to support the State with:
  - ○ Improved river basin planning and water infrastructure operations management, water supply and sanitation services
  - ○ Resilient and sustainable agriculture, enhanced agriculture risk insurance
  - ○ Improved resilience of the core road network
  - ○ Unified and more up-to-date land records in high-risk areas

○ Risk-based urban planning and strengthened expenditure planning by urban local bodies

○ Strengthened fiscal and public financial management capacity of the state.

➢ **Other initiatives:** The World Bank has been supporting the State through engagements such as the Second Kerala State Transport Project, Dam Rehabilitation and Improvement Project, National Hydrology Project, National Cyclone Risk Mitigation Project Phase 2 and the Kerala Local Government and Service Delivery Project.

Development Policy Financing (DPF)

➢ It is an initiative of the World Bank that aims to help borrowers to achieve **sustainable poverty reduction** through a program of policy and institutional actions, for example, **strengthening public financial management, improving the investment climate,** addressing bottlenecks to **improve service delivery, and diversifying the economy**.

➢ This represents a shift away from short-term macroeconomic stabilization and trade liberalization reforms of the 1980s-90s towards more medium-term institutional reforms.

■■■

Note:

Economic Scenario

Highlights

- Pension Scheme for Traders
- Inflation in India
- Cross Border Insolvency Resolution
- Global Economic Prospects: World Bank
- RBI Monetary Policy
- Indian Accounting Standards
- BOT Model
- RBI's Debt Resolution Norms
- Deadlock in RCEP Trade Negotiations
- UNCTAD World Investment Report 2019
- Compoundable Offences under Direct Tax Laws
- GST Council and National Anti-Profiteering Authority
- Payment and Settlement Systems in India: Vision 2019–2021
- RBI Panel's Recommendations on MSME
- Seven Million Jobs Created in Formal Sector
- Basel III Requirements
- International Equivalence for Personnel Certification
- India's Food Processing Industry
- Side Pocketing in Mutual Funds
- State Divide in Unemployment
- Beekeeping Development Committee
- Financial Stability Report : RBI
- India and USA at WTO
- International MSME Day
- Just Job Index

Pension Scheme for Traders

The Union Cabinet has approved a **new scheme which assures minimum monthly pension of ₹3000 per month to small shopkeepers, retail traders and the self-employed people after attaining the age of 60 years**. This is being done as part of the government's efforts to offer **universal social security**.

➢ All small shopkeepers and self-employed persons as well as the retail traders with **GST turnover below ₹1.5 crore and aged between 18-40 years, can enrol for this scheme**. The scheme is expected to benefit more than 3 crore small shopkeepers and traders.

➢ The scheme is **based on self-declaration** as no documents are required except Aadhaar and bank account. Interested persons can **enrol themselves through more than 3,25,000 Common Service Centres** spread across the country.

➢ **The Government of India will make a matching contribution in the subscribers' account.** For example, if a person with age of 29 years contributes ₹100/-month, then the Central Government also contributes an equal amount as subsidy into subscriber's pension account every month.

Nilekani Recommendations on Digital Payments

RBI appointed committee on digital payments, headed by **Nandan Nilekani**, has made recommendations for strengthening **digital payments ecosystem** in **India**.

Recommendations:

➢ **Removal of Transaction Charges:** On digital payments made to government, there should be no convenience fee on consumers for digital payments made to state-run entities and central departments.

➢ **Merchant Discount Rates (MDR) Pricing Structure:** 15 basis points (100 bps = 1% point) cut on the interchange rate on card payments which is borne by the merchants.

➢ **Removal of existing 18% import duty** on POS (point of sale) machines for a period of three years.

➢ **Reduce the goods and services tax (GST)** on digital transactions so that the acceptance of digital payments can be improved among the customers.

➢ Put in place a mechanism to **monitor the digital payment systems**:
  ○ **Digital Financial Inclusion Index** so that progress in an area can be measured along a common scale, indicating the evolution of the users and steps taken for correcting the imbalance.

Note:

○ Aggregated **information** based on **blocks** and **PIN codes**, must be available to all players on a monthly basis.

➢ **Reduce the overall cost to the consumers** such as KYC (Know your customer) process at multiple stages of the transaction and service charges for digital payments.

➢ **Protection from Fraud and Risk:** Payment systems must rely on machine-driven, online dispute resolution systems to handle complaints.

➢ Setting up an **Acceptance Development Fund** which will be used for developing new merchants in poorly served areas.

➢ **Reduce the Gap between "Digital Credits" and "Digital Debits":** There is a need for improvement on demand or acceptance side of the ecosystem as high-cost structures, including interchange fees, as well as limited financial service offerings, impede merchants from accepting digital payments.

➢ The target for additional growth of **volume of digital payments by 10 times in three years** and the growth will be driven by a shift from **high-value, low-volume, high-cost transactions to low-value, high-volume, low-cost transactions**.

Inflation in India

Recently, **Consumer Price Index: Industrial Labour (CPI:IW)** was released by the Ministry of Labour & Employment.

Measurement of Inflation in India

➢ **Wholesale Price Index WPI**
  ○ It is the most widely used inflation indicator in India.
  ○ It is published by the **Office of Economic Adviser, Ministry of Commerce and Industry**.
  ○ All transactions at the **first point of bulk sale** in the domestic market are included.
  ○ Major criticism for this index is that the general public does not buy products at wholesale prices.
  ○ The base year of All-India WPI had been revised from 2004-05 to 2011-12 in 2017.

➢ **Consumer Price Index CPI**
  ○ It measures price changes from the **perspective of a retail buyer**.
  ○ It measures changes over time in the level of retail prices of selected goods and services on which consumers of a defined group spend their incomes.

○ Four types of CPI are as follows:
  ● **CPI for Industrial Workers (IW).**
  ● **CPI for Agricultural Labourer (AL).**
  ● **CPI for Rural Labourer (RL).**
  ● **CPI (Rural/Urban/Combined).**
  ● Of these, the first three are compiled by the **Labour Bureau in the Ministry of Labour and Employment**. fourth is compiled by the **Central Statistical Organisation (CSO)** in the Ministry of Statistics and Programme Implementation.
○ Base Year for CPI is 2012.

CPI vs. WPI

➢ **WPI** tracks inflation at the **producer level** while **CPI** captures changes in prices levels at the **consumer level**.

➢ Both baskets measure inflationary trends (the movement of price signals) within the broader economy, the two indices differ in which weightages are assigned to food, fuel and manufactured items.

➢ **WPI** does not capture changes in the **prices of services** which **CPI does**.

➢ In April 2014, the RBI had adopted the CPI as its key measure of inflation.

Cross Border Insolvency Resolution

A panel led by **Ministry of Corporate Affairs** had suggested adopting the **United Nations Commission on International Trade Laws on cross-border insolvency**.

➢ **UNCITRAL** Model Law on Cross-Border Insolvency, 1997 (Model Law) provides legal framework to deal with cross-border insolvency issues while ensuring the least intrusion into the country's domestic insolvency law.

➢ The Insolvency and Bankruptcy Code, at present, does not effectively deal with cases involving cross-border insolvency.

Significance

➢ The changes will enable initiation of resolution process in case of personal guarantors to corporate debtors, proprietorship and partnerships.

➢ **Provisions for cross border insolvency** would enable Indian firms to claim their dues from foreign companies while allowing foreign creditors to recover loans from Indian companies.

Note:

❍ It will also help foreign branches of Indian banks to recover their dues in India.

➢ Cross border insolvency provision will bring overseas assets of a domestic corporate debtor into consideration of insolvency resolution in India and will avoid **delays in resolution of stressed assets**.

UNCITRAL Model Law- The model law deals with four major principles of cross-border insolvency:

➢ **Direct access to foreign insolvency professionals and foreign creditors** to participate in or commence domestic insolvency proceedings against a defaulting debtor.

➢ Recognition of **foreign proceedings** & provision of remedies.

➢ **Cooperation between domestic and foreign courts** & domestic and foreign insolvency practitioners.

➢ **Coordination between two or more concurrent insolvency proceedings in different countries.** The main proceeding is determined by the concept of **Centre of Main Interest (COMI)**.

UNCITRAL

➢ The United Nations Commission on International Trade Law is the core **legal body of the United Nations system** in the field of international trade law.

➢ UNCITRAL was established in 1966 with a recognition that international trade cooperation among states is an important factor in the promotion of friendly relations and, consequently, in the maintenance of peace and security.

➢ UNCITRAL has provided a valuable platform for countries to compare, examine, debate and adopt principles of international commercial and trade law appropriate to their circumstances.

➢ India is a **founding member** of UNCITRAL.

Global Economic Prospects: World Bank

World Bank (WB) has released the **bi-annual** report **"Global Economic Prospects: Heightened Tensions, Subdued Investment"**.

Global Forecast

➢ World Bank has downgraded global growth prospects **by 0.3% to 2.6% for 2019-20**.

➢ The cause for downgrade is weaker-than-expected international trade and investment at the start of 2019.

➢ However, WB has estimated that economies will begin improving here after and growth might touch 2.8% in 2021.

➢ Risks to global growth include rising trade barriers, a build-up of government debt and slowdowns in several major economies.

Findings for India

➢ The World Bank has retained its forecast for growth in India at **7.5% in 2019-20** fiscal and the succeeding years.

➢ Report has warned that re-escalation of India-Pakistan tensions such as the one in february could increase uncertainty and impact investments in the region.

➢ Private consumption and investment will benefit from strengthening credit growth amid more accommodative monetary policy, with inflation having fallen below the Reserve Bank of India's target.

➢ It further stated that the Goods and Services Tax (GST) regime is still in the process of being fully established, creating some uncertainty about projections of government revenues.

RBI Monetary Policy

In its second **bi-monthly monetary policy statement for 2019-20**, the Reserve Bank of India **Monetary Policy Committee (MPC)** has unanimously decided to **cut** the **policy repo rate** by **25 basis points** and change the **monetary policy** stance from **'neutral' to 'accommodative'**.

Highlights

➢ Following the MPC decision, the **repo rate** now stands at **5.75%** against the earlier **6%**.

➢ The reverse repo rate under the **Liquidity Adjustment Facility (LAF)** has been adjusted to **5.50%**, and the **Marginal Standing Facility (MSF) rate** and **the bank rate** to **6.0%**.

➢ The GDP growth for 2019-20 has been **revised downwards** from **7.2%** in the April policy to **7%**.

Reasons for Rate Cut

➢ To **spur economic activity,** which decelerated sharply in the January-March quarter.

Note:

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○ Weakening of growth, as reflected in a **widening** of the **output gap (the difference between the actual output of an economy and its potential output)** compared to the April 2019 policy.

➢ The Rate cut will ensure that **adequate liquidity is available in the system** for all productive purposes. This will be **more comforting for the market** than just a rate cut, especially in light of the slowdown.

➢ The **headline inflation trajectory** remains **below** the **target** mandated to the MPC even after taking into account the expected transmission of the past two policy rate cuts.

○ Hence, **there is scope for the MPC to accommodate growth concerns** by supporting efforts to boost aggregate demand, and in particular, reinvigorate private investment activity, while remaining consistent with its flexible inflation targeting mandate.

➢ This **transmission (of repo rate cut into lending rates)** will naturally find its impact on consumer loans, consumer durables loans, two-wheeler loans, etc.

➢ Additionally, the RBI said that it has decided to **do away with charges levied on Real-Time Gross Settlement (RTGS)** and **National Electronic Funds Transfer (NEFT) transactions,** banks will be required to pass this benefit to their customers.

○ The RBI has also decided to set up a committee involving all stakeholders, under the chairmanship of CEO Indian Banks' Association (IBA), to examine the entire gamut of ATM charges and fees.

Repo Rate
➢ The interest rate at which the Reserve Bank lends money to banks against the collateral of government and other approved securities under Liquidity Adjustment Facility (LAF).
➢ It is also the benchmark policy rate.

Reverse Repo Rate
➢ The interest rate at which the Reserve Bank borrows money from banks against the collateral of eligible government securities under LAF.

Liquidity Adjustment Facility (LAF)
➢ LAF is a tool by which Reserve Bank adjust money supply in the economy.
➢ It is a monetary policy tool which allows the bank to borrow money through repurchase agreements (repo and reverse repos).

Marginal Standing Facility (MSF)
➢ It is a special window for banks to borrow from RBI against approved government securities in an emergency situation like an acute cash shortage.
➢ MSF rate is higher than the repo rate.

Bank Rate
➢ This is the long-term rate (Repo rate is for short term) at which central bank (RBI) lends money to other banks or financial institutions. Bank rate is not used by RBI for monetary management.
➢ This rate has been aligned to the MSF rate and, therefore, changes automatically when the MSF rate changes.

Indian Accounting Standards

The Reserve Bank of India (RBI) is going to align the definition of **'financial difficulty'** with the guidelines issued by the **Basel Committee on Banking Supervision**. The RBI had put out a non-exhaustive indicative list of signs of financial difficulty.

➢ The RBI had indefinitely deferred the Indian Accounting Standard (Ind-AS) norms which were to come into effect from April 1, 2019, as it would have called for higher capital for bad loan provisioning by banks.

➢ It was the second such deferred move, banks were to implement Ind-AS from April 2018, it also needed legislative amendments to make the format of financial statements compatible with Ind-AS.

Indian Accounting Standards (Ind-AS)

➢ These are a set of accounting standards that govern the accounting and recording of financial transactions as well as the presentation of statements such as profit and loss account and balance sheet of a company.

➢ The standards were formulated by the **Accounting Standards Board (ASB),** which was constituted as a body in 1977. ASB is a committee under Institute of Chartered Account of India (ICAI) which consists of representatives from government departments, academicians, other professional bodies viz. ICAI, representatives from ASSOCHAM, CII, FICCI, etc.

➢ The Ind-AS are named and numbered in the same way as the **International Financial Reporting Standards (IFRS)**.

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International Financial Reporting Standards (IFRS)

➤ It is an accounting standard that has been issued by the **International Accounting Standards Board (IASB)** with the objective of providing a common accounting language to increase transparency in the presentation of financial information.

➤ IASB is a London-based **independent body,** formed in 2001 for establishing the IFRS and succeeded the International Accounting Standards Committee (IASC) .

Basel Committee

➤ In December 2010, the Basel Committee on banking supervision published Basel III norms. A global regulatory framework for more resilient banks and banking systems which presents the details of global regulatory standards on bank capital adequacy and liquidity, including a countercyclical capital buffer.

BOT Model

The Union government will soon re-adopt the Build-Operate-Transfer (BOT) model over the Hybrid Annuity Model (HAM) for executing highway projects.

➤ HAM was brought in by the government in 2015 to encourage private participation and it served the purpose for a few years till banks red-flagged lending for these projects.

➤ HAM is a mix of **Engineering, Procurement, and Construction (EPC) and BOT formats**.

➤ **Need to Re-Adopt:** BOT will see **private investment** coming in upfront, which is expected to benefit the centre as the exchequer will not have to pump in money in such projects.

Models of Public-Private Partnership (PPP)

Commonly adopted model of PPPs include:

➤ **BOT:** It is conventional PPP model in which private partner is responsible to design, build, operate (during the contracted period) and transfer back the facility to the public sector.

  ○ Private sector partner has to bring the finance for the project and take the responsibility to construct and maintain it.

  ○ The public sector will allow private sector partner to collect revenue from the users.

○ The national highway projects contracted out by National Highway Authority of India (NHAI) under PPP mode is a major example for the BOT model.

➤ **Build-Own-Operate (BOO):** In this model ownership of the newly built facility will rest with the private party.

  ○ On mutually agreed terms and conditions, public sector partner agrees to 'purchase' the goods and services produced by the project.

➤ **Build-Own-Operate-Transfer (BOOT):** In this variant of BOT, after the negotiated period of time, the project is transferred to the government or to the private operator. BOOT model is used for the development of highways and ports.

➤ **Build-Operate-Lease-Transfer (BOLT):** In this approach, the government gives a concession to a private entity to build a facility (and possibly design it as well), own the facility, lease the facility to the public sector and then at the end of the lease period transfer the ownership of the facility to the government.

➤ **Design-Build-Operate-Transfer (DBOT):** In this model, the entire responsibility for the design, construction, finance, and operation of the project for the period of concession lies with the private party.

➤ **Lease-Develop-Operate (LDO):** In this type of investment model either the government or the public sector entity retains ownership of the newly created infrastructure facility and receives payments in terms of a lease agreement with the private promoter. It is mostly followed in the development of airport facilities.

➤ **Hybrid Annuity Model (HAM):** The central government bears 40% of the project cost and the remaining amount is arranged by the developer.

RBI's Debt Resolution Norms

The RBI has issued a new set of norms for dealing with stressed or **Non Performing Assets** (NPA's) assets in the banking sector.

➤ Resolution plans like **corporate debt restructuring scheme, Strategic Debt Restructuring (SDR)** scheme, change in ownership outside SDR, **Sustainable Structuring of Stressed Assets (S4A),** joint lenders forum and flexible structuring of existing long-term project loans are withdrawn.

➤ Apart from banks, new norms are also applicable for **Non-Banking Financial Companies (NBFC), Small Finance Banks** and other **Financial Institutions**.

Revised Norms

➢ Lenders will get a **30 day review period** to frame a resolution strategy, unlike previous norms that compelled lenders to start a resolution strategy even if there was a one day default.

➢ Lenders shall recognise incipient stress in loan accounts, immediately on default, by classifying such assets as Special Mention Accounts (SMA).

○ **SMA-0** categories will be treated as default case fit for insolvency resolution if they fail to pay the principal or interest due on them within **0-30 days**.

○ **SMA-1** defaulters will be taken for **Insolvency and Bankruptcy Code** (IBC) if they don't pay between **31-60 days**.

○ **SMA-3** firms will be treated for National Company Law Tribunal (NCLT) in case of no payment of dues within 61-90 days.

➢ Resolution plan involving restructuring/change in ownership of accounts where the aggregate exposure of lenders is **₹100 crore and above,** will require **Independent Credit Evaluation** (ICE) of the residual debt by **Credit Rating Agencies** (CRAs) specifically authorised by the Reserve Bank for this purpose.

○ Accounts with aggregate exposure of **₹500 crore and above** shall require two such ICEs, others shall require one ICE.

➢ Lenders will have to submit a **weekly report to the RBI** on defaults by borrowers with exposure of **₹5 crore and above**.

➢ **System of disincentives** in the form of **additional provisioning** for **delay** in implementation of resolution plan or initiation of insolvency proceedings.

➢ Any action by lenders with an intent to **hide the actual status of accounts or evergreen the stressed accounts** will be subjected to stringent supervisory or enforcement actions, including **higher provisioning** on such accounts and **monetary penalties**.

➢ In order to implement resolution plan, lenders will have to sign **Inter Creditor Agreement** (ICA), within the review period, (ICA will provide ground rules for finalisation and implementation of the resolution plan).

Deadlock in RCEP Trade Negotiations

Officials from India and China met in New Delhi to try and reach common ground on market-opening commitments under Regional Comprehensive Economic Partnership (RCEP) negotiations.

Regional Comprehensive Economic Partnership (RCEP)

➢ RCEP is a **proposed regional economic integration agreement among the 10 ASEAN countries and** its six free-trade agreement partners — **Australia, New Zealand, Japan, China, South Korea** and **India**.

➢ **Once implemented, it would result in one of the largest free trade bloc** accounting for 45% of the world's population, and a combined GDP of about $21.3 trillion and 40% of the world trade.

India's Concerns vis-a-vis China

➢ India is not comfortable with opening markets in goods being pushed especially by China. **India wants to offer much lower market access in goods to China compared to other members** such as the ASEAN, Japan and South Korea. However, **China is not willing to accept it**.

➢ **India wants clearly defined rules of origin** to ensure integrity and sanctity of tariff differentiation. This is **to prevent Chinese goods from flooding the country** through member countries that may have lower or no duty levels.

○ Chinese garments are already making their way into India through the duty-free route under the South Asia Free Trade Pact and the Duty-Free Quota-Free window from Bangladesh.

➢ **At least 13 countries** including Australia, Japan and New Zealand **oppose India's proposal for strict criteria to determine the source country of a product,** based on which they get tariff concessions in the 16-nation Regional Comprehensive Economic Partnership (RCEP) trade pact.

➢ India had a trade deficit with 11 RCEP members including China, South Korea and Australia in 2018-19.

➢ India has so far offered to eliminate tariffs for 70-80% of goods for China over an extended period of time and it is unwilling to give more concessions.

Note:

- ❍ **China runs a trade surplus of over $60 billion with India** and the domestic industry is reeling under heavy competition from Chinese goods.
- ➢ **India's aluminium and copper industries are worried about China's presence** in the grouping and anticipate widening of the trade deficit due to an **alarming spike in imports and a potential threat to the Make in India initiative**.
- ➢ China is also hinting at going in for a Free Trade Agreement (FTA) between the ASEAN, China, Japan and South Korea (ASEAN+3) if the RCEP talks take too long.

The South Asia Free Trade Agreement
- ➢ The South Asia Free Trade Agreement (SAFTA) is an **agreement** among the seven South Asia countries that form the South Asian Association for Regional Cooperation **(SAARC): Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka**.
- ➢ It came into effect on 1st January 2006, with the **aim of reducing tariffs for intra regional trade among the seven SAARC members**.

UNCTAD World Investment Report 2019

According to the United Nations Conference on Trade and Development (UNCTAD) World Investment Report 2019, India received foreign direct investments worth USD 42 billion in 2018. India attracted over 77% of the total foreign direct investments that came to the South Asian region.
- ➢ The **global FDI slipped by 13% in 2018**, to US$1.3 trillion from $1.5 trillion in 2017, the **third consecutive annual decline**.
- ➢ In South Asia, overall, **FDI inflows increased by 3.5% to $54 billion**. The prospects for FDI inflows into South Asia are largely determined by expectations of growing investment into India.

UNCTAD
- ➢ UNCTAD is a **permanent intergovernmental body** established by the United Nations General Assembly in **1964**. Its headquarter is located in **Geneva, Switzerland**.
- ➢ It is **part of the UN Secretariat**.

- ➢ It supports developing countries to access the benefits of a globalized economy more fairly and effectively.
- ➢ **Investment in India rose by 6% to USD 42 billion** with strong inflows in manufacturing, communication, financial services and cross-border merger and acquisition activities. However, **India's rank as a source country for FDI fell one notch to the 10th position as it was overtaken by Spain**.

Compoundable Offences under Direct Tax Laws

The **Central Board of Direct Taxes** (CBDT) has issued the guidelines for compoundable offences under Direct Tax Laws, 2019.
- ➢ **Compoundable offences** are those which can be conciliated by the parties under dispute, without the requirement of the permission of the court.

Guidelines

Guidelines have classified offences into three categories.
- ➢ **The first category** of offences open to compounding include:
  - ❍ Defaults under **tax deducted or collected at source**.
  - ❍ Failure to **file return**.
- ➢ **The second category** of offences, for which **compounding will not be allowed,** deal with:
  - ❍ Wilful evasion of tax.
  - ❍ Removal or concealment or transfer or delivery of property to thwart tax recovery during a search operation.
- ➢ **The third category** of offences that **"shall normally not be compounded"** includes:
  - ❍ Offences committed by a person for which he was convicted by a court of law under **direct tax laws**.
  - ❍ Enabling others to evade taxes.
  - ❍ **Money laundering** (launder money by generating bogus invoices).
  - ❍ Offences related to undisclosed foreign bank accounts or assets under the **Black Money** (Undisclosed Foreign Income and Assets).
  - ❍ Imposition of Tax Act, 2015 or under the **Benami Transactions** (Prohibition) Act, 1988.

Note:

GST Council and National Anti-Profiteering Authority

The **GST Council** in its recent meeting has discussed the proposal of extending the tenure of the **National Anti-profiteering Authority** to one more year (till 30 November 2020).

➢ NAPA came into existence (just after the rollout of GST) for two years to deal with complaints by consumers against companies for not **passing on GST rate cut benefits**.

➢ Extension for NAA, (before its two-year sunset clause) is being seen necessary as there are many **pending cases** that need to be resolved before its dissolution.

National Anti-profiteering Authority

➢ The National Anti-Profiteering Authority (NAA) was constituted under **Section 171 of the Central Goods and Services Tax Act, 2017**.

Background

➢ The formation of NAA comes in the background of **rate-reduction** of a large number of items by GST Council which has made tremendous price reduction effect but the consumers will be benefited only if the traders are making the quick reduction of prices of respective items.

Functions of National Anti-profiteering Authority

➢ **The anti-profiteering clause** under the Goods And Services Tax (GST) Act mentions that any reduction in the rate of tax on any goods or services or the benefit of input tax credit must be passed on to the consumer by way of commensurate reduction in the prices of the respective goods or services.

➢ The Authority's main function is to ensure that traders are not realizing an **unfair profit** by charging high price from consumers in the name of GST and to examine and check such profiteering activities and recommend **punitive actions** including the **cancellation of registration**.

Governance

➢ NAA, comprises of Chairman, four technical members, a **Standing Committee, Screening Committees** in every state and the **Directorate General of Safeguards** in the Central Board of Excise & Customs (CBEC).

➢ The orders of the NAA can be appealed against only in the high court.

Payment and Settlement Systems in India: Vision 2019–2021

The Reserve Bank of India (RBI) has released its statement on **'Payment and Settlement Systems in India: Vision 2019–2021'**, which outlines the measures needed to be undertaken to foster innovation, cybersecurity, financial inclusion, customer protection, and competition.

➢ The Payment Systems Vision 2021 envisages achieving a **'highly digital'** and **'cash-lite'** society through the goalposts of competition, cost-effectiveness, convenience, and confidence.

➢ **The need for a self-regulatory organisation** for the digital payment space, which can serve as a **two-way communication channel** between the players and the regulator. The organisation will also work towards establishing minimum benchmarks, standards, and help discipline rogue behaviour.

➢ **Potential Gains:** The number of digital transactions is expected to increase more than four times, from 20.69 billion in December 2018 to 87.07 billion in December 2021.

   ○ The digital payment transaction turnover vis-à-vis Gross Domestic Product (GDP) (at current market prices) is expected to further increase to 10.37 per cent in 2019, 12.29 per cent in 2020, and 14.80 per cent in 2021.

   ○ The RBI expects accelerated growth in individual retail electronic payment systems, both in terms of the number of transactions and increased availability.

   ○ Payment systems like **Unified Payments Interface (UPI)** (Immediate Payment Service) are likely to register average annualised growth of over 100 per cent and **National Electronic Funds Transfer (NEFT)** at 40 per cent over the vision period.

➢ Measures to be taken:

   ○ The RBI will take measures to increase the **penetration of acceptance infrastructure** in the country.

Note:

○ The infrastructure will be upscaled to at least six times the present levels in the next three years' time.

○ In order to have a coordinated approach towards regulation, the RBI shall **engage with the other sectoral regulators** like Securities and Exchange Board of India, Insurance Regulatory and Development Authority, Telecom Regulatory Authority of India, etc to remove friction in regulation and ease system operator and customer comfort.

○ It will also consider the implementation of e-mandates/standing instructions for retail payment systems, subject to customer protection and adequate safeguards like authenticating payment instrument registration, mandating transaction limits, segments, etc.

Cash-lite economy

➢ It is an economy whereby there is a reduction in the high usage/volume of cash in circulation, thereby encouraging the use of electronic payment channels and reducing the cost of cash production and transportation.

○ A Cash-lite society is a society where most of the purchases of goods or services are made by credit card or electronic funds transfer rather than with cash or cheques, it is an environment where the money is spent without being physically carried from one person to the other.

Unified Payments Interface (UPI)

➢ It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

➢ It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience.

National Electronic Funds Transfer (NEFT)

➢ It is an electronic funds transfer system maintained by the **Reserve Bank of India (RBI)**. It was started in November 2005, the setup was established and maintained by the Institute for Development and Research in Banking Technology.

➢ NEFT enables bank customers in India to transfer funds between any two NEFT-enabled bank accounts on a one-to-one basis. It is done via electronic messages.

○ Unlike real-time gross settlement, fund transfers through the NEFT system do not occur on a real-time basis. NEFT settles fund transfers in half-hourly batches with 23 settlements occurring between 8:00 AM and 7:00 PM on weekdays and the 1st, 3rd and 5th saturday of the calendar month.

○ Transfers initiated outside this time period are settled at the next available window. No settlements are made on the second and fourth saturday of the month, or on sundays, or on public holidays.

RBI Panel's Recommendations on MSME

A Reserve Bank of India (RBI) expert committee on micro, small and medium enterprises (MSMEs) has recommended doubling **the cap on collateral-free loans to Rs 20 lakh** from the current Rs 10 lakh.

➢ This will be extended to borrowers falling under the Mudra scheme, self-help groups, and MSMEs.

➢ The current limit of Rs 10 lakh on collateral-free loans was prescribed by RBI in June 2010.

○ **A collateral free loan** means that borrowers do not have to offer any asset or pledge collateral to borrow against.

➢ The committee has also suggested various long-term solutions for the economic and financial sustainability of MSMEs.

➢ The report has also **recommended the mainstreaming the restructuring of stressed loans,** considering the central bank had given a one-year window to banks to do so in January 2019.

➢ The proposal is part of a report prepared **by the eight-member RBI committee** tasked with reviewing the current framework for the MSME sector.

○ The panel was **headed** by former SEBI chairman **U K Sinha**.

The MSME definition

➢ The Micro Small & Medium Enterprises (MSMEs) are defined under the Micro, Small & Medium Enterprises Development **(MSMED) Act, 2006** on the basis of capital investment made in plant and machinery, excluding investments in land and building.

➢ Manufacturing units having investment:

○ below Rs 25 lakh are termed as Micro,

Note:

○ those between Rs 25 lakh and Rs 5 crore as Small

○ and from Rs 5 crore to Rs 10 crore as Medium.

➤ Service units, corresponding investment thresholds are:

○ up to Rs 10 lakh are termed as Micro,

○ between Rs 10 lakh to Rs 2 crore as Small,

○ between Rs 2 crore to Rs 5 crore as Medium

➤ **However, the government is contemplating to change the definition of MSMEs.**

○ The proposed change under a new draft is that **annual turnover, rather than investment size,** should be the criterion for such units.

○ Under the draft, there would be **no difference between a manufacturing and service unit**.

○ Micro can be up to Rs 5 crore of turnover, small up to Rs 75 crore, and medium up to Rs 250 crore of turnover should be considered.

Pradhan Mantri MUDRA Yojana

➤ The Pradhan Mantri MUDRA Yojana (PMMY) is a scheme launched in 2015 for providing loans up to 10 lakh to the non-corporate, non-farm small/ micro enterprises.

➤ These loans are classified as MUDRA loans under PMMY.

➤ These loans are given by Commercial Banks, RRBs, Small Finance Banks, Cooperative Banks, MFIs and NBFCs.

➤ Under the aegis of PMMY, MUDRA has created three products namely 'Shishu', 'Kishore' and 'Tarun' to signify the stage funding needs of the beneficiary/ entrepreneur and also provide a reference point for the next phase of graduation/growth.

○ **Shishu:** covering loans up to Rs. 50,000

○ **Kishore:** covering loans above Rs. 50,000 and up to Rs. 5,00,000

○ **Tarun:** covering loans above Rs. 5,00,000 and up to Rs. 10,00,000

➤ As of Feb 1, 2019, over 157 million loans amounting to Rs 7.59 trillion have been extended under PMMY since its inception.

Seven Million Jobs Created in Formal Sector

The Indian Staffing Federation (ISF) has reported the formalisation of over seven million jobs between

2015-2018 **due to reforms and initiatives taken by Indian government**.

➤ **The report titled, 'Impact of key reforms on job formalisation and flexi-staffing'** mentioned that 1.2 million workers have been added to the flexi-workforce since 2015 and a further 1.53 million are to be added over the next three years.

➤ The government's current agenda of job creation can be achieved by boosting the aggregate effective demand in the economy through formalisation, industrialisation, urbanisation, financialisation and skilling.

➤ India will have a 6.1 million flexi-workforce by 2021.

○ Sectors such as logistics, banking, financial services and insurance **(BFSI), IT/ ITeS, retail and government** would be the **top five sectors, employing over 55 per cent of the total flexi-workforce by 2021**.

➤ **The flexi staff space grew** at a Compound Annual Growth Rate (CAGR) of **16.3 per cent in 2018** and is expected to further accelerate to **22.7 percent from 2018-2021**.

➤ The report establishes **flexi-staffing as a key job creation engine**.

Flexi-staffing

➤ **Flexible Staffing** is an arrangement in an organization where the employees can be from **temporary agencies, leased employees or contract workers**.

➤ It is more commonly known as temporary staffing and predominantly focuses on the white collar industry.

Indian Staffing Federation (ISF)

➤ The ISF is the apex body representing the Staffing industry/Private Employment Services that is **authorised to discuss with government agencies and other trade bodies on behalf of the staffing industry/private employment services**.

○ **The Staffing/private employment services** is an enabler **to provide social security** and long term **medical**, and **retirement benefits to temp/ flexi-staff**.

➤ The purpose of ISF is to enhance long-term growth and ensure its continued ability to make positive contributions to the economy as well as the society **through the services of the staffing industry**.

➤ **Staffing industry covers a meager 2% penetration of the possible employable size in India.**

Note:

➢ The acceleration in momentum towards formal employment witnessed in the past three years clearly means the reforms such as the payment of wages act and EPF are having a positive impact.

Basel III Requirements

According to a report by the Basel Committee on Bank Supervision (BCBS), **the Reserve Bank of India has fallen short** of meeting tougher **requirements set by the Basel III norms**.

➢ The report looked at adoption status of Basel III standards by 30 global systemically important banks (G-SIBs) as of end-May 2019.

➢ The RBI is **yet to publish the securitisation framework and rules on Total Loss-Absorbing Capacity (TLAC)** requirements.

   ○ Securitisation framework includes credit enhancement facility, liquidity facility, underwriting facility, interest rate or currency swaps and cash collateral accounts.

   ○ TLAC requirements ensures that G-Sibs have adequate loss absorbing and recapitalisation capacity so that critical functions can be continued without taxpayers' funds or financial stability being put at risk.

➢ The RBI is also yet to come out with draft regulations on **revised Pillar 3 disclosure requirements**, which took effect from end-2016.

➢ Indian banks are in the process of implementing **rules on Interest Rate Risk in the Banking Book (IRRBB)**. The central bank is also yet to come out with final guidelines on the same. Globally the rules were effective from end-2018.

Basel III Norms

➢ Basel III is an **internationally agreed set of measures** developed by the BCBS in response to the financial crisis of 2007-09. The measures aim to strengthen the regulation, supervision and risk management of banks.

➢ BCBS members are committed to implementing and applying standards in their jurisdictions within the time frame established by the committee.

➢ **Basel 3 measures are based on three pillars:**

   ○ **Pillar 1:** Improve the banking sector's ability to absorb ups and downs arising from financial and economic instability

   ○ **Pillar 2:** Improve risk management ability and governance of banking sector

   ○ **Pillar 3:** Strengthen banks' transparency and disclosures

Basel Committee on Bank Supervision (BCBS)

➢ It is a **committee under the Bank For International Settlements**.

   ○ Established in **1930, the BIS** is owned by 60 central banks, representing countries from around the world that together account for about 95% of world GDP.

   ○ Its head office is in **Basel, Switzerland**.

   ○ Its mission is to **serve central banks in their pursuit of monetary and financial stability**, to foster international cooperation in those areas and to act as a bank for central banks.

➢ It is the **primary global standard** setter for the prudential regulation of banks and provides a forum for regular cooperation on banking supervisory matters.

➢ The committee identifies G-SIBs using a methodology that includes both quantitative indicators and qualitative elements.

➢ **A global systemically important bank** is a bank whose systemic risk profile is deemed to be of such importance that the bank's failure would trigger a wider financial crisis and threaten the global economy.

International Equivalence for Personnel Certification

India's **national accreditation body,** the National Accreditation Board for Certification Bodies **(NABCB)**, has **secured international equivalence for its accreditation programme for personnel certification bodies** in the annual meeting of the **Asia Pacific Accreditation Cooperation** in Singapore on 20th June, 2019.

➢ NABCB signed the Mutual Recognition Arrangement (MRA) of the Asia Pacific Accreditation Cooperation (APAC) based on the international standard, ISO/IEC 17024.

➢ **ISO/IEC 17024** specifies criteria for the operation of a Personnel Certification Bodies (also known as a certification body for persons).

   ○ **Personnel Certification Bodies** are the one which confirm the competence of an individual to perform

Note:

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a specified service (of electrician, welder etc.) or duty through an issue of a certificate.

➤ With this recognition, NABCB hopes to **facilitate export of Indian services and skills** into the world market by attesting that persons are certified following international standards by the certifying bodies.

➤ This would support many professionals in India, especially those who do not have formal education or certificate programme. **Any person carrying ISO/IEC 17024 certificate with NABCB logo will be recognized internationally.**

NABCB

NABCB, a **constituent board of** Quality Council of India, an autonomous body attached to the **Ministry of Commerce and Industry**, is responsible for **accreditation of certification/inspection bodies** as per applicable international standards under an international system of equivalence.

Asia Pacific Accreditation Cooperation

➤ The Asia Pacific Accreditation Cooperation (APAC) was established on **1st January 2019**.

➤ Its primary role is to manage and expand a Mutual Recognition Arrangement (MRA) among accreditation bodies in the Asia Pacific region.

➤ The MRA **facilitates the acceptance of conformity assessment results** (e.g. test reports, test certificates, inspection reports, and certification) across the region and with other regions around the world.

➤ APAC is **recognized by the** Asia Pacific Economic Cooperation (APEC) as one of four APEC Specialist Regional Bodies (SRBs) that support the work of the APEC Sub-Committee on Standards and Conformance.

India's Food Processing Industry

The Union Minister of State for Food Processing Industries has stated that **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)** envisages **creation of direct and indirect employment** for 5,30,500 persons by 2020.

Pradhan Mantri Kisan SAMPADA Yojana

➤ In the year 2016, the Ministry of Food Processing and Industries (MoFPI) had introduced an umbrella Scheme Called "Agro-Marine Processing and Development of Agro-Processing Clusters" or **SAMPADA**, which was proposed to be implemented with an allocation of Rs 6,000 crore for the period of 2016-20.

➤ In the year 2017, the government renamed SAMPADA scheme as **Pradhan Mantri Kisan Sampada Yojana (PMKSY)**.

➤ The **objective** of PMKSY is to supplement agriculture, modernize processing and decrease agri-waste.

➤ The PMKSY has seven component schemes:
  ○ Mega Food Parks,
  ○ Integrated cold chain and value addition Infrastructure,
  ○ Infrastructure for agro-processing clusters,
  ○ Creation of backward and forward linkages,
  ○ **Creation/Expansion of Food Processing & Preservation Capacities,**
  ○ Food Safety and Quality Assurance Infrastructure, and
  ○ Human Resources and Institutions.

➤ Under PMKSY, capital subsidy in the form of **grants-in-aid ranging from 35% to 75%** of the eligible project cost subject to a maximum specified limit is provided to investors under the various schemes for undertaking infrastructure, logistic projects and setting up of food processing units in the country.

Other steps taken in the Food Processing Sector

➤ **100% Foreign Direct Investment (FDI)** through automatic route in **manufacturing of food products** and 100% FDI under Government approval route for retail trading, including through e-commerce, in respect of food products produced and/or manufactured in India has been permitted.

➤ **A special fund of Rs. 2000 crore** has been created with the National Bank for Agriculture and Rural Development (NABARD) to provide affordable credit to food processing projects/units.

➤ Food & agro-based processing units and cold chain infrastructure has been classified as agriculture activity for **Priority Sector Lending (PSL)**.

➤ **Fiscal measures** like 100% exemption of Income Tax on profit for new food processing units, 100 % income tax exemption from profit derived by Farmers Producers Organizations (FPOs) having annual turnover of Rs.100 crore have been allowed for activities such as post-harvest value addition to agriculture.

- ➢ **Lower Goods & Service Tax (GST) rates** for the majority of food products have been fixed.
- ➢ A new Central Sector Scheme **"Operation Greens"** for integrated development of Tomato, Onion and Potato (TOP) crops value chain, with an outlay of Rs. 500 crore to promote FPOs, agri-logistics, processing facilities, has been launched.

Side Pocketing in Mutual Funds

- ➢ **The Securities and Exchange Board of India (SEBI)** introduced the side pocketing framework in December, 2018 on the back of **IL&FS fallout**, which had failed in meeting its commitments to creditors and lenders, **putting a lot of pressure on the net asset value of most debt funds that owned IL&FS group papers in their portfolio**.
- ➢ **The side pocketing is a framework** that allows Mutual Funds (MFs) to segregate the bad assets in a separate portfolio within their debt schemes.
- ➢ Under the side pocketing, to protect retail investors from the risky investments, the SEBI has allowed MFs to separate the stressed assets from good quality liquid assets.
- ➢ **If a debt instrument is downgraded to default rating by credit rating agencies,** then the MFs have the option to create a side pocket so that good assets can be ring-fenced.
- ➢ All existing investors in the scheme are **allotted equal number of units in the segregated portfolio** as held in the main portfolio and no **redemption or subscription is allowed in the segregated portfolio**.
  - ❍ Thereafter, the units **(in the segregated portfolio)** have to be listed on a stock exchange within 10 days to facilitate exit of the unit holders.
  - ❍ Effectively, this makes **the price discovery of the bad assets** with **investors having the freedom of either selling it at prevailing price or holding it** if they expect the value to recover in future.

Misuse of Side pocketing

- ➢ It could be misused by MFs to hide their bad investment decisions.
- ➢ The SEBI, however, has put in place checks and balances to minimise any such misuse.
  - ❍ The trustees of all fund houses will have to put in place a framework that would **negatively impact**

the performance incentives of fund managers, **Chief Investment Officers (CIOs),** etc. involved in the investment process of securities under the segregated portfolio.

- ➢ The SEBI has also stated that side pocket should not be looked upon as **a sign of encouraging undue credit risks** as any **misuse of the option** would be considered serious and stringent action can be taken.

State Divide in Unemployment

The Periodic Labour Force Survey (PLFS) for 2017-18 reflects huge variations among the states in terms of the **unemployment rate**. The survey reflects the overall unemployment rate in India at **6.1%**.

- ➢ Nagaland and Meghalaya occupy the top and bottom positions among all states in terms of the unemployment rate at 21.4% and 1.5% respectively.
- ➢ In terms of Rural-Urban divide, urban areas are facing a high rate of unemployment (7.8%) in comparison to rural areas (5.3%).
- ➢ The **unemployment rate among females has been observed lower than the males** with 5.7% and 6.2% respectively.
- ➢ Goa and Kerala are high in **female unemployment** with a rate of 26% and 23.3% respectively. Meghalaya is at the bottom with 1.9%.

Periodic Labour Force Survey (PLFS)

- ➢ The Periodic Labour Force Survey (PLFS) was launched by the National Sample Survey Organisation (NSSO) in 2017.
- ➢ The objective of PLFS is primarily on two aspects:
  - ❍ The first is to measure the dynamics in labour force participation and employment status in the short time interval of three months for the urban areas only in the Current Weekly Status (CWS).
  - ❍ Thus, in every quarter, PLFS will bring out the level and change estimates of the key labour force indicators in CWS viz. Worker- Population Ratio (WPR), Labour Force Participation Rate (LFPR), Unemployment Rate (UR).
  - ❍ Secondly, for both rural and urban areas, level estimates of all important parameters in both usual status and CWS will be brought out annually.

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Key Employment and Unemployment Indicators

➢ **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.

➢ **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.

➢ **Proportion Unemployed (PU):** It is defined as the percentage of persons unemployed in the population.

➢ **Unemployment Rate (UR):** It is calculated by dividing the number of unemployed by the number in the labour force, that is, the sum of employed and unemployed.

➢ **Activity Status - Usual Status:** The activity status of a person is determined on the basis of the activities pursued by the person during a specified reference period. When the activity status is determined on the basis of the reference period of the last 365 days preceding the date of survey, it is known as the usual activity status of the person.

➢ **Usual Principal Status and Subsidiary Status (PS+SS):** The Usual Principal Status and Subsidiary Status approach is an extension to the principal status approach.

  ❍ If a person has engaged in any economic activity for a period of 30 days or more during the preceding 365 days a person is considered as employed under this approach.

➢ **Activity Status – Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of last 7 days preceding the date of the survey is known as the Current Weekly Status (CWS) of the person.

Beekeeping Development Committee

Bibek Debroy led beekeeping development committee under the Economic Advisory Council to the Prime Minister has made recommendations to enhance the contribution of the beekeeping sector for achieving the target of **doubling of farmer incomes by 2022**.

➢ The committee was set up to identify ways of advancing beekeeping in India that can help in improving:

  ❍ **Agricultural productivity.**

  ❍ Enhancing **employment** generation.

  ❍ Augmenting **nutritional security**.

  ❍ Sustaining **biodiversity**.

Key Recommendations

➢ **Institutionalize** the National Bee Board and rename it as the **Honey and Pollinators Board of India** under the Ministry of Agriculture and Farmers' Welfare as it will help in advancing beekeeping through multiple mechanisms such as:

  ❍ Setting up of new **integrated bee development centers** and strengthening the existing ones.

  ❍ Creating a honey **price stabilization fund**.

  ❍ **Collection of data** on important aspects of apiculture.

➢ Simplifying procedures and specify clear standards for **ease of exporting honey** and other bee products.

➢ Beekeeping should not be restricted to honey and wax only instead marketing of bee products such as **pollen, propolis, royal jelly, and bee venom** can contribute to the income of Indian farmers.

➢ Recognize honeybees as **inputs to agriculture** and consider landless beekeepers as farmers.

➢ **Training and development** of beekeepers should be provided by state governments.

➢ **National and regional infrastructure** should be developed for storage, processing, and marketing of honey and other bee products.

➢ Plantation of **bee-friendly flora** at appropriate places and engaging women **self-help groups** in managing such plantations.

➢ Recognition of **apiculture as a subject** for advanced research under the aegis of **Indian Council for Agricultural Research**.

National Bee Board

➢ Small Farmers' Agri-Business Consortium (SFAC) is registered National Bee Board as a society under the societies registration Act, 1860 in 2000.

➢ National Bee Board (NBB) was reconstituted (with the secretary as chairman) in June 2006.

➢ The main objective of the National Bee Board (NBB) is the overall development of beekeeping by promoting scientific beekeeping in India to increase the productivity of crops through pollination and increase the honey production for increasing the income of the beekeepers/ farmers.

Note:

Honey Bee Industry in India

➢ As per the **Food and Agricultural Organization** database, Indian ranked **eighth** in 2017-18 in the world in terms of honey production while China stood first.

➢ India has a potential of about **200 million bee colonies** as against 3.4 million bee colonies today.

➢ Increasing the number of **bee colonies** will not only increase the production of bee-related products but will boost overall **agricultural** and **horticultural productivity**.

➢ As per the National Bee Board and Ministry of Agriculture & Farmers' Welfare India's **honey exports** have jumped from 29.6 to 51.5 thousand tonnes between 2014-15 and 2017-18.

➢ Presently NBB is implementing National Horticulture Mission (NHM) and Horticulture Mission for North East and Himalayan State (HMNEM).

Financial Stability Report : RBI

The **Reserve Bank of India** has released the 19th issue of the **Financial Stability Report (FSR)**.

➢ The report assessed that India's financial system remains stable in the backdrop of improving resilience of the banking sector. However, the emerging trends in the global economy and geopolitical environment pose challenges.

Major Global and Domestic Macro-Financial Risks

➢ Lower global growth forecast by international institutions like **World Bank** and **IMF**.

➢ Adverse geopolitical developments and **trade tensions**.

➢ Eased monetary policy stance undertaken by the central banks of Advanced Economies' (AEs) and the need for emerging and developing economies to adjust to it.

➢ Subdued new investment.

➢ A widening **current account deficit**.

➢ The challenge of reviving private investment demand while being vigilant about the spillover from global financial markets.

Financial Institutions: Performance and Risks

➢ Credit growth of Scheduled Commercial Banks (SCBs) picked up, with Public Sector Banks (PSBs) registering near double digit growth.

➢ Capital adequacy of the SCBs improved after the recapitalisation of PSBs. **The Non-Performing Asset (NPA) cycle** seems to have turned around.

➢ **Provision coverage ratio (PCR)** of all SCBs rose sharply to 60.6% in March 2019 from 52.4% in September 2018, increasing the resilience of the banking sector.

Provision Coverage Ratio

➢ The Provisioning Coverage Ratio (PCR) is the percentage of bad assets that the bank has to provide for from their own funds. In other words, it is the ability of banks to service its debt and meet its financial obligations such as interest payments or dividends.

➢ The higher the coverage ratio, the easier it is to make interest payments on debt or pay dividends.

➢ Recent **developments in the Non-Banking Financial Companies (NBFC)** sector have brought the sector under greater market discipline.

➢ There is need for greater surveillance over large **Housing Finance Companies (HFCs)** or NBFCs, as the failure of such companies can cause losses comparable to those caused by the big banks.

Financial Sector: Regulation and Developments

➢ In order to finetune the supervisory mechanism for the banks, the Reserve Bank has recently reviewed the structure of supervision in the context of the growing diversity, complexities and interconnectedness within the Indian financial sector.

➢ The **revised prudential framework on stressed assets** issued by the Reserve Bank further incentivize early adoption of a resolution plan.

➢ To further **enhance the quality of disclosures made by Credit Rating Agencies (CRAs)** and strengthen the rating framework, the **Securities and Exchange Board of India (SEBI)** has introduced Guidelines for Enhanced Disclosures by CRAs.

➢ To provide flexibility to pension funds to improve fund performance depending on market conditions, the **Pension Fund Regulatory and Development Authority (PFRDA)** amended the investment guidelines.

Note:

- ➤ The **Insolvency and Bankruptcy Board of India (IBBI)** is showing steady progress in the resolution of stressed assets.

India and USA at WTO

India has won a major trade dispute against the US at the **World Trade Organization (WTO)**, with a dispute settlement panel.

- ➤ India had claimed that the **domestic content requirements and subsidies** instituted by **the governments of the eight states of the US in the energy sector** violated several provisions of the Trade-Related Investment Measures (TRIMs) Agreement and Subsidies and Countervailing Measures Agreement.
- ➤ India brought this dispute to the WTO in 2016.
  - ❍ The same year, the US had won a case at WTO against India's solar power policies, claiming that policies had resulted in a 90% reduction of U.S. solar exports to India.
- ➤ The panel pronounced that subsidies and mandatory local content requirements instituted by eight American states (Washington, California, Montana, Massachusetts, Connecticut, Michigan, Delaware and Minnesota) breached global trade rules.
- ➤ The panel found that all the US state measures at issue are inconsistent with **GATT 1994 (Article III-national treatment)** because they provide an advantage for the use of domestic products, which amounts to less favourable treatment for similar imported products.
  - ❍ Under the national treatment provision, foreign producers must be treated on a par with domestic producers.
- ➤ The US can challenge the panel's ruling before the Appellate Body (AB) of WTO.
  - ❍ However, the AB has become dysfunctional because the US has been blocking appointments to it.

Implications of Ruling

- ➤ It reflects that the US and its federal states maintain WTO-inconsistent programmes in the renewable energy sector.
- ➤ There is an assertion from world trade body that the US should not undermine renewable energy programmes in other countries such as India on grounds that they violate global trade rules when Washington and its federal states adopt much bigger programmes worth billions of dollars that violate global trade rules.

International MSME Day

The Ministry of Micro Small and Medium Enterprises (MSME) has organized an international convention on **Micro, Small and Medium Enterprises** based on the theme **"Indian MSMEs, Global Aspirations"** to observe the International MSME day on 27th June.

- ➤ The objective of the convention is to boost the **international competitiveness** of Indian MSMEs by making them aware of **global trends and practices** and standards in export financing.
- ➤ The convention acted as a platform for finding **business and trade partners** and enabling **intensive business discussion** (to increase support and outreach of SMEs) with a specific focus on the interaction between international entrepreneurs and selected small and medium entrepreneurs from India.

International MSME Day

- ➤ Since 2017, **United Nation General Assembly**, observes 27th June as the International Micro, Small and Medium-sized Enterprises Day to raise public awareness of their contribution to **sustainable development goals**.
- ➤ International Trade Center, launched its report: **"The SME Competitiveness Outlook 2019: Big money for small businesses"** to address the challenges of the MSME sector.

The International Trade Centre
- ➤ Established in 1964, the International Trade Centre (ITC) is the joint agency of the **World Trade Organization** and the United Nations.
- ➤ ITC is the only development agency that is fully dedicated to supporting the internationalization of Small and Medium-sized Enterprises (SMEs).
- ➤ ITC enables SMEs in **developing and transition economies** to become more competitive and connect to international markets for trade and investment, thus raising incomes and creating job opportunities, especially for women, young people, and poor communities.

SMEs and SDGs

- ➤ SMEs play an important role in the implementation of **SDG 8** (decent work and economic growth) and **SDG 9** (industry, innovation, and infrastructure).

Note:

- ❍ Micro, small and medium-sized enterprises are vital in promoting **innovation, creativity and decent work for all**.
- ➤ Efforts to enhance **access to finance** for SMEs across key sectors of national economies are an important element of the implementation of the Sustainable Development Goals (SDGs).
  - ❍ SDG targets 8.3 and 9.3 call for enhancing the access of SMEs to financial services.

Just Job Index

Just Jobs Index (JJI) is a new data-driven tool to measure the quantity and quality of jobs at the state level. This tool has been developed by the JustJobs Network(a private body), with support from the Azim Premji University.

- ➤ The tool draws data exclusively from government sources including the **National Sample Survey Organisation (NSSO), the Labour Bureau , the Annual Survey of Industries (ASI), the Reserve Bank of India (RBI)** and the recent Periodic Labour Force Survey (PLFS).
- ➤ It covers five dimensions: employment, formality, benefits, income equality and gender equality

What is a Good Job

- ➤ **Employment:** This covers the labour force participation rate, the unemployment rate and the youth unemployment rate.
- ➤ **Formality:** This looks at how many among the total workforce have written job contracts or earn regular wages, compared to those engaged in informal work,

which can range from self-employment, unpaid family work to working for informal businesses.

- ➤ **Benefits:** State expenditure on pensions, the proportion of workers who are part of a union and the proportion of workers that have pension funds make up this dimension. It is a measure of the social protection afforded to workers, especially vital in an economy where millions are one expensive illness away from poverty.
- ➤ **Income Equality:** Since credible income data is hard to come by, the authors have used consumption data to calculate consumption-based inequality as one of the indicators of income inequality. The other indicators are the ratio of minimum wages to average real wages and the ratio of informal wages to average wages.
- ➤ **Gender Equality:** This is quantified by the ratio of female to male employment rates, labour force participation rates and the ratio of their wages.

Suggestions

- ➤ The report proposes the establishment of a **National Employment Strategy** with a three-pronged focus:
  - ❍ First, generating **labour-intensive jobs** in industry and in agriculture.
  - ❍ Second, making **investments in human capital,** especially in quality education and universal healthcare, not just in short-term skill training.
  - ❍ Third, **strengthening labour market institutions** through simplifying and rationalising labour regulation and providing a national minimum wage.
- ➤ Not just the central government, even the states could make interventions. State level index can be developed for that.

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International Relations

Highlights

- US Withdraws GSP for India
- India-Marshall Islands TIEA
- Global Peace Index 2019
- Hongkong Protest
- SCO Summit- 2019
- NATO Ally Status to India
- UN Report on Myanmar Rohingya Crisis
- Fewer but Newer Nuclear Arms: SIPRI
- India's NSG bid
- India's Non-Permanent Seat at the UNSC
- Kobe-Ahmedabad Sister Cities

US Withdraws GSP for India

The US has announced that it will terminate India's designation as a beneficiary of its **Generalized System of Preferences (GSP) from June 5, 2019**.

What is GSP?

➢ The idea of granting developing countries preferential tariff rates in the markets of industrialized countries was originally presented at the first **United Nations Conference on Trade and Development (UNCTAD)** conference in 1964.

➢ The GSP was adopted at UNCTAD meet in New Delhi in 1968, and was instituted in 1971.

➢ There are currently **13 countries** which **grant GSP preferences to developing and least developed countries:** Australia, Belarus, Canada, the European Union, Iceland, Japan, Kazakhstan, New Zealand, Norway, the Russian Federation, Switzerland, Turkey and the United States of America.

➢ **GSP is the largest and oldest U.S. trade preference program. Established by the Trade Act of 1974,** GSP promotes economic development by eliminating duties on thousands of products when imported from one of the 120 designated beneficiary countries and territories.

Impact of GSP Withdrawal

➢ India has been the biggest beneficiary of the GSP regime.

➢ In 2018, **$6.3 billion** of Indian merchandise exports to the U.S. were covered by GSP.

➢ The sectors which could face the impact of the withdrawal of the GSP regime are **gems and jewellery, leather and processed foods**.

➢ However, India has said that **the impact is "minimal" given that Indian exporters were only receiving duty-free benefits of $190 million on the country's overall GSP-related trade of $5.6 billion**.

➢ This could impact India's competitiveness in items groups such as raw materials in the organic chemicals sector and intermediary goods in the US market, alongside items such as iron & steel, furniture, aluminium and electrical machinery.

➢ The **impact on small industries in the country could be significant**. Such industries would lose their market share in the U.S. without fiscal support to help them maintain their edge.

Why GSP was Revoked?

➢ A series of decisions taken by the Indian government has led to trade friction between the two countries:
  ○ India's new e-commerce rules — which have impacted American companies like Amazon and Walmart (majority owner of Flipkart).

New e-commerce norms

➢ The vendors that have any stake owned by an e-commerce company (equity stake) cannot sell their products on that e-commerce company's portal.

➢ Any vendor who purchases 25% or more of its inventory from an e-commerce group company will be considered to be controlled by that e-commerce company, and thereby barred from selling on its portal.

Note:

➢ The policy mandates that no seller can sell its products exclusively on any marketplace platform and that all vendors on the e-commerce platform should be provided services in a "fair and non-discriminatory manner".

❍ Price controls on medical devices (cardiac stents).

❍ Tariffs on products like smartwatches and high-end mobile phones.

❍ Lack of greater market access for the U.S. dairy industry.

India-Marshall Islands TIEA

Recently, India has **notified** the **Tax Information Exchange Agreement (TIEA)** signed with the Marshall Islands in 2016.

➢ The **Agreement enables the exchange of information, including banking and ownership information, between the two countries for tax purposes**.

➢ The Agreement will enhance mutual cooperation between India and the Marshall Islands by providing an **effective framework for the exchange of information in tax matters** which will help curb tax evasion and tax avoidance.

➢ The agreement also provides for the sharing of information **on request** and **representatives of one country to undertake tax examinations in other country**.

➢ The Marshall Islands are a chain of **volcanic islands** and **coral atolls** in the **Pacific Ocean**, between Hawaii and the Philippines.

Global Peace Index 2019

India has been ranked **141** among 163 countries on the Global Peace Index 2019. India bagged 136th rank in 2018.

Global Peace Index (GPI)

➢ It is released by Australian think tank **Institute for Economics & Peace**.

➢ It ranks countries according to their level of peacefulness based on **three thematic domains**:

❍ The level of societal safety and security.

❍ The extent of ongoing domestic and international conflict.

❍ The degree of militarisation.

➢ **Possible effects of climate change on peace** is newly included in this research.

➢ In the last five year, the global score of GPI has improved, with 86 countries improving and 76 recording deteriorations.

Findings of the Report

➢ **Most peaceful: Iceland** remains the most peaceful country in the world, a position it has held since 2008.

❍ Other countries at the top of the Global Peace Index (GPI) are New Zealand, Austria, Portugal, and Denmark.

➢ **Least peaceful:** Afghanistan is now the least peaceful country in the world, replacing Syria, which is now the second least peaceful.

❍ South Sudan, Yemen, and Iraq comprise the remaining five least peaceful countries

➢ **Position of South Asian countries:** Bhutan topped the index with 15th rank, Sri Lanka 72nd, Nepal 76th, Bangladesh 101st and Pakistan 153rd on the index.

➢ **Climate hazards:** India along with the Philippines, Japan, Bangladesh, Myanmar, China, Indonesia, Vietnam and Pakistan are the nine countries with the highest risk of multiple climate hazards.

❍ India has the 7th highest overall natural hazard score.

➢ **Military expenditure:** US, China, Saudi Arabia, Russia and India are the top five countries with the largest total military expenditure.

Hongkong Protest

   Massive protests in Hongkong has erupted against a government plan to allow extradition to mainland China.

➢ The mass demonstration was one of the largest in the city's history and a stunning display of rising fear and anger over the erosion of civil liberties.

➢ The protest recalled the **pro-democracy Umbrella Movement** five years ago.

About Hongkong

➢ Hongkong is situated on the southeast coast of China. Hong Kong's strategic location on the **Pearl River Delta and South China Sea** has made it one of the world's most thriving and cosmopolitan cities.

➢ Hong Kong as we know it today was born when China's **Qing dynasty** government was defeated in the First Opium War in 1842. It ceded Hong Kong Island to **Britain**. Hongkong was under the control of the British empire until 1997. The Sino-British declaration under the principle of **'One Country, Two Systems'**, Hong Kong became a **Special Administrative Region (SAR)** of the People's Republic of China on 1st July 1997.

➢ This arrangement allows the city to enjoy a high degree of autonomy, retaining its capitalist system, independent judiciary and rule of law, free trade and freedom of speech.

➢ The interference of the communist regime of China in the internal affairs of Hongkong and its oppressive policies have led to various pro-democracy protests for autonomy in recent times.

> **Umbrella Movement**
>
> ➢ The Umbrella Movement started as a spontaneous **social movement** for **democratic development** in Hong Kong in September 2014.
>
> ➢ The revolution was named so because of the use of umbrella for defence against police pepper spray.

SCO Summit- 2019

   The 19th annual **Shanghai Cooperation Organisation (SCO)** summit was held on 13-14 June 2019 in **Bishkek, Kyrgyz Republic**.

➢ The heads of the member states reviewed the implementation of the results of the **Qingdao Summit** and the priority goals for SCO development in the context of current global political and economic processes.

  ○ The **Bishkek Declaration** was adopted by the member states.

> **Note:**
>
> Another "Bishkek Declaration" adopted in 2013 by 12 countries (including India) is associated with the conservation and protection of Snow Leopard.

Highlights of the SCO-2019 Bishkek Declaration

➢ Security

  ○ The member states condemned terrorism in all its forms and manifestations. They urged the international community to strengthen global cooperation in efforts against terrorism in line with the **UN Charter and the principles of international law,** without politicisation and double standards, while respecting the sovereignty and independence of all states.

  ○ The declaration also pressed for consensus regarding the adoption of the **Comprehensive Convention on International Terrorism**.

➢ **Economy**

  ○ The declaration resolves for expanding and deepening cooperation in trade and finance, increasing the share of national currencies in mutual financial transactions and development of technological parks.

➢ **Space**
  ○ Keeping outer space **free from weapons** and importance of **peaceful use** of outer space.

➢ **Narcotic Drug Threat**
  ○ Need to address the illegal cultivation, production, circulation, sales and dissemination of narcotic drugs, psychotropic substances and precursors.

➢ **Russia** will assume the **presidency of the SCO next year**. In 2020, the Russian Federation will host a regular SCO Heads of State Council Meeting.

Member states of the Shanghai Cooperation Organisation

Shanghai Cooperation Organisation(SCO)

➢ SCO is a **permanent intergovernmental** international organisation, formed in **2001**.

➢ It is a Eurasian political, economic and military organisation aiming to maintain peace, security and stability in the region.

➢ It is a successor to **Shanghai Five**.

➢ Its members include Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India and Pakistan.

NATO Ally Status to India

Two top American lawmakers have moved a key legislation in the Senate which seeks to advance the US-India strategic relationship.

➢ The legislation will amend the Arms Control Export Act to bring India at par with the US' NATO allies– Israel, Australia, New Zealand and South Korea for purposes of selling military items under the ITAR (International Traffic in Arms Regulations) list.

Background

➢ There are two technology control lists in the US system – one is under the **Export Administration Regulations,** which places controls on the sale of dual-use items that have both civil and military uses and the second is the **ITAR list**.

➢ The civil nuclear deal paved the way for India to access items on the first set of lists, i.e. those under the Export Administration Regulations.

➢ The Arms Control Export (AEC) Act governs the ITAR list. The amendment, therefore, will make it possible for the US to fulfil India's operational requirements in quick time, thus improving its reliability on supplies.

Importance

➢ The amendment was moved as part of the National Defense Authorization Act 2020 of the USA, giving a big boost to India-US defence trade.

➢ This would remove current legislative barriers to export of major high-tech defence equipment to India which is normally shared with only a few countries.

➢ Although, it is an important signal of US political support for enhancing defense ties but is unlikely to have tangible impact on trade flows in the near term.

➢ The amendment needs to be passed by both the Senate and the House of Representatives before it can be signed by the US President into law.

North Atlantic Treaty Organization

➢ North Atlantic Treaty Organization (NATO) is a military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of April 4, 1949, by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union.

➢ A key provision of the treaty, the so-called Article 5, states that if one member of the alliance is attacked in Europe or North America, it is to be considered an attack on all members. That effectively put Western Europe under the "nuclear umbrella" of the US.
  ○ NATO has only once invoked Article 5, on September 12, 2001 following the 9/11 attacks on the World Trade Center in the US.

➢ As of 2019, there are 29 member states, with **Montenegro** becoming the latest member to join the alliance in 2017.

Recent Issues

➢ A big source of the internal strain is American President Donald Trump's recurrent demand that countries devote an amount equal to at least two percent of GDP to defence spending In 2018.

❍ However, only seven of NATO's 29 member states hit the two-percent target.

➤ Strained relationship over selling of defence equipments.

❍ The US has halted delivery of equipment related to its F-35 fighter jets to Turkey over its plans to buy Russia's S-400 missile defence system.

❍ U.S. wants Turkey to buy the Patriot defence system of the USA, instead of Russia's S-400s.

➤ Recently, the Republic of Macedonia changed its name to the "Republic of North Macedonia" to enter the North Atlantic Treaty Organization (NATO) and the European Union (EU) as its accession to both organizations was vetoed by Greece.

UN Report on Myanmar Rohingya Crisis

The UN Secretary-General has accepted an independent report on how the UN System operated in Myanmar, leading up to the mass exodus of the Rohingyas following serious human rights abuses.

➤ The report concluded that there were **"systemic and structural failures"** that prevented a unified strategy from being implemented.

➤ It covers the period 2010-2018, encompassing the UN's response to the systematic and brutal abuse of hundreds-of-thousands of mainly – **Muslim Rohingya in Rakhine state**, by the national army and security forces, which began in August 2017.

➤ It was described by the **UN human rights chief** at the time as a **textbook example of ethnic cleansing**.

Findings of Report

➤ **Fragmented Strategy:** The report has expressed displeasure over the functioning of the UN agency in handling the violence against the Rohingya. It observes that serious errors were committed and opportunities were lost in the UN system following a **fragmented strategy** rather than a common plan of action.

➤ **Improper Reporting:** There appear to have been instances of **deliberately de-dramatizing events** in reports prepared by the Resident Coordinator, as well as instances of various UN entities, including the Office **for the Coordination of Humanitarian Affairs (OCHA)**, of not sharing their analysis with other entities of the UN System.

➤ **Polarisation:** It appears that the increasing polarisation among officials and staff was fuelled, at least in part, by the emotional reactions to the horrific events taking place on the ground.

➤ The foundations of **systemic and structural shortcomings** in the UN's presence in Myanmar.

❍ Insufficient inter-governmental support.

❍ The absence of a clear and unifying strategy.

❍ The weakness of a clear nodal point for coordination.

❍ Dysfunctional actions at the level of the Country Team.

❍ Shortcomings of systematic and unified analysis from the field

Conclusion and Recommendations

➤ **Shared Responsibility:** It was the shared responsibility on the part of all parties to protect the Rohingya's.

❍ The agencies involved have not been able to accompany the Government's political process with constructive actions.

➤ The report says that the UN Security Council should bear some responsibility, "for not providing enough support to the Secretariat when such backing was required and continues to be essential.

➤ **The key lesson** was to foster an environment encouraging different entities of the UN System to work together to reinforce a **"broader, system-wide strategy"**.

Rohingya

➤ The Rohingya people are stateless, Indo-Aryan ethnic group who reside in Rakhine State, Myanmar.

➤ There were an estimated 1 million Rohingya living in Myanmar before the 2016–17 crisis. An estimated 625,000 refugees from Rakhine, Myanmar, had crossed the border into Bangladesh since August 2017. The majority are Muslim while a minority are Hindu.

➤ Described by the United Nations as one of the **most persecuted minorities** in the world. The Rohingya population is denied citizenship under the 1982 Myanmar nationality law. They have denied the Rohingya the possibility of acquiring a nationality. Although Rohingya history in the region can be traced back to the 8th century, Myanmar law does not recognize the ethnic minority as one of the eight national indigenous races.

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Office for the Coordination of Humanitarian Affairs (OCHA)

➢ OCHA is the part of the United Nations Secretariat responsible for bringing together humanitarian actors to ensure a coherent response to emergencies. OCHA also ensures there is a framework within which each actor can contribute to the overall response effort.

➢ It works to overcome obstacles that impede humanitarian assistance from reaching people affected by crises, and it provides leadership in mobilizing assistance and resources on behalf of the humanitarian system.

➢ OCHA is not an operational agency directly engaged in the delivery of humanitarian programmes, and its added value is as an honest broker, facilitator, thought leader and global advocate, providing support to the humanitarian system.

Fewer but Newer Nuclear Arms: SIPRI

The **Stockholm International Peace Research Institute (SIPRI)** has reported that the world is witnessing less nuclear arms but with modernising and increasing size.

➢ **At the start of 2019,** the United States, Russia, Britain, France, China, India, Pakistan, Israel and North Korea had a total of some **13,865 nuclear weapons** with a **decrease of 600** from previous year.

➢ The drop in recent years can mainly be attributed to the **US and Russia**, whose combined arsenals still make up more than **90 percent of the world's nuclear weapons**.

  ❍ It is partly a result of the **New START treaty** – that was signed between the United States and the Russian Federation in 2010 which puts a cap on the number of deployed warheads as well as getting rid of obsolete warheads from the Cold War era.

  ❍ There is a concern on the future of treaty as it will expire in 2021 and there is no serious discussion on its extension.

➢ **The Non-Proliferation of Nuclear Weapons (NPT)** has also played a vital role in controlling proliferation of nuclear arms.

  ❍ Because of the NPT, the number of nuclear arms has been drastically reduced since a peak **in the mid-1980s when there were some 70,000 nuclear warheads** in the world.

➢ This decrease in number of nuclear arms is observed with **modernisation of nuclear arms coupled with increasing size of arms** especially by China, India, and Pakistan.

➢ The report has shown worry over the **build-up of nuclear arms** on both sides of the border **between India and Pakistan** and the danger of a conventional conflict escalating to a nuclear one.

➢ Global disarmament efforts also suffered a blow when the United States announced in February, 2019 that it would withdraw from the **Intermediate-Range Nuclear Forces (INF) treaty**, prompting Russia to say it would also suspend its participation.

  ❍ **Intermediate-Range Nuclear Forces (INF) treaty** was signed by the United States and the Soviet Union in 1987 to eliminate and permanently forgo all of their nuclear and conventional ground-launched ballistic and cruise missiles with ranges of **500 to 5,500 kilometers**.

The Stockholm International Peace Research Institute (SIPRI)

➢ The SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament.

➢ Established in 1966 at Stockholm, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

➢ The NPT is a landmark international treaty whose objective is:

  ❍ to prevent the spread of nuclear weapons and weapons technology,

  ❍ to promote cooperation in the peaceful uses of nuclear energy,

  ❍ to further the goal of achieving nuclear disarmament.

➢ The Treaty represents the only **binding commitment** in a multilateral treaty to the goal of disarmament by the nuclear-weapon States.

➢ Opened for signature in 1968, the Treaty entered into force in 1970.

➢ A total of 191 States have joined the Treaty, including the five nuclear-weapon States.

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India's NSG bid

China has clarified that **India's membership of the Nuclear Suppliers Group (NSG) was not on the agenda of the plenary** of the grouping that **concluded in Nur-Sultan (Kazakhstan)** on 21st June, 2019.

➢ It also stated that **discussion** on India's entry into the 48-nation club would take place only **after reaching a specific plan on non-NPT** (Treaty on the Non-Proliferation of Nuclear Weapons) **members' participation** in the grouping.

➢ It has also refused to suggest a deadline by which such a consensus can be reached among the member states.

➢ **China** has been firm on its stand that **only those countries which have signed the NPT** should be allowed to enter the organisation.

➢ **Majority of the NSG member states** including the US, Russia, Iceland, Denmark, Finland, Sweden and Norway **back for India's membership** in the grouping **considering its non-proliferation record**.

➢ **India** is keen to become a member of NSG as it seeks to significantly **expand its nuclear power generation** and also enter the export market in coming years.

NSG

➢ The Nuclear Suppliers Group (NSG) **was created following the nuclear test in 1974** by a non-nuclear-weapon State (India), which demonstrated that nuclear technology transferred for peaceful purposes could be misused.

➢ It is a **group of nuclear supplier countries** that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of guidelines for nuclear exports and nuclear-related exports.

➢ The grouping has **48 participating governments** and the NSG Guidelines are implemented by each member in accordance with its national laws and practices.

➢ **The NSG takes decisions by consensus.**

India's Non-Permanent Seat at the UNSC

All the countries in the Asia-Pacific Group at the United Nations have unanimously supported India for a non-permanent seat at the UN Security Council (UNSC) for a two-year term in 2021-22.

➢ Both Pakistan and China have supported India's candidature.

➢ The Asia-Pacific Group consists of 55 members states, they get to nominate one of its members for the June 2020 elections to a non-permanent seat on the UNSC.

➢ India has been a non-permanent member of the UNSC seven times, the most recent was for the year 2011-12.

➢ Estonia, Niger, Tunisia, Vietnam and St. Vincent and the Grenadines were elected earlier this month.

➢ India has been contending for permanent membership at the UNSC from many years and has been a part of G-4 grouping which is continuously lobbying for **UNSC reforms**.

United Nation Security Council

➢ The United Nations Charter established six main organs of the **United Nations**, including the Security Council.
  ○ It gives primary responsibility for maintaining international peace and security to the Security Council, which may meet whenever peace is threatened.

➢ All members of the United Nations agree to accept and carry out the decisions of the Security Council.
  ○ While other organs of the United Nations **make recommendations** to member states, only the Security Council has the power to **make decisions** that member states are then **obligated to implement** under the Charter.

Permanent and Non-Permanent Members

➢ The Council is composed of 15 Members:
  ○ **Five permanent members:** China, France, the Russian Federation, the United Kingdom, and the United States.
  ○ **Ten non-permanent members** elected for two-year terms by the General Assembly (with the end of term year):

➢ Belgium (2020), Côte d'Ivoire (2019), Dominican Republic (2020), Equatorial Guinea (2019), Germany (2020), Indonesia (2020), Kuwait (2019), Peru (2019), Poland (2019), South Africa (2020).

Selection of Non-Permanent Members of the Security Council

➢ Each year, the General Assembly elects five non-permanent members (out of ten in total) for a two-year

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term. The ten non-permanent seats are distributed on a **regional basis**:

- ○ five for African and Asian countries;
- ○ one for Eastern European countries;
- ○ two for Latin American and Caribbean countries;
- ○ two for Western European and other countries.

➢ Aspiring member needs the vote of two-thirds of the 193 UN General Assembly members to win a non-permanent seat on the UNSC.

United Nations Regional Groups

➢ The Regional Groups are the geopolitical regional groups of member states of the United Nations. UN member states were unofficially grouped into **five geopolitical regional groups**.

➢ Many UN bodies are allocated on the basis of geographical representation. Top leadership positions, including **Secretary-General and President of the General Assembly,** are rotated among the regional groups.

➢ The groups also coordinate substantive policy and form common fronts for negotiations and bloc voting.

Kobe-Ahmedabad Sister Cities

A Memorandum of Understanding (MoU) of **sister-city partnership** was signed by Japan and India during the Indian Prime Minister's visit for 2019 **G20** Osaka summit in Japan.

➢ It will cultivate, promote and enhance opportunities on the business, academic and cultural front between Kobe in Hyogo, Japan and Ahmedabad in Gujarat, India.

➢ In November 2016, India and Japan signed **a sister-state relationship MoU** for Gujarat and Hyogo prefecture.

- ○ The MoU sought to promote mutual cooperation between Gujarat and Hyogo in the fields of academics, business, cultural cooperation, disaster management and environmental protection.

➢ **The UNESCO** has recognized **Ahmedabad** as the **World Heritage City** and Kobe as the Creative Design City, and therefore, both are recognized by the world as cities of repute.

- ○ This common thread will help people connect and this is very important for the growth on other fronts.

➢ In 2013, India signed the sister city agreements with China – the pairs were Delhi-Beijing, Bengaluru-Chengdu and Kolkata-Kunming.

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Science and Technology

Highlights

- Gestational Diabetes Mellitus
- Barcoding of Medicine
- Hypersonic Technology Demonstrator Vehicle
- Moon's Aitken Crater
- Chandrayaan-2 Mission
- Unapproved Sowing of Genetically Modified Crops
- Jumping Genes
- India to Set Up its Own Space Station
- Spectrum-Roentgen-Gamma Telescope
- Selenium-Graphene Based Catalyst in Fuel Cell
- ICANN and NASSCOM Collaboration

- Membrane to Clean Toxic Effluents
- Report on Epilepsy
- Arogyapacha: 'Miracle Plant'
- Methane in the Martian Air
- Superbugs Can Be Transmitted Through Plants
- New Biomarker for Malaria Detection
- Existing Method of Diagnosis
- DRDO's Herbal Drug for Leucoderma
- Evidence of Supernova Remnants
- Robots Replacing Manufacturing Jobs
- Cancer Detection Tool

Gestational Diabetes Mellitus

A recent paper published in the Journal of the Association of Physicians of India has argued the importance of screening of every pregnant woman for high blood glucose even if no symptoms are exhibited.

➢ **Gestational Diabetes Mellitus (GDM)** is defined as any degree of glucose intolerance with onset or first recognition during pregnancy.

➢ GDM not only **influences immediate maternal (preeclampsia, stillbirth, macrosomia, and need for cesarean section)** and **neonatal outcomes (hypoglycemia, respiratory distress),** but also increases the risk of future Type 2 diabetes in mother as well as the baby.

➢ Prevention at the earliest stage of development of the foetus is essential to prevent children from becoming predisposed to diabetes or other non-communicable diseases (NCD) in the future.

  ○ Higher glucose transfer to the foetus, when the mother has high blood sugar, stimulates the foetal pancreatic cells to start secreting insulin earlier and in higher quantities. Once initiated, it becomes self perpetuating.

  ○ In addition, when the maternal glucose reading is high (over 110 mg/dl), the amniotic fluid becomes glucose enriched. After 20 weeks, the foetus begins to swallow amniotic fluid, which further stimulates production of insulin.

Gestational Diabetes in India

➢ India has an estimated 62 million people with Type 2 Diabetes Mellitus (DM) which is expected to go up to 79.4 million by 2025.

➢ In parallel with the increase in diabetes prevalence, there seems to be an increasing prevalence of gestational DM (GDM), that is, diabetes diagnosed during pregnancy.

➢ India has a **very high prevalence of GDM by global standards**. Conversion rates to Type 2 diabetes are also very high.

➢ Interventions during and immediately after pregnancy provide important opportunities to improve the lives of mothers and children today and reducing diabetes in future generations.

➢ Screening and appropriate management of diabetes during pregnancy provides a unique opportunity to prevent Type 2 diabetes in two generations.

➢ Lack of awareness in society is one of the reasons that GDM is given low priority in public health delivery system in India.

➢ Therefore, the Ministry of Health has developed national guidelines for testing, diagnosis and management of hyperglycemia in pregnancy, and they recommend

Note:

drishti

early testing at the time of contact (during the first trimester) and if the test is negative, yet another test should be done between 24-28 weeks.

Barcoding of Medicine

The government is planning to make barcoding mandatory on all medicines sold locally in a bid to offset India's growing reputation as a source of counterfeit medicines.

Why it is done?

➢ The office of the **United States Trade Representative (USTR)** recently highlighted that India has a growing problem of counterfeit medicines, in its annual **'Special 301 Report' on intellectual property protection** and review of 'notorious markets' for piracy and counterfeiting released in April.

➢ According to the USTR report, **almost 20%** ($4.3 billion in 2013-14) of all pharmaceutical goods sold in the Indian market are counterfeit.

➢ Barcoding for domestic sales of drugs **will ascertain the authenticity of medicines,** ability to monitor their ready availability, expiration, track and trace their recalls when needed.

Pharmaceutical Sector in India

➢ India is one of the leading global producers of low-cost generic medicines due to its high domestic demand and inexpensive manufacturing costs. The country's pharmaceutical market is the **world's third largest** in terms of **volume**, but the thirteenth largest in value.

  ❍ While counterfeiting is a global issue, it is much more prevalent in low and middle-income countries with an estimated 10 to 30% of medicines in these countries being counterfeit, compared to just 1% of medicines in high-income countries.

Reasons for Counterfeit Medicines Market in India

➢ Limited access to medical care, especially in rural areas
➢ Fragmented supply chain
➢ Lack of consumer awareness
➢ Prevalent practice of self-medication
➢ High cost of genuine medicines
➢ Weak enforcement of legislation and corruption

➢ Prevalence of online pharmacies
➢ Technology advancements in counterfeiting

Classification of Spurious and Substandard Drugs in India

➢ As per the **Drug and Cosmetic Act, 1940,** poor quality drug comprises of misbranded, spurious and adulterated drugs.

➢ Central Drugs Standard Control Organisation (CDSCO) under Directorate General of Health Services, Ministry of Health & Family Welfare has categorised non-standardised quality (NSQ) products in three categories A, B and C that is helpful in categorising the products during quality evaluation.

Steps to be Taken

➢ **Raising Public Awareness:** Approximately 78% of India's 650 million mobile phone users have access to the internet, and online education about counterfeit and spurious medicine may be an effective way to tackle the issue quickly and efficiently.

➢ **Implementing Innovative Anti-Counterfeiting Measures:** New generation anti-counterfeiting technologies, such as the use of forensic markers (chemical, biological and DNA taggants), cloud-based supply chain data repositories, and blockchain technology in supply chains can be used to fight the menace of counterfeit drugs.

Hypersonic Technology Demonstrator Vehicle

The Defence Research and Development Organisation (DRDO) has conducted **maiden** test of an **indigenously** developed **Hypersonic Technology Demonstrator Vehicle (HTDV)** along with several other technologies. It is being developed by DRDO with assistance from **Israel, UK** and **Russia**.

➢ HTDV project is intended to **serve multiple military and civil purposes**.

  ❍ It is an unmanned scramjet demonstration aircraft for hypersonic speed flight, which can cruise at a speed of 6 mach and move up to an altitude of 32.5 kilometres in 20 seconds.

  ❍ While it can be used for **launching cruise missiles**, it will also serve the purpose for **launching satellites at a low cost**.

➢ Under this project, a hypersonic vehicle is also being developed that will be powered by a scram-jet engine.

- ❍ This is dual-use technology, which when developed, will have multiple civilian applications including low -cost satellites launch.
- ❍ It will also be available for long-range cruise missiles of the future. E.g.: Brahmos 2.

Scramjet Engine Technology Demonstrator

➢ As of now, satellites are launched into orbit by multi-staged satellite launch vehicles that can be used only once (expendable).

- ❍ These launch vehicles carry oxidiser along with the fuel for combustion to produce thrust.
- ❍ Nearly 70% of the propellant (fuel-oxidiser combination) carried by present day launch vehicles consists of oxidiser.
- ❍ Launch vehicles designed for one time use are expensive and their efficiency is low because they can carry only 2-4% of their lift-off mass to orbit. Thus, there is a worldwide effort to reduce the launch cost.
- ❍ Therefore, the next generation launch vehicles must use a propulsion system which can utilise the atmospheric oxygen during their flight through the atmosphere which will considerably reduce the total propellant required to place a satellite in orbit.

➢ Ramjet, Scramjet and Dual Mode Ramjet (DMRJ) are the three concepts of air-breathing engines which are being developed by various space agencies.

➢ **A ramjet is a form of air-breathing** jet engine that uses the vehicle's forward motion to compress incoming air for combustion without a rotating compressor.

- ❍ Fuel is injected in the combustion chamber where it mixes with the hot compressed air and ignites.
- ❍ A ramjet-powered vehicle requires assisted take-off like a rocket assist to accelerate it to a speed where it begins to produce thrust.
- ❍ Ramjets work most efficiently at supersonic speeds around Mach 3 (three times the speed of sound) and can operate up to speeds of Mach 6.
- ❍ However, the ramjet efficiency starts to drop when the vehicle reaches hypersonic speeds.

➢ **A scramjet engine is an improvement** over the ramjet engine as it efficiently operates at hypersonic speeds and allows supersonic combustion. Thus it is known as Supersonic Combustion Ramjet, or Scramjet.

➢ **A dual mode ramjet (DMRJ)** is a type of jet engine where a ramjet transforms into scramjet over Mach 4-8 range, which means it can efficiently operate both in subsonic and supersonic combustor modes.

Moon's Aitken Crater

Scientists have detected an anomaly in the moon's gravitational field because of heavy metal lodged in the mantle deep below the **Moon's South Pole-Aitken basin** (the largest preserved impact crater anywhere in the solar system).

➢ Possible explanations for this anomaly are:

- ❍ The metal from the asteroid that formed this crater is still embedded in the Moon's mantle, rather than sinking to the Moon's core.
- ❍ The large mass might be a concentration of dense oxides associated with the last stage of lunar magma ocean solidification.
- ❍ This new hypothesis is based on data from NASA's Gravity Recovery and Interior Laboratory (GRAIL) and Lunar Reconnaissance Orbiter missions.

Gravity Recovery and Interior Laboratory (GRAIL)

Gravity Recovery and Interior Laboratory (GRAIL) was a dual-spacecraft mission that involved placing two identical spacecrafts (named "Ebb" and "Flow" to GRAIL-A and GRAIL-B respectively) in orbit around the Moon to use high-quality gravitational field mapping to determine its internal structure.

➢ The mission was launched in 2011 under **NASA's Discovery Program**.

- ❍ NASA's Discovery Program began in 1992 to achieve outstanding results by launching smaller missions using fewer resources and shorter development times.
- ❍ Its main objective is to enhance our understanding of the solar system by exploring the planets, their moons, and small bodies such as comets and asteroids.

➢ Ebb and Flow were decommissioned and powered down in anticipation of deliberate impact on the lunar surface Dec. 17, 2012.

Lunar Reconnaissance Orbiter

➢ The Lunar Reconnaissance Orbiter (LRO) is a **NASA** moon mission that has been in operation since 2009.

Note:

> ➢ The mission particularly focuses on the moon's poles to search for water or ice that could exist in permanently shadowed craters.

Chandrayaan-2 Mission

For the first time in the history of Indian Space Research Organisation (ISRO), two **women will head** the Chandrayaan-2 mission.

➢ **Ritu Kridhal** and **M Vanitha** are leading as project and mission directors respectively for the Chandrayaan-2 mission.

➢ Chandrayaan-2 is India's second lunar exploration mission after Chandrayaan-1, developed by ISRO.

Objectives

➢ **Quantify the water** available on the moon's surface.

➢ **Map its topography,** to explore chemicals and minerals such as magnesium, iron, and helium.

➢ Study topmost part of the **lunar atmosphere**.

Significance

➢ **Global Power:** If successful, India will be the **fourth country** (After Russia, China, and the USA) to land a rover on the moon.

    ○ **India will be the first** country to land on the **southern pole** of the moon.

    ○ This would give ISRO an opportunity to name that site on the moon.

➢ **Indigenous Mission:** 13 instruments from India, one instrument from US space agency, NASA.

➢ **Future Space Exploration:** Mission will also expand the country's footprint in space as the moon is the perfect test-bed for proving technologies required for future space exploration.

Complexities Involved in Landing

➢ Trajectory Accuracy

➢ Communication hurdle

➢ Lunar dust

➢ Extreme temperatures

➢ Trans-lunar injection and capture

➢ Orbiting

Unapproved Sowing of Genetically Modified Crops

The Ministry of Environment, Forest and Climate Change (MoEFCC) has sought a detailed report on the sowing of unapproved Genetically Modified (GM) Cotton and Brinjal in Maharashtra.

➢ Organised by the farmer's union **Shetkari Sanghtana**, more than 1,000 farmers had publicly sown unapproved transgenic cotton and brinjal in Akola district of Maharashtra demanding introduction of Herbicide Tolerant (Ht) Bt cotton and Bt brinjal.

    ○ The farmers termed it as the **'civil disobedience'** movement to protest the central government's indecisiveness in approving the next generation of Genetically Modified (GM) cotton.

Background

➢ In India, the introduction of GM seeds requires approval of the **Genetic Engineering Approval Committee (GEAC)**, a body under the **MoEFCC**.

    ○ Till date (2019), commercial release is granted for Bt cotton, but similar approvals for Bt mustard and Bt brinjal are awaited.

➢ In case of cotton, the first two generations of Bt have seen the introduction of **'Cry1Ab'** and **'Cry2Bc' genes** from the soil bacterium, **Bacillus thuringiensis** (Bt), into the cotton seed.

    ○ This makes the crop resistant to the attack of **pink bollworm**.

➢ The third generation, i.e. herbicide tolerant Bt (HtBt) cotton variety saw the addition of **'Cp4-Epsps' gene** from another soil bacterium, **Agrobacterium tumefaciens,** which produces a modified protein that allows the plant to withstand herbicide glyphosate.

    ○ Farmers are not able to spray glyphosate on normal cotton because the chemical does not distinguish between the crop and weed, but the herbicide tolerant Bt (HtBt) cotton remains unaffected by glyphosate.

➢ Like the first two hybrids, HtBt has also been developed by the US based Bayer Monsanto.

    ○ The company had submitted a proposal to GEAC for approval in 2013. However, the proposal was later withdrawn by the company because of various regulatory issues with the government.

Note:

➢ While HtBt is not approved for commercial release, farmers in Gujarat, Andhra Pradesh and Maharashtra have been surreptitiously planting the crop using smuggled seeds.

  ❍ According to estimates by the Commissioner of Agriculture, Maharashtra, as much as 15% of the 40 lakh hectares of the state had come under this unapproved hybrid.

Jumping Genes

The scientists have recently discovered a technique using **"jumping genes"** for genetic editing. It could offer a seamless, safer alternative to **CRISPR-Cas9** process.

➢ The technique could allow edited genes to be **more precisely** inserted into genomes, possibly addressing concerns with current CRISPR systems that can lead to off-target editing and random deletions or even cancer.

Transposons: Jumping Genes

➢ Jumping genes are also known as **transposons**, it randomly jumps from one site to the other, inserting genetic information as they go, using enzymes called transposases.

➢ It can effectively slide into the DNA without cuts.

➢ The jumping gene possesses all the **necessary chemical properties** to directly insert, or integrate without a DNA double-strand break.

➢ Jumping gene **could effectively be programmed** with a guide, and it can insert itself with incredible precision into user-defined sites in the genome.

➢ Researchers sequenced the edited genome and found that the insertion was precisely done, with no extra copies created elsewhere, a problem that can occur with gene editing that uses CRISPR.

➢ The researchers found the jumping gene was capable of depositing "genetic cargoes into the genome," delivering sequences up to 10,000 bases long.

➢ This approach could allow for therapeutic genes to be inserted into the genome in a potentially safer way than is currently possible. It could be a game-changer for certain types of cells, like neurons, which resist gene editing using the "cutting" process.

India to Set Up its Own Space Station

India is planning to launch its own **space station by 2030**, joining the league of US, Russia, and China to an elite space club.

➢ A space station is a **habitable spacecraft** capable of supporting human crewmembers and designed to remain in space.

➢ As of now, the International Space Station (ISS) is the only fully functioning space station and largest human-made body in low Earth orbit.

Indian Space Station

➢ The Indian space station will be much **smaller (mass of 20 tonnes)** than the International Space Station and will be used for carrying out **microgravity experiments** (not for space tourism).

➢ Preliminary plan for the space station is to accommodate astronauts for up to **20 days in space**, and the project will be an extension of the **Gaganyaan mission**.

➢ It will orbit Earth at an altitude of around **400 km**.

➢ **ISRO** is working on **space docking experiment (Spadex),** a technology that is crucial for making the space station functional.

  ❍ **Space Docking** is a technology that allows transferring humans from one spacecraft to another.

Significance

➢ Space station is essential for collecting meaningful **scientific data**, especially for biological experiments.

➢ Provide platforms for greater **number and length** of scientific studies than available on other space vehicles (as Gaganyaan will take humans and perform experiments in microgravity for few days only).

➢ Each crew member stays aboard the station for **weeks or months**, but rarely more than a year.

➢ Space stations are used to study the effects of **long-term space flight** on the human body.

Spectrum-Roentgen-Gamma Telescope

A joint team of **German-Russian scientists** will be launching a **Spectrum-Roentgen-Gamma (SRG)** space

telescope. It will create a **three-dimensional (3D) X-ray** map of the universe and unveil unknown supermassive black holes, dark energy and stars.

➢ The SRG telescope aims to detect up to 3 mn supermassive black holes from the Milky Way.

➢ The telescope will be launched into space on a **Russian-built Proton-M rocket** from **Baikonur Cosmodrome in Kazakhstan**.

➢ The four-year mission will survey the entire sky eight times and track the evolution of the universe and dark energy.

➢ This is the first telescope which is sensitive to high energy hard X-rays.

➢ The mission will have **two independent** telescopes:
  ❍ A German-built e-ROSITA (Extended Roentgen Survey with an Imaging Telescope Array)
  ❍ A Russian-built ART-XC (Astronomical Roentgen Telescope X-ray Concentrator)

➢ Each of them covers X-ray bands stretching to relatively much higher energies: 0.2–10 kilo-electron volts (keV) for eROSITA, and 5–30 keV for ART-XC.

X-Rays

➢ X-rays are a form of high-energy electromagnetic radiation. X-radiation is referred to as Röntgen radiation, after the German scientist **Wilhelm Rontgen** who discovered these in 1895.

Soft and Hard X-rays

➢ X-rays are usually described by their maximum energy, which is determined by the voltage between the electrodes.

➢ X-rays with high photon energies (above 5–10 keV) are called **hard X-rays**.
  ❍ Due to their penetrating ability hard X-rays are widely used to image the inside of visually opaque objects.

➢ Those with lower energy (and longer wavelength) are called **soft X-rays**.

Previous Missions

➢ Germany's ROSAT mission in the 1990s was sensitive only to 'soft' X-rays, with energies of about 2 keV.

➢ NASA's **Chandra X-ray Observatory** and **NuSTAR**, can see high-energy radiation and resolve tiny details of cosmic structures. But, they see only small parts of the sky.

➢ SRG was first proposed in 1987, by Russian astrophysicists, but the fall of the Soviet Union in 1991 led to the cancellation of the plan. It was revived in 2004, but a proposal to send an X-ray telescope to the International Space Station was scrapped when NASA ended its space-shuttle program in 2011.

➢ The joint mission was approved by the German space agency and Roscosmos later in 2009.

Selenium-Graphene Based Catalyst in Fuel Cell

A multi-institutional team of scientists from India has developed a **selenium-graphene–based catalyst** which is more **efficient in terms of cost and performance**. It also remains stable for longer than the usual platinum-based catalysts.

➢ Modern energy technology, for example, fuel cells which are used commercially in hydrogen fuel–based cars, require good catalysts that are efficient as well as cost-effective.

➢ Normally, fuel cells use expensive elements like **platinum**. These expensive metal-based technologies perform excellently for initial few cycles, but then get degraded in performance due to many reasons:
  ❍ Graphene, modified with selenium atoms in very low amounts, can perform like platinum in a demonstrated reaction.
  ❍ The oxygen reduction reaction is a key step in the functioning of the fuel cell. Graphene by itself is a "poor" catalyst of this reaction. It involves the reduction of oxygen in two steps, each of which consumes two electrons. This is not very useful either for fuel cells or metal-air batteries.
  ❍ Neither selenium nor graphene are useful by themselves, the combination of both works efficiently.
  ❍ **Poisoning-Resistant:** Methanol fuel cells, a common form of fuel cell used, suffer from a **"poisoning" effect**. It is found that the catalyst that is developed has a high tolerance for poisoning.

Fuel cell

➢ Fuel cells are **electrochemical devices** that **convert chemical energy from the reactants directly into electricity and heat**.

Poisoning Effect

➤ This is a part of the process where the methanol reaches the negative electrode and coats it, the electrode becomes ineffective after some cycles. This is especially problematic when expensive catalysts like platinum are used.

Selenium

➤ Selenium is a **non-metallic chemical element**, member of the group XVI of the periodic table. In chemical activity and physical properties it resembles sulfur and tellurium.

➤ Selenium has **good photovoltaic and photoconductive properties**, and it is used extensively in electronics, such as photocells, light meters and solar cells.

Graphene: It is a one-atom-thick layer of carbon atoms arranged in a hexagonal lattice. It is the building-block of graphite (which is used, among other things, in pencil tips).

➤ Graphene is the thinnest material known to man at one atom thick, and also incredibly strong - about 200 times stronger than steel.

➤ It is an excellent conductor of heat and electricity and has interesting light absorption abilities.

○ The device consists of an electrolyte layer in contact with a porous anode and cathode on either side.

➤ In a standard fuel cell, gaseous fuels are fed continuously to the anode (negative electrode), while an oxidant (oxygen from the air) is fed continuously to the cathode (positive electrode). Electrochemical reactions take place at the electrodes to produce an electric current.

➤ **Advantages of fuel cell systems are:**

○ High operating efficiency is not a function of system size.

○ A highly scalable design.

○ Several types of potential fuel sources are available.

○ Zero or near-zero greenhouse emissions.

○ There are no moving parts in the fuel cell stack, which provides reliable, vibration-free operation.

○ Nearly instantaneous recharge capability when compared to batteries.

➤ **Limitations of fuel cell systems are:**

○ Cost-effective, mass-produced pure hydrogen storage and delivery technology.

○ Fuel Reformation technology may need to be considered if pure fuel is not used.

○ Fuel cell performance may gradually decrease over time due to catalyst degradation and electrolyte poisoning if pure fuel is not used.

ICANN and NASSCOM Collaboration

Global internet body **Internet Corporation for Assigned Names and Numbers (ICANN) and Indian IT industry body NASSCOM** to develop identifier technology that can be used for managing devices and infrastructure using the internet.

➤ Both the bodies will first focus on updating the Internet of Things (IoT) devices using domain name system (DNS) even in the situation when the manufacturer or supplier has closed down the business.

➤ The project focuses on testing the use of the DNS to update IoT firmware and studying how the proposed technology could scale outside a lab environment.

Internet Corporation for Assigned Names and Numbers (ICANN)

➤ ICANN is a **non-profit body** that administers domain names and Internet Protocol addresses (IPs) globally. It was formed in 1988 by the US Department of Commerce. It has become independent of US control since October 1st, 2016.

➤ It also ensures that computers across the internet can find one another through defined unique pathways and identifiers.

National Association of Software and Services Companies (NASSCOM)

➤ NASSCOM, a **not-for-profit** industry association, is the apex body for the IT industry in India.

➤ Established in 1988, NASSCOM's relentless pursuit has been to constantly support the IT and BPO industry.

Membrane to Clean Toxic Effluents

Recently the scientists at **Council of Scientific and Industrial Research- North East Institute of Science and Technology (CSIR-NEIST)** have developed a ceramic membrane with the help of a mixture of potter's clay, stone dust and tea waste which can clean toxic effluents.

Note:

- The membrane was tested on effluents from a textile unit. It could remove adsorptive dyes from wastewater.
- The study was funded by the **Department of Science and Technology (DST)**.

Applications

- These filters are especially useful in petrochemical processing, where it is not possible to use organic membranes.
- It is capable of discolouring two commonly used dyes - **Methylene blue** and **Congo red** - from water.
  - ○ Methylene blue is a toxic dye, while Congo red is a known cancer-causing agent.
- Ceramic filters and membranes are commonly used in several sectors like food and beverage, drugs and chemicals, waste recovery and recycling industries.

Properties

- Ceramic membranes can withstand frequent cleaning, harsh operating environments and situations that require continuous flow of material.
- They can also be regenerated over many cycles and used for separation of both aqueous and non-aqueous solutions.
- The newly developed membrane has **good thermal** and **chemical stability**.
- The used membrane could also be regenerated by heating at 400 degrees for 30 minutes, without much loss of efficiency.

Council of Scientific and Industrial Research (CSIR)

- CSIR is an **autonomous** research and development body established by the **Government of India in 1942**.
- It covers a wide spectrum of science and technology – from radio and space physics, oceanography, geophysics, chemicals, drugs, genomics, biotechnology and nanotechnology to mining, aeronautics, instrumentation, environmental engineering and information technology.
- It provides significant technological intervention in many areas with regard to societal efforts which include environment, health, drinking water, food, housing, energy, farm and non-farm sectors.

CSIR Firsts

- First to introduce DNA fingerprinting in India.
- Designed & developed India's first all-composite aircraft Hansa.

- Designed and developed India's first 14-seater plane 'SARAS'.
- First to produce baby food from buffalo milk by the name of Amulspray.
- First to produce the indelible ink used in elections in the country.
- Completed the first Complete **Genome Sequencing** of an Indian.
- First indigenous "Electronic Nose" to detect toxic fumes.

Report on Epilepsy

A report "Epilepsy, a public health imperative" has been released by the **World Health Organization** and leading non-governmental organizations for epilepsy, **the International League Against Epilepsy** and the **International Bureau for Epilepsy**.

- In low and middle-income countries, early death among people with epilepsy is significantly higher than in high-income countries.
- More than 75 percent of people with epilepsy in low-income countries are at risk of premature death, due to lack of access to anti-seizure medicines.
  - ○ The reasons include possible lack of access to health facilities when seizures are long-lasting or occur close together without recovery in between, and preventable causes such as drowning, head injuries and burns.
- The report states that the treatment gap for epilepsy is unacceptably high, when 70 percent of people with the condition can be seizure-free when they have access to medicines that can cost as little as $5 per year and can be delivered through primary health systems.
- Roughly half of adults with epilepsy have at least one other health condition. The most common are depression and anxiety.
  - ○ Around 23 percent of adults with epilepsy will experience clinical depression during their lifetime and 20 per cent will have anxiety.
- Mental health conditions such as these can make seizures worse and reduce the quality of life.
  - ○ Development and learning difficulties are experienced by 30-40 percent of children with epilepsy.

Note:

- Stigma also prevents people from taking treatment.
- The Report states that "political will" facilitates the integration of diagnosis and treatment for epilepsy into the primary health services.

Epilepsy

- Epilepsy is a central nervous system (neurological) disorder in which brain activity becomes abnormal, causing seizures or periods of unusual behavior, sensations, and sometimes loss of awareness.
- Anyone can develop epilepsy. It affects both males and females of all races, ethnic backgrounds and ages.

Arogyapacha: 'Miracle Plant'

Scientists from the University of Kerala have decoded the genetic make-up of **Arogyapacha (Trichopus zeylanicus)**, a highly potent medicinal plant endemic to the **Agasthya hills**.

- This 'miracle plant' is known for its traditional use by the **Kani tribal community** to combat fatigue.
- Studies have also proved its varied spectrum of pharmacological properties such as anti-oxidant, aphrodisiac, anti-microbial, anti-inflammatory, immunomodulatory, anti-tumour, anti-ulcer, anti-hyperlipidemic, hepatoprotective and anti-diabetic.
- The project is bound to open up a new window to the plant's molecular secrets, the genome and annotation data will be a valuable resource to expedite research on Arogyapacha, particularly its secondary metabolism, genetic breeding, and comparative studies.

Kani Tribe

- Traditionally **Kani tribes** are a **nomadic** people. They are **indigenous** to tropical forests of the **Agasthyamalai hills of the Western Ghats**, a mountain range in **Kerala**. They have a population of almost 25,000.
- Kani has a rich tradition of using wild plants found in the region for health reasons. According to Kani tribal customs, only the **Plathi (tribal physician)** have the right to transfer and disseminate their traditional medicinal knowledge.

Agasthya Hill

- **Agasthya** hill is a 1,868-metre (6,129 ft) tall peak within **Neyyar Wildlife Sanctuary, in the Western Ghats of Kerala**. This peak is a part of the **Agasthyamala Biosphere Reserve** which lies on the border of Kerala and Tamil Nadu.
- The peak is named after Hindu sage **Agastya**, who is considered to be one of the seven rishis (Saptarishi) of Hindu Puranas. It is a pilgrimage centre for devotees.
- The **Thamirabarani River** is a perennial river which originates from the eastern side of the range and flows into the Tirunelveli district of Tamil Nadu.
- In Tamil traditions, **Agastya** is considered as the father of the Tamil language and the compiler of the **first Tamil grammar called Agattiyam**. The Malayalam language is considered to be born from Agasthya.
- Agasthyamala Biosphere Reserve is among 20 new sites added by UNESCO to its World Network of Biosphere Reserves in March 2016.

Methane in the Martian Air

NASA's Curiosity Rover has discovered high amounts of methane in the Martian air, a gas that on Earth is usually produced by living things.

- The Curiosity rover has found 21 parts per billion of methane, or three times the 2013 finding.
  - The gas seems to rise and fall with the red planet's seasons.
- **However, the Trace Gas Orbiter,** a newer European spacecraft launched in 2016 with more sensitive instruments, **did not detect any methane at all** in its first batch of scientific observations last year.

NASA Curiosity Mission

- The Curiosity is the largest and most capable rover ever sent to Mars. It landed on Mars in August, 2012.
- The purpose of the mission is to find chemical and mineral evidence of past habitable environments on Mars.

The ExoMars Trace Gas Orbiter (TGO)

- The orbiter is the first in a series of joint missions between the European Space Agency (ESA) and Roscosmos, the Russian space agency.

> ➢ It was designed to search for trace gases in the Martian atmosphere, such as methane, water vapor, nitrogen oxides and acetylene.
>> ○ These gases could provide evidence for possible biological or geological activity on Mars.
> ➢ It also will monitor seasonal changes in the Martian atmosphere and will look for water-ice beneath the surface.

Superbugs Can Be Transmitted Through Plants

Researchers at the University of Southern California have found that **antimicrobial resistant bacteria** or superbugs can be **transmitted to humans through plants**.

➢ Antibiotic-resistant infections are a threat to global public health, food safety and an economic burden.

➢ To prevent these infections, it is critical to understand how these bacteria are transmitted.

➢ Spread of antibiotic-resistant superbugs from plants to humans is different from outbreaks of diarrheal illnesses caused immediately after eating contaminated vegetables. **Superbugs can asymptomatically hide in (colonise) the intestines for a long time** while escaping and causing an infection.

➢ The study shows the linkage shared by the environment and human health to agriculture and microbiomes.

> **Superbug**
> It is a term used to describe strains of bacteria that are resistant to the majority of antibiotics commonly used today. Resistant bacteria cause pneumonia, urinary tract infections and skin infections.

Antimicrobial Resistant-Bacteria

➢ Antimicrobial resistant-bacteria occur naturally and are found in people, animals, food, and the environment (in water, soil and air). They can spread between people and animals, including from food of animal origin, and from person to person.

➢ It is facilitated by the **inappropriate use of medicines,** for example, using antibiotics for viral infections such as the flu.

➢ Inadequately treated sewage waste containing resistant bacteria which mixes in the environment also magnifies the burden of antimicrobial resistance.

New Biomarker for Malaria Detection

A researcher's team from the **Indian Council of Medical Research's Jabalpur** - based **National Institute of Research in Tribal Health** has identified **glutamate dehydrogenase** as a new **biomarker** in the body of the **malaria parasite** for malaria detection.

➢ It will help to develop a **more sensitive and accurate** diagnostic test for malaria detection.

> **Biomarker**
> ➢ Biomarkers are key molecular or cellular events that **link a specific environmental exposure to a health outcome**.
> ➢ Biomarkers play an important role in understanding the relationship between exposure to environmental chemicals, the development of chronic human diseases, and the identification of subgroups that are at increased risk for disease.

Existing Method of Diagnosis

➢ Currently, tests used for diagnosing malaria are based on a gene, **Histidine-rich Protein 2 (HRP2)**, replete with amino acid Histidine.
>> ○ The studies have shown that this gene is often absent in some strains of the malaria parasite. Consequently, significant levels of malaria infection were going undetected.

➢ Scientists across the world have been searching for new biomarkers that would be more effective. The study provides scientific evidence for the conserved nature of **Glutamate dehydrogenase** sequences in Indian isolates which can be used as a potential biomarker for diagnosis of malaria.

> **ICMR-National Institute of Research in Tribal Health (NIRTH)**
> ➢ It is a permanent institute of Indian Council of Medical Research (ICMR) under the Department of Health Research, Ministry of Health of Family Welfare.
> ➢ The NIRTH was established on 1st March 1984 in Jabalpur by ICMR with the mandate **to improve health and create awareness among tribals** through applied and operational research. This institute is recognized by the WHO as its collaborative Centre for the health of the indigenous population.

Note:

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➢ The institute has conducted several important research projects on Malaria, Filaria, Tuberculosis, Diarrhea, Virology, Fluorosis and Social Sciences.

DRDO's Herbal Drug for Leucoderma

Defence Research and Development Organisation (DRDO) has developed a herbal drug 'lukoskin' for treatment of Leucoderma.

➢ **Leucoderma** is a **skin** and **auto-immune disorder** also called **vitiligo**. Autoimmune disorders occur when the immune system attacks the body's own tissues and organs.

Significance

➢ Present remedies of vitiligo-like allopathic, surgical and adjunctive are either **costly or single molecule based**, with a very low level of efficacy and develop side-effects like a blister, edema, irritation in the skin.

➢ **Lukoskin,** available in **ointment** and **oral liquid** form, has seven herbal ingredients having properties such as skin **photosensitizer**, **anti-blister**, **anti-irritation**, **antiseptic**, wound healing and **copper supplementing** properties, while the oral dose has been formulated to check the emergence of new spots.

Vitiligo or Leucoderma

➢ Vitiligo is a skin disease in which **pale white patches** start forming on the skin, due to lack of **melanin** (a pigment in the skin).

➢ It is **neither contagious** nor **life-threatening**.

➢ **Genetic conditions** or **stress-induced** situations are more prone to the occurrence of disease.

➢ **Leucoderma patients** are also vulnerable to inflammation in the **iris**, loss of **hearing** and **sunburn**.

Facts
➢ The worldwide incidence of leucoderma has been reported 1-2%.
➢ In India, its incidence is around 4-5%.
➢ In some parts of Rajasthan and Gujarat, its incidence is as high as 5-8%.
➢ Leucoderma (skin disorder) is considered a **social stigma in India** where people confuse it with leprosy (a contagious disease caused by bacteria).

Symptoms

➢ Vitiligo commonly occurs in people in their twenties; however, it can occur in any stage.

➢ People with autoimmune diseases, such as **hyperthyroidism** are more prone to it than those who don't have any autoimmune diseases.

Evidence of Supernova Remnants

A team of Indian astronomers has found significant evidence of a supernova explosion in a star-forming region called G351.7–1.2.

➢ The evidence of explosion is in the form of a high-velocity jet of atomic hydrogen.

➢ The explosion should have resulted in a compact stellar object such as a neutron star or a pulsar or a black hole. However, there is no trace of either yet.

➢ **The Giant Metrewave Radio Telescope (GMRT),** operated by the National Centre of Radio Astrophysics in Pune was used in observation.

➢ A large number of gas clouds of bubble-shaped, which is usual for a supernova remnant were observed.

Notes:

Black Holes: The term 'black hole' was coined in the mid-1960s by American Physicist John Archibald Wheeler. It refers to a point in space where the matter is so compressed as to create a gravity field from which even light cannot escape. Black-holes were theorized by Albert Einstein in 1915.

Supernova: A supernova is the explosion of a star. It is the largest explosion that takes place in space. A supernova happens where there is a change in the core, or centre, of a star. A change can occur in two different ways, with both resulting in a supernova.

Neutron stars:

➢ Neutron stars comprise one of the possible evolutionary end-points of high mass stars.

➢ Once the core of the star has completely burned to iron, energy production stops and the core rapidly collapses, squeezing electrons and protons together to form neutrons and neutrinos.

➢ A star supported by neutron degeneracy pressure is known as a 'neutron star', which may be seen as a pulsar if its magnetic field is favourably aligned with its spin axis.

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Big Bang: The Big Bang Theory is the leading explanation about how the universe began. At its simplest, it says the universe as we know, started with a small singularity, then inflated over the next 13.8 billion years to the cosmos that we know today.

Robots Replacing Manufacturing Jobs

As per a report by analysis firm Oxford Economics, it is predicted that robots are going to replace 10% of jobs in the manufacturing sector in the next 10 years.

➢ Manufacturing could lose 20 million positions replaced by robots by 2030.

➢ Each new industrial robot is going to wipe out 1.6 manufacturing jobs.

➢ The report states that it is expected that automation should boost the economy as a whole, but it is likely to create greater inequality.

   ❍ The pockets of workers most vulnerable to automation can often be found in rural areas with a traditional, labor-intensive industrial base.

   ❍ The **International Monetary Fund (IMF)** and the **Organisation for Economic Co-operation and Development (OECD)** have also expressed concern over the risk of rising inequality.

➢ The report also highlights the importance of taking policy action to reduce the likely impact of robotization in these vulnerable areas.

➢ People displaced from jobs are likely to find that the services sector have also been squeezed by automation.

➢ It states that more than half of **U.S. factory workers** displaced by robots over the past two decades were absorbed into three employment categories – transport, construction and maintenance, and office and administration work.

   ❍ Now these categories are the most vulnerable to automation over the next decade.

➢ Loss of jobs because of automation is also confirmed by the **World Economic Forum** (WEF) in its report **'Future of Jobs'**.

Cancer Detection Tool

The team at Yale University has developed a tool which can potentially detect triggers in patients with renal as well as brain cancers, a finding that could advance the treatment of cancer by early detection.

➢ The researchers have found how cancer cells are triggered to spread to other parts of the body (this process of spreading of cancer cells is called **metastasis**).

➢ Finding and treating cancer at an early stage can save lives. However, treatment becomes more difficult, once cancer gets **metastasised or spreads**.

Metastases

➢ It is the plural form of metastasis. It most commonly develops when cancer cells break away from the main tumour and enter the bloodstream or lymphatic system. These systems carry fluids around the body. This means that the cancer cells can travel far from the original tumour and form new tumours when they settle and grow in a different part of the body.

➢ Metastases can also sometimes develop when cancer cells from the main tumour, typically in the belly, or abdominal cavity, break off and grow in nearby areas, such as in the liver, lungs, or bones.

➢ **Advantages:** The discovery can potentially be used to develop new prognostic tests and pave the way for more personalised clinical interventions.

   ❍ Novel drugs can be developed to target the cells and prevent them from undergoing the change in environment which acts as a trigger to cancer.

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Environment and Ecology

Highlights

- UN-Habitat Assembly
- Oussudu Lake
- World Environment Day
- India Backs Dhanauri for Ramsar Site Tag
- India's First Emissions Trading System for Particulate Pollution
- Asola Wildlife Sanctuary
- River Linking Project
- Cyclone Vayu
- Air Pollution and Life Expectancy
- Phosphine as Fumigant
- Plastic Ingestion
- Colour Morphs of Wild Cat

- Rare Easterly Winds over the Indian Ocean
- Sheath Blight Disease
- World Day to Combat Desertification and Drought
- Climate Change and Crop Production
- Climate Change Impacting Small Island Developing States
- Flood Hazard Atlas
- Water Vulnerable Megacities in India
- Joint Effort to Conserve Wildlife at Bandipur
- Normalized Difference Vegetation Index
- Day Zero Situation
- Ozone Pollution

UN-Habitat Assembly

India has been elected to the Executive Board of the **first UN-Habitat Assembly** at the Plenary Session of the Assembly that was held in **Nairobi, Kenya**.

➢ **Theme: "Innovation for Better Quality of Life in Cities and Communities".**

Outcome of the UN-Habitat Assembly

➢ **Contribution** of more than $152 million toward making cities more inclusive, safe, resilient and sustainable by the member countries.

➢ Communities, cities or towns that improve their solid waste management and reduce their waste management expenditure will be publicly recognised as **'Waste-Wise Cities'**.

  ○ The initiative asks communities, cities and towns around the world to **"rethink, reduce, recycle, refuse and reuse waste"**.

➢ The **strategic plan** of the UN human settlements programme for the period 2020–2025 is presented. The plan aims to advance sustainable urbanisation as a driver of development and peace, to improve living conditions for all.

➢ Participating nations also presented their statements on efforts to promote the **New Urban Agenda (NUA)** and sustainable urban development.

UN-Habitat

➢ The United Nations Human Settlements Programme is the United Nations programme for human settlements and sustainable urban development.

➢ It was established in 1978 as an outcome of the **First UN Conference on Human Settlements and Sustainable Urban Development (Habitat I)** held in Vancouver, Canada, in 1976.

➢ UN-Habitat maintains its **headquarters** at the United Nations Office at **Nairobi, Kenya**.

➢ It is mandated by the United Nations General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

➢ It is a member of the **United Nations Development Group**. The mandate of UN-Habitat derives from the **Habitat Agenda**, adopted by the United Nations Conference on Human Settlements (Habitat II) in Istanbul, Turkey, in 1996.

➢ The **twin goals** of the Habitat Agenda are:
  ○ Adequate shelter for all.
  ○ The development of sustainable human settlements in an urbanizing world.

Note:

Oussudu Lake

Vulnerability assessment study conducted in Oussudu lake, Puducherry had shown concern over rising plastic pollution in water bodies.

➤ The report had highlighted that the canals have become **dumping grounds** for used plastic bags, thermocols, cups, plates, pipes and bottles.

Recommendations

➤ Prior to **Plastic Ban**, it is necessary to adopt **daily usage of alternative packing items**.

➤ Encourage people to **identify and manufacture** alternative packing items.

   ○ Hoteliers should be encouraged to **shift to banana leaf**, teak leaf, vanathula leaf and mantharai leaf for serving and packing food.

➤ **Skill development** in producing alternate packing materials should be encouraged.

➤ Enforcement of **rules and regulations** for the production and use of plastic.

Conservation Efforts

➤ Under the government's renovation plan the region near the lake will make **litter free** so that it becomes favourable of the migratory birds.

➤ The lake region will be declared as **no horn and plastic free zone**.

About Oussudu Lake

➤ The Ousteri Lake also referred to as Oussudu Lake is a man-made lake situated about 10 km from Puducherry, shared equally with Tamil Nadu.

➤ It is recognized as one of the **important wetlands of Asia** by the Asian Wetland Bureau.

   ○ It is also recognised as a wetland of **National Importance** under the National Wetland Conservation Program and identified as **Important Bird Area** by Bombay Natural History Society(BNHS).

➤ The structure of the lake is complex consisting of **water, wetlands** and **mudflats**.

➤ Lake acts as the **single largest catchment** of **fresh water** in Puducherry.

➤ The vegetation of the lake (ranges from small herbs to trees) supports **migratory avifauna** as well as **native birds during** summer and winter.

World Environment Day

World Environment Day is observed on the **5th of June every year** for encouraging worldwide awareness and action to protect our environment.

➤ Since it **began in 1974**, the event has grown to become a global platform for public outreach that is widely celebrated in over 100 countries.

➤ **World Environment Day 2019** is being **hosted by China** with a **theme of "Air Pollution"**. **India** hosted **World Environment Day 2018** emphasizing on **prevention of 'Plastic Pollution'**.

➤ The Government launched **#SelfiewithSapling** campaign as part of the World Environment Day celebrations, urging people to plant a sapling and post a selfie with it on social media.

Air Pollution

➤ The **Air (Prevention and Control of Pollution) Act, 1981** defines **"air pollutant"** as any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

➤ Air pollution is responsible for about **one-third of deaths from stroke, chronic respiratory disease,** and **lung cancer**, as well as **one-quarter of deaths from heart attack**. Air pollution is also fundamentally altering our climate, with profound impacts on the health of the planet.

➤ **According to the WHO, about 92 per cent** of people worldwide do not breathe clean air. Air pollution costs the global economy $5 trillion every year in welfare costs.

   ○ Ground-level ozone pollution is expected to reduce staple crop yields by 26% by 2030.

➤ Recently India has formulated and **launched the National Clean Air Programme (NCAP)** whose objective is prevention, control and abatement of air pollution besides augmenting the air quality monitoring network.

Air (Prevention and Control of Pollution) Act, 1981

➤ The **Air (Prevention & Control of Pollution) Act** was enacted by the Parliament in 1981 with an objective to prevent, control & abatement of air pollution.

➤ The act provides for the establishment of **Central Pollution Control Board (CPCB) at the apex level**

Note:

and **State Pollution Control Boards at the state level** to advise the government on any matter concerning the improvement of the quality of the air and prevention, control and abatement of air pollution.

➤ The CPCB also lays down standards for the quality of air and provides technical assistance and guidance to the State Pollution Control Board.

India Backs Dhanauri for Ramsar Site Tag

The Ministry of Environment Forest and Climate change has asked Uttar Pradesh forest department, to propose **Dhanauri in Greater Noida** as a wetland of international importance under the Ramsar convention.

➤ If accepted by the Ramsar Convention, Dhanauri will get legal protection from land use change.

Dhanauri as Ramsar Site

➤ Dhanauri supports a large population of the **vulnerable Sarus cranes**.

➤ The wetland meets two criteria (out of nine) to be declared a Ramsar site:
  ❍ It has more than 1% of the biogeographic population of one species: the Sarus crane.
  ❍ The area supports congregation of more than 20,000 waterfowl and other species.

Criteria for Ramsar Site Tag

➤ If the site contains a representative, rare, or unique example of a natural or near-natural wetland type.

➤ Support vulnerable, endangered, or critically endangered species or threatened ecological communities.

➤ Support populations of plant and animal species important for maintaining the biological diversity of a particular biogeographic region.

➤ Support plant and animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

➤ Regularly supports 20,000 or more waterbirds.

➤ Regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

➤ Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and populations

➤ An important source of food for fishes, spawning ground, nursery and migration path on which fish stocks, either within the wetland or elsewhere, depend.

➤ Regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

India's First Emissions Trading System for Particulate Pollution

Gujarat Pollution Control Board (GPCB) has initiated a programme for a market-based trading system to reduce air pollution in **Surat, Gujarat**.

➤ It is a market-based system where the government sets an emission limit and allows industries to buy and sell permits to stay below the emission cap.

➤ The emission trading scheme (ETS), was designed by **Gujarat Pollution Control Board** (GPCB) along with a team of researchers from the **Energy Policy Institute at the University of Chicago (EPIC), the Economic Growth Center at Yale University and others from the Abdul Latif Jameel Poverty Action Lab (J-PAL)**.

➤ Globally, cap and trade systems have been used to reduce other forms of pollution, such as programmes that have successfully reduced sulphur dioxide (SO_2) and nitrogen oxides (NO_x) in the United States. **But the Gujarat programme is the first in the world to regulate particulate air pollution.**

Emission Cap and Trade System

➤ Under this system, the regulator first defines the total mass of pollution that can be put into the air over a defined period by all factories put together.

➤ Then, a set of permits is created, each of which allows a certain amount of pollution, and the total is equal to the cap.

➤ These permits are the quantity that is bought and sold.

➤ Each factory is allocated a share of these permits (this could be equal or based on size or some other rule).

Note:

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- ➤ After this, plants can trade permits with each other, just like any other commodity on the National Commodity and Derivatives Exchange Limited (NCDEX).
- ➤ Whatever the final allocation, the total number of permits does not change so the total pollution is still equal to the predefined cap.

Asola Wildlife Sanctuary

Ministry of Environment and Forests (MoEF) has declared an area of 1 km around the **Asola Bhatti Wildlife Sanctuary** in **Gurugram and Faridabad** as **Eco-sensitive zone**.

- ➤ Activities such as commercial mining, setting up of industries, and establishment of major hydro-electric projects will be prohibited.

Asola Wildlife Sanctuary as Eco Sensitive Zone

- ➤ The Asola wildlife sanctuary has large **floral and faunal diversity**.
- ➤ Sanctuary comprises of around 200 species of **resident** and **migratory birds**.
- ➤ Wildlife habitats inside the sanctuary act as **water recharge zone** for Delhi, Faridabad and Gurugram.

Regulated Activities

- ➤ Construction: Only "small temporary structures" for eco-tourism activities.
- ➤ Hotels and resorts will not be allowed within 1 km of the boundary of the protected area or up to the extent of the Eco-Sensitive Zone, whichever is nearer.
- ➤ Small scale non polluting industries
- ➤ Felling of trees
- ➤ Civic infrastructure

Banned Activities

- ➤ Commercial mining
- ➤ Stone quarrying
- ➤ Industrial and polluting industries
- ➤ Saw mills brick kilns

Allowed Activities

- ➤ Rain water harvesting
- ➤ Organic farming
- ➤ Cottage industries
- ➤ Agroforestry

Asola-Bhatti Wildlife Sanctuary is spread over 32.7 square kilometers, and is at the end of important wildlife corridor that starts from Sariska National Park in Alwar, Rajasthan and passes through Mewat, Faridabad and Gurugram districts of Haryana.

River Linking Project

The National Green Tribunal (NGT) has stayed the Godavari-Penna river interlinking projects due to lack of environmental clearance.

- ➤ The NGT has said that the project falls under the purview of **Environment (Protection) Act, 1986**.
- ➤ The river valley projects require environmental clearance and consent under the **Water (Prevention and Control of Pollution) Act, 1974** and the **Air (Prevention and Control of Pollution) Act, 1981**.

Godavari-Penna interlinking project

- ➤ This project is part of the Godavari-Krishna linkage project. and it is to be completed in five phases.

Penna River

- ➤ The Penna river is also known as Pennar. It rises in **Nandi Hills in Chikballapur District** of **Karnataka** and runs north and east through the states of Karnataka and Andhra Pradesh to empty into the Bay of Bengal.

Godavari-Penna interlinking project

₹90,000 cr — Total cost

₹6,020 cr — Cost of the first phase

3,541 acres — Land needed for the first phase of project

9.6 lakh acres — Ayacut under Nagarjuna Sagar Right Canal in 79 mandals of Guntur and Prakasam districts to get stabilised

7,000 cusecs	56.35 km	10.25 km	
Discharge rate at which water to be released from Krishna river to Nagarjuna Sagar Right Canal	Total length of the canal from Krishna river to Nagarjuna Sagar Right Canal at Nakrekal	Total length of pipelines to be laid	While I appeal for unity among Telugu people, KCR says it's none of my business. I have taken certain decisions for the development of Telugu people and the nation. I want Telangana to prosper.
		FIVE Number of lifts to be set up in the first phase	N Chandrababu Naidu, CM

Note:

➢ It is 597 kilometres long, with a drainage basin covering 55,213 km2 in Karnataka and Andhra Pradesh.

➢ This is a seasonal river, the main source of the water is from rain. The river basin lies in the **rain shadow region of Eastern Ghats** and receives 500 mm average rainfall annually.

➢ The **major tributaries** of the Penna are the **Jayamangali, Kunderu and Sagileru from the north** and **Chitravathi, Papagni and Cheyyeru from the south**.

Godavari River

➢ The Godavari is India's **second longest** river after the Ganga. Its source is in **Trimbakeshwar, Maharashtra**.

➢ It flows east for 1,465 kilometres, draining the states of **Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh, Odisha** and **Karnataka**, ultimately emptying into the Bay of Bengal through its extensive network of tributaries.

➢ The river has a **religious significance**, it is also known as the **Vridha Ganga**.

➢ The major **left bank tributaries** include the **Purna, Pranhita, Indravati and Sabari river** and the **right bank tributaries** are **Pravara, Manjira, Manair**.

Cyclone Vayu

Cyclone Vayu hit the state of Gujarat and ravaged several port towns.

➢ Cyclone Vayu was the second deadliest cyclone to hit the state of Gujarat since 1998.

➢ **Cyclone Vayu,** named by **India**, was a **deep depression** which developed into a strong cyclone.

➢ Cyclones are sustained by very **strong low-pressure areas** at their core. Winds in surrounding areas are forced to rush towards these low-pressure areas.

   ○ Similar low-pressure areas, when they develop near or over land, are instrumental in pulling the monsoon winds over the country as well.

   ○ The low-pressure area at the center of the cyclone was far more powerful than any local system that can pull the monsoon winds moving northeast.

Different Cyclonic Alerts
➢ **Yellow:** Be Updated
➢ **Orange:** Be prepared
➢ **Red:** Take action
➢ **Green:** No warning

Arabian Sea Cyclones

➢ Cyclonic activity is comparatively **less intense in the Arabian sea**, as compared to the Bay of Bengal, where high-intensity severe cyclones originate frequently.

➢ In the last 120 years, just about 14% of all cyclonic storms, and 23% of severe cyclones, around India have occurred in the Arabian Sea.

➢ Arabian Sea cyclones are also **relatively weak** compared to those emerging in the Bay of Bengal.

➢ **Gujarat coastline,** where most of the cyclones emerging in the Arabian Sea are headed, is not very densely populated, ensures that the **damage potential of the cyclones** on the western coast is **comparatively low**.

Why is the Bay of Bengal More Prone to Cyclones?

➢ **Temperature Difference:** The low-pressure system of cyclone need a continuous supply of heat energy and as the Bay of Bengal is warmer than the Arabian sea, it is able to provide the heat energy needed to sustain the low-pressure system.

➢ **Sea Surface Temperatures and Humidity:** Both directly correlate with chances of cyclone formation.

   ○ The Bay of Bengal receives **higher rainfall and constant inflow of fresh water** from the Ganga and Brahmaputra rivers.

   ○ This means that the Bay's surface water keeps getting refreshed, making it impossible for the **warm water to mix with the cooler water below,** making it ideal for depression.

   ○ On the other hand, the Arabian Sea receives stronger winds that help dissipate the heat, and the lack of constant fresh water supply helps the warm water mix with the cool water, reducing the temperature.

➢ **Absence of large landmass between the Pacific and the Bay,** allows cyclonic winds to easily move into the Bay of Bengal.

➢ **Cyclones from Pacific Ocean:** Low-pressure system originating from the Pacific ocean also travel towards the left to the Bay of Bengal.

Air Pollution and Life Expectancy

An environment think tank **Centre for Science and Environment** in its report **"At the crossroad"** has said

that **life expectancy in India has gone down by 2.6 years** due to deadly diseases caused by air pollution.

The report is based on the study of three different organisations:

➢ The Global Burden of Disease Study 2017
➢ WHO publication titled **Air Pollution and Child Health**
➢ The review papers by scientists from the Forum of International Respiratory Societies

Key Findings

➢ Air pollution is now the **third highest** cause of death among all health risks ranking just above smoking in India. This is a combined effect of outdoor particulate matter (PM 2.5), ozone and household air pollution.
➢ Air pollution can harm acutely as well as chronically, potentially affecting **every organ in the body**.
  ❍ Ultra-fine particles pass through lungs are taken up by **cells and carried via the bloodstream** to expose virtually all cells in the body. Air pollution may be damaging every organ and virtually every cell in the human body.
  ❍ **Chronic obstructive pulmonary disease (COPD)** are responsible for the 49% of overall deaths due to air pollution, followed by lung cancer deaths (33%), diabetes and ischaemic heart disease (22% each) and stroke at (15%).

Evidence of Health Risk

➢ This year has seen mounting evidence on the impact of air pollution on public health.
  ❍ According to the **State of Global Air 2019** estimates, **over 1.2 million Indians** died early due to exposure to unsafe air in 2017.
  ❍ **Type 2 Diabetes:** This study has, for the **first time**, accounted for risks from type 2 diabetes linked to air pollution. This has serious implications for India where type 2 diabetes has taken an epidemic form.
  ❍ Epidemiological studies in Asia, Europe and North America, supported by toxicology research, have provided strong evidence that exposure to ambient and household PM2.5 contributes to type 2 diabetes incidence and mortality.
  ❍ Exposure to PM 2.5 pollution has contributed to 2,76,000 deaths and 15.2 million DALYs from type 2 diabetes in 2017 worldwide.
  ❍ Approximately 80% of Indians breathe air that is worse than the levels recommended by **National**

Ambient Air Quality Standards, the entire population of the country lives in areas with PM2.5 concentrations above the WHO Air Quality Guideline of 10 µg/m³.
  ❍ **Premature death:** India records the **highest premature deaths** of children under five years due to toxic air.

> **Disability-Adjusted Life Year (DALY)**
> ➢ It quantifies the burden of disease from mortality and morbidity.
> ➢ DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences.

Phosphine as Fumigant

Scientists from the **National Centre for Integrated Pest Management (NCIPM)** and **Indian Council of Agricultural Research (ICAR)** have conducted experiments in four different agro-climatic locations for the **use of Phosphine as replacement of methyl bromide**.

➢ Phosphine is highly effective against the pests as a fumigant in a gaseous form. It is normally produced using aluminium phosphate as substrate.
➢ Phosphine may be as effective as the methyl bromide in killing insect pests and can be used as **quarantine fumigant at ports**.

Methyl Bromide

➢ Methyl bromide is used for killing insect pests and as quarantine fumigant at ports. **Methyl bromide** is an **ozone-depleting substance.**
➢ India has signed and ratified the Montreal Protocol, and is committed to phasing out methyl bromide and other ozone-depleting substances (ODS) by 2015.
  ❍ The fumigant is still used at Indian ports for treating cereals and pulses imported from other countries to quarantine insect pests.
➢ The fumigant is said to have **60 times ozone-depleting potential** than refrigerant chlorofluorocarbons, which has already been phased out globally.
➢ 95% of the countries in the world have phased out methyl bromide and only India and a few South East Asian countries currently permit its use.

Note:

- India has been penalising those who are exporting food products without treating them with methyl bromide and this has been an issue of contention in many bilateral trade deals.

Use of Phosphine

- India has banned the use of methyl bromide in domestic warehouses, phosphine is used in its place as a fumigant.
  - **Methyl bromide is not good for repeated use** as it leaves residues in the grains.
  - The grains stored in warehouses need to be fumigated every three months and phosphine which has no residual build-up, should be preferred over methyl bromide.
- Currently, methyl bromide is preferred as **quarantine pest fumigant** as it is fast-acting and provides an advantage of time.
  - It is capable of killing pests like grain borers, beetles and weevils in less than 24 hours.
  - Phosphine, on the other hand, takes almost five days.

Ozone-depleting substances

- These are **man-made gases** that destroy ozone once they reach the ozone layer.
- Ultraviolet radiation can have detrimental effects on both humans and the environment such as inducing skin cancer and cataracts, distorting plant growth and damaging the marine environment.
- Ozone-depleting substances include Chlorofluoro-carbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Hydrobromofluorocarbons (HBFCs), Halons, Methyl bromide, Carbon tetrachloride, Methyl chloroform.
- These substances have been used as refrigerants in commercial, home and vehicle air conditioners and refrigerators, foam blowing agents, components in electrical equipment, industrial solvents, solvents for cleaning (including dry cleaning), aerosol spray propellants, fumigants.

Plastic Ingestion

The World Wide Fund for Nature's (WWF) study has revealed that people worldwide could be ingesting five grams of microscopic plastic particles every week, which is equivalent to the weight of a credit card.

- **Microplastics** are plastic particles measuring **5 mm** in size or smaller.

Key Findings

- **Sources of plastic ingestion:**
  - **Drinking water** is one of the largest sources of plastic ingestion (with plastic particles found in bottled, tap, surface and groundwater).
  - **Shellfish:** It account for as much as 0.5g a week.
- **Inhalation** represented a negligible proportion of microplastics entering the human body.
- **Indoor air** because of its **limited circulation** is more heavily polluted with plastic than the outdoors.
  - Major sources of **Indoor airborne microplastics** are synthetic textiles and household dust.

Global Plastic Burden

- In the last two decades, the world has produced as much plastic as during the rest of history, and the industry is set to **grow by 4%** a year until 2025.
- About one-third of waste plastics are dumped or **leaches into nature, polluting land, rivers and the sea**.
- **Ocean** will contain **one metric tonne of plastic for every three metric tonnes of fish** by **2025**.

Plastic Pollution and Wildlife

- Animals also ingest large quantities of plastic that they cannot pass through their digestive systems, resulting in **internal abrasion, digestive blockage** and **death**.
- **Toxins** from ingested plastic also harm breeding and impair the immune system of animals.

Curbing Plastic Pollution

- **Political and economic actions** to reduce the amount of plastic being disposed of into the environment.
- **Minimize the use** of plastics and **encourage recycling** of plastics instead of taking stringent acts of total ban or zero plastic.
- **Legally binding agreement** to combat marine plastic pollution - it should be a stand-alone treaty like the Montreal Protocol or the Paris Agreement.
- **Binding national commitments** and protocols for restricting commercial and household use of plastics.

Colour Morphs of Wild Cat

Indian scientists from the **Zoological Society of London (ZSL)**, an international conservation charity, and University College London (UCL) have discovered **six color morphs** of the golden cat in **Dibang Valley of Arunachal Pradesh**.

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Color morphs

➢ Colour morphs are basically occurrence of **two or more discrete colour forms** of the animal within a population. **For example:** Black panther is a color morph of the common leopard.

➢ Colour morphs are thought to arise from **random genetic mutations** and take hold in the population through **natural selection**.

➢ **Dibang Valley** hosts the **world's most diverse range** of colour morphs of a wild cat species ever reported in one site.

Significance

➢ Understanding the **evolutionary theory of color morphs** could help scientists to understand how quickly species can **adapt and evolve** to changing environments.

➢ This would help scientists to gain a better insight into the **resilience capacity of the species to climate change or habitat degradation and destruction,** which is also the reason for the decreasing population of these species.

➢ Color Morphs could help in **conservation of Asiatic Golden Cats,** as it provides **Ecological Benefits** to cats like:

  ❍ Occupying **different habitats** at different elevations from wet tropical lowland forests to alpine scrubs .

  ❍ Providing **camouflage** while preying on pheasants and rabbits.

Asiatic Golden Cat

➢ Asiatic Golden Cat is a medium-sized wild cat native to **north-eastern Indian** subcontinent.

➢ The **Asiatic golden cat** (Catopuma temminckii) is listed as **near threatened** on the International Union for Conservation of Nature's Red List of threatened species.

➢ Asiatic cats are mentioned in Wildlife Protection Act's schedule 1.

➢ Wild cats are also included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora(CITES) Appendix 1.

Dibang Valley

➢ Dibang Valley District is located in the North-Easternmost corner of Arunachal Pradesh.

➢ Largest district of Arunachal Pradesh with the lowest density of population in India.

➢ India's **first 'snow tigers'** were spotted in upper reaches of Dibang Valley.

Rare Easterly Winds over the Indian Ocean

➢ Climate Prediction Centre of the US National Weather Service has said that **unusually warm waters in the Arabian Sea** have set up a **rare band of easterly winds** over the Indian Ocean, which has significantly **delayed the monsoon** onset over the Kerala coast.

➢ The number of factors has led to a dry spell in India:

  ❍ **Madden-Julian Oscillation (MJO):** Its location and strength may play an important role in the development of monsoon over India during the next several weeks.

  ❍ **Cyclone 'Vayu':** It took advantage of an MJO wave traversing the West Indian Ocean and adjoining South Arabian Sea.

  ❍ **Storm initiation:** Over the East Indian Ocean and adjoining Bay of Bengal have led to **oceanic circulation** over North-East and adjoining East-Central Bay.

Madden-Julian Oscillation

➢ It is an oceanic-atmospheric phenomenon which affects weather activities across the globe. It brings major fluctuation in tropical weather on weekly to monthly timescales.

➢ The MJO can be defined as an eastward moving 'pulse' of clouds, rainfall, winds and pressure **near the equator** that typically recurs every 30 to 60 days.

➢ It's a traversing phenomenon and is most prominent over the Indian and Pacific Oceans.

Sheath Blight Disease

➢ Sheath blight is a **fungal disease** caused by **Rhizoctonia solani**.

➢ **Rice sheath blight** is an increasing concern for rice production, especially in intensified production systems.

➢ Infected leaves dry out and die more rapidly, young tillers can also be destroyed. As a result, the leaf area of the canopy can significantly be reduced by the disease. This reduction in leaf area are the primary **causes of yield reduction**.

Why and Where it occurs?

➢ Sheath blight occurs in areas with **high temperature** (28–32°C), **high levels of nitrogen fertilizer**, and relative humidity of crop canopy from 85-100%.

Note:

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➢ Plants are more vulnerable to sheath blight during the rainy season.

➢ High seeding rate or close plant spacing, dense canopy, the disease in the soil, sclerotia or infection bodies floating on the water, and growing of high yielding improved varieties also favour disease development.

World Day to Combat Desertification and Drought

The World Day to Combat Desertification and Drought is observed every year on **17th June**. India for the first time will host the 14th session of the Conference of Parties (COP-14) of the United Nations Convention to Combat Desertification (UNCCD) in September, 2019.

➢ **The Theme** of 2019 is **"Let's Grow the Future Together"**.

United Nations Convention to Combat Desertification (UNCCD)

➢ It was established in 1994, the **sole legally binding international agreement** linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.

➢ **UNCCD 2018-2030 Strategic Framework:** It is the most comprehensive global commitment to achieve **Land Degradation Neutrality (LDN)** in order to restore the productivity of vast expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable populations to build.

➢ The UNCCD is particularly committed to a **bottom-up approach**, encouraging the participation of local people in combating desertification and land degradation.

UNCCD Estimate of Desertification

➢ **Land & Drought:** By 2025, 1.8 billion people will experience absolute water scarcity, and 2/3 of the world will be living under water-stressed conditions.

    ○ A complex and slowly encroaching natural hazard with significant and pervasive socio-economic and environmental impacts to cause more deaths and displace more people than any other natural disaster.

➢ **Land & Human Security:** By 2045 some 135 million people may be displaced as a result of desertification.

    ○ Achieving land degradation neutrality -by rehabilitating already degraded land, scaling up sustainable land management and accelerating restoration initiatives – is a pathway to greater resilience and security for all.

➢ **Land & Climate:** Restoring the soils of degraded ecosystems has the potential to store up to 3 billion tons of carbon annually.

    ○ The land use sector represents almost 25% of total global emissions. Its rehabilitation and sustainable management are critical to combating climate change.

India and UNCCD

➢ The Union Ministry of Environment, Forest and Climate Change (MoEFCC) in partnership with the **International Union for Conservation of Nature (IUCN)** also launched a flagship project on enhancing capacity on **forest Landscape Restoration (FLR)** and **Bonn Challenge** in India, through a pilot phase of 3.5 years implemented in the States of Haryana, Madhya Pradesh, Maharashtra, Nagaland and Karnataka.

Desertification

➢ It is the degradation of land in arid, semi-arid and dry sub-humid areas. It is caused primarily by human activities and climatic variations. Desertification does not refer to the expansion of existing deserts.

➢ It occurs because dryland ecosystems, which cover over one-third of the world's land area, are extremely vulnerable to overexploitation and inappropriate land use.

➢ Poverty, political instability, deforestation, overgrazing and bad irrigation practices can all undermine the productivity of the land.

Bonn challenge

➢ The Bonn Challenge is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.

➢ At the UNFCCC Conference of the Parties (COP) 2015 in Paris, India also joined the **voluntary Bonn Challenge Pledge** to bring into restoration 13 million hectares of degraded and deforested land by the year 2020, an additional 8 million hectares by 2030.

➢ India's pledge is one of the largest in Asia.

Climate Change and Crop Production

According to a recent study, India's **grain production is vulnerable to climate change**, primarily because of the **decline in yield of rice crop during extreme weather conditions**.

➤ Researchers from Columbia University in the US studied the effects of climate on **five major crops in India**: finger millet, maize, pearl millet, sorghum, and rice.

  ○ These five grains are essential for meeting India's nutritional needs.

  ○ These crops make up the vast majority of grain production during the June-to-September monsoon season with rice contributing three-quarters of the supply for the season.

➤ It can be noted that recently, the **United Nations' State of Food Security and Nutrition in the World report 2018** said that climate change is already having a **negative effect on global agriculture** and is driving up the **number of hungry people around the world**.

➤ The study, however, found that **the yields from grains** such as millet, sorghum, and maize are **more resilient to extreme weather**.

➤ On the other hand, **yields from rice** experiences **larger declines during extreme weather conditions**.

  ○ By relying more and more on rice, India's food supply is **potentially vulnerable** to the effects of varying climate.

➤ Therefore, expanding the area planted with alternative grains like finger millet, maize, pearl millet, sorghum can reduce variations in Indian grain production caused by extreme climate.

➤ The study shows that **diversifying the crops** that a country grows can be an effective way to adapt its food-production systems to the growing influence of climate change.

  ○ It also offers benefits like **improving nutrition, saving water, reducing energy demand and greenhouse gas emissions from agriculture**.

➤ Of late, there has been growing awareness about these alternative grains, often clubbed as **"Smart Food"**. Few important developments are:

  ○ **India celebrated 2018 as the national year of millets.** Moreover, India's proposal to observe an **International Year of Millets in 2023** has been approved by the Food and Agriculture Organisation (FAO).

  ○ **ICRISAT** which conducts research on six highly nutritious drought-tolerant crops, recently discovered important factors for **heat and drought tolerance in chickpea**.

Climate Change Impacting Small Island Developing States

The **United Nation (UN)** in its report on **World Population Prospects 2019** has warned that many Small Island Developing States (SIDS) may fail to achieve several Sustainable Development Goals (SDGs) by 2030 because of increasing population and climate change risks.

Small Island Developing States

➤ Small Island Developing States (SIDS) are islands of the Caribbean Sea and the Atlantic, Indian and Pacific Oceans.

➤ The SIDS were recognized as a distinct group of developing countries in June 1992, at the UN Conference on Environment and Development. Total number of SIDS are 39.

➤ SIDS' unique and particular vulnerabilities are highlighted in **"The Future We Want"**, adopted at the **United Nations Conference on Sustainable Development** (also known as Rio+20) that took place in Rio de Janeiro, Brazil in June 2012

➤ Their small size, remoteness, narrow resource and export base, and exposure to global environmental challenges and external economic shocks, including to a large range of impacts from climate change and potentially more frequent and intense natural disasters, SIDS continue to address those structural and external challenges to achieve their sustainable development.

Reasons for Missing SDGs

➤ **Population:** Several SIDS, including Comoros, Guinea-Bissau, Sao Tome and Principe, the Solomon Islands and Vanuatu, are experiencing a sharper population growth, higher than the global average rate of 1.07 per cent.

➤ **Climate Change:** The challenge is bigger for these small countries because of their vulnerability to climate change, climate variability and sea-level rise.

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➤ **Geographical Reasons: One-third** of the entire population of SIDS lives on lands that are less than **five metres below the sea level**. This makes them highly vulnerable to sea-level rise, storm surge and coastal destruction.

Impact of Climate Change on SIDS

These countries contribute only 1 per cent of global greenhouse gas emissions, and yet are among the first to experience the worst impacts of climate change.

➤ Agricultural production, fisheries, and related sectors are declining as the climate changes threatening livelihoods and economic growth.

➤ **UN Environment Programme** in its report highlighted that the extreme weather spawned by climate change is destroying SIDS land, real estate and infrastructure, with economically catastrophic effects.

➤ Tourism forms the foundation of many SIDS economies, and climate change is impacting it. Tourists are being discouraged from travelling to SIDS in the fear of violent and life-threatening storms.

Flood Hazard Atlas

Odisha has released a **unique flood hazard atlas** on the basis of **historic flood inundation** captured through **satellite imagery** over the period from 2001 to 2018.

➤ **Flooding in Odisha:** Every year vast areas of the state are inundated when there is overflow in major rivers like the **Mahanadi, Brahmani, Baitarani, Subarnarekha** and **Rushikulya**.
   ○ Some of the rivers like the **Vamsadhara and Budhabalanga**, also cause **flash floods** due to instant run-off from their hilly catchments.

Flood Hazard Atlas

➤ It is the mapping and zonation of an area prone to frequent flooding, the mapping is done on the basis of the data of the past few years. **The National Remote Sensing Centre (NRSC) of the Indian Space Research Organisation (ISRO)**, Hyderabad does **flood hazard zonation**.

Benefits of Flood Hazard Atlas

➤ **Better Preparedness:** A more **concise focus** on the effects and impacts of the flooded area is possible during the early **planning stages**.

➤ **Risk reduction or mitigation techniques** can be recommended for the same portion of the study area.
   ○ **Location, severity, or frequency** of hazard can be done more easily.

➤ **Proper Assessment of Area:** A study area or sub-area can be expanded, reduced, or deleted. Study areas can be divided into sub-areas requiring more information, additional assessments, or specific reduction techniques.

➤ **Risk Evaluation:** A more realistic evaluation of risks to new development is possible. Appropriate hazard reduction techniques can be more easily developed to deal with an emergency situation.

➤ **Rehabilitation Planning:** It could be initiated in advance with proper coordination among different central and state agencies.

Water Vulnerable Megacities in India

Four Indian cities, **Chennai, Kolkata, Mumbai** and **Delhi** have been ranked among the top 20 megacities in the world facing high levels of water scarcity.

➤ **A study by the World Wildlife Fund (WWF)** evaluated 400 cities globally in 2018 with focus on megacities facing high combined levels of water scarcity — recent and projected drought.

➤ **Chennai has emerged in top position** as the city facing the most severe water scarcity and drought in the world.

➤ **Kolkata has been ranked at number 2, Mumbai at 11 and Delhi at 15.**

➤ Large cities, mostly located along the banks of large rivers, are vulnerable to water scarcity because of the vastly over-allocated and mismanaged river-systems.

➤ **Frequent droughts and flooding due to climate change and depleting levels of water in the reservoirs** are some of the reasons behind the water crisis in these megacities.

➤ **Loss of wetlands** is a key reason. Reports have noted that the world has lost 35% of its wetlands since 1970 and is losing them three times faster than forests.
   ○ As the wetlands shrink, the city loses its natural waste water tank, and in the absence of enough sewage treatment plants, the wastewater goes straight into the river.

The World Wildlife Fund (WWF)

➢ The **World Wide Fund for Nature (WWF)** is an **international non-governmental organization founded in 1961**, working in the field of wilderness preservation, and the reduction of humanity's footprint on the environment.

➢ It was formerly named the World Wildlife Fund, which remains its official name in Canada and the United States.

➢ **Headquarters: Gland, Switzerland.**

➢ The group's mission is **"to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature"**.

○ East Kolkata Wetland, a Ramsar site is an example of the case.

Joint Effort to Conserve Wildlife at Bandipur

National Tiger Conservation Authority (NTCA) has convened an inter-state meeting of senior forest personnel from **Karnataka, Tamil Nadu** and **Kerala** at Bandipur in Karnataka.

➢ It has decided to make a concerted effort to conserve wildlife in the region. The joint effort would primarily focus:

○ To eradicate **invasive plants** such as **Senna Spectabilis** which caused a major threat to the wildlife habitat in the **Nilgiri Biosphere Reserve**.

○ To ensure inter-state coordination in conserving the endangered **vulture population** in the region.

○ To mitigate increasing human-wildlife conflict on the forest fringes of the region. As part of it, **information regarding radio-collared animals and their movements would be exchanged** among the department staff.

○ To stop forest fire and information on such incidents would be handed over to the officials in the adjacent sanctuaries and tiger reserves.

○ Information on accused in forest cases would also be exchanged each other to avert **wildlife-related crimes**.

Bandipur Tiger Reserve

➢ Bandipur Tiger Reserve came into being in 2007. The name is derived from a village called Bandipur

where the administrative unit of the Tiger Reserve is located.

➢ **It the largest protected area in southern India and the largest habitat of wild elephants in South Asia, together with the adjoining Nagarhole National Park, Mudumalai National Park and Wayanad Wildlife Sanctuary.** It is part of the Nilgiri Biosphere Reserve.

➢ The **Moyar River** originating from the Nilgiri Mountain Range near Pykara, meandering through the reserve over a length of more than 20 Km. It is the major water source for wildlife and people living in and around the reserve.

➢ The Tiger Reserve is a distinctive landmass located at the tri-junction area of the States of **Karnataka, Tamil Nadu** and **Kerala**.

Normalized Difference Vegetation Index

A recent study has found that the normalized difference vegetation index does not yield a reliable estimate of **food abundance** for **elephants** in tropical forests.

➢ Normalized Difference Vegetation Index (NDVI) estimates the **density of vegetation** and amount of **food abundance** available for herbivorous animals, for example, elephants.

➢ This index has a **negative correlation** with graminoids (grassy food – grasses, sedges, and rushes – preferentially consumed by elephants) in tropical forests.

○ Negative correlation implies grass density is low in areas with a high value of NDVI (which indicates healthier vegetation).

Normalized Difference Vegetation Index

➢ NDVI calculates the difference between the **red and near infrared components** of light reflected by objects (like satellite).

➢ Since healthy vegetation strongly **absorbs red and reflects near-infrared light**, this difference can indicate the presence of healthy vegetation and can be mapped into a **colour code** (green and red).

➢ **High NDVI value** (bright green) indicates healthier vegetation whereas **low value** (red) indicates less or no vegetation.

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> Data obtained from satellites (like Sentinel-2, Landsat and SPOT) that produce red and near-infrared images are used for estimating NDVI.

Significance

> **Agriculture:** Farmers use NDVI for **precision farming** and to **measure biomass**.

> **Forestry:** Foresters use NDVI **to quantify forest supply and leaf area index**.

> **Environment:** NDVI is used to **inform the ecology of various species**, from elephants and red deer to mosquitoes and birds.

> **Drought:** NASA states that NDVI is a **good indicator of drought** when water limits vegetation growth, it has a lower relative NDVI and density of vegetation.

Day Zero Situation

It has been reported that **Shimla**, Himachal Pradesh and **Udupi** and **Mangaluru** in coastal Karnataka are on the **verge of** becoming Tier 2 cities which would have a **'Day Zero'** situation soon.

Case of Shimla

> Shimla, which has a population of 0.17 million, gets approximately 10,000 visitors daily during the peak tourist season in summer.

> At the time of the peak tourist season, **the demand for water** rises to **45** million litres per day **(MLD)**. However, due to **scanty rain and snowfall and drying up of the perennial water sources**, Shimla has **reserves** of only **18 to 27 MLD**.

Case of Udupi

> The **Swarna river and the Baje dam** are the main source of water for the Udupi city.

> The dam reached the **'dead storage'** limit this year. Dead storage refers to water in a reservoir that cannot be drained by gravity and has to be pumped out.

> The city has been divided into six zones and drinking water from the Swarna is at present being supplied once in six days to each one of these zones in turns.

Case of Mangaluru

> A vented dam was built across the city's **Netravati river** at Thumbe in 1993 to ensure an adequate and continuous supply of water throughout the year.

> Another dam 50 metres downstream of the vented dam was constructed and commissioned in 2016 to meet the future water supply needs of Mangalore

> But this year, with **no inflow into the Netravati**, the corporation has taken the hard decision of water rationing.

Day Zero Situation

> It is a situation **when there will be no water in the taps and the use of water will become restricted for vital services only**.

> Considering the present situation of water crisis in the cities of Shimla, Udupi and Mangaluru, they are being termed as **soon to be India's Cape Towns**.

Case of Cape Town

> In January 2018, officials in Cape Town announced that the city of 4 million people was three months away from running out of municipal water.

> **Labelled "Day Zero"**, 12th April, 2018, was to be the date of the largest drought-induced municipal water failure in modern history, the result of three consecutive years of anemic rainfall.

> One year on, **Cape Town has apparently made it through the worst of a historic drought without turning off the taps,** although the water supply is still tenuous.

> The steps taken include:

  ○ Cape Town's government **ramped up water tariffs** and enforcement of prohibitions on heavy users, **prohibiting the use of municipal water** for swimming pools, lawns, and similar **non-essential uses**.

  ○ Farmers diverted additional water stored for agricultural purposes to the city.

  ○ The city's government also implemented **a new water-pressure system**, saving roughly 10 % of overall municipal water consumption.

Ozone Pollution

According to the data presented by the **Ministry of Environment, Forest and Climate Change** in the Lok Sabha, ozone was reported as a prominent pollutant (for 95 days between 2016 and 2018) in Delhi (contributing to rising **air pollution in Delhi**).

> Delhi has witnessed 122 micrograms per cubic metre (ug/cu m) of ozone pollution which is 1.22 times

higher than the eight-hour average standard which is 100 ug/cu m.

Ozone

Ozone (composed of three atoms of oxygen) occurs both in the Earth's upper atmosphere (stratosphere) and at ground level (troposphere). It can be good or bad, depending on where it is found:

➢ **Good Ozone:** Ozone occurs naturally in the Earth's upper atmosphere (Stratosphere) where it forms a **protective layer** that shields us from the sun's harmful ultraviolet rays.

   ○ **Ozone depleting gases** like chlorofluorocarbons (CFCs), HCFCs, halons, destroy this protective shield and causes hole in the ozone.

   ○ India had adopted the **Kigali Amendment** (aims to phase-down hydrofluorocarbons).

➢ **Bad Ozone:** In the Earth's lower atmosphere (troposphere) near ground level, ozone is formed when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of **sunlight**.

   ○ **Surface level Ozone** is a harmful air pollutant.

Impacts of Ozone Pollution

➢ Surface level ozone causes **damage** to **crops** and **forests**.

➢ Irritation can occur in the **respiratory system** giving rise to **coughs** and an uncomfortable sensation in the chest.

➢ Ozone worsens bronchitis, emphysema, asthma, etc and increases the risk and susceptibility to pulmonary inflammation like **Chronic Obstructive Pulmonary Disease** (COPD).

➢ It may reduce **lung function** and make breathing difficult.

Government Efforts

➢ Shifting to **BS-VI compliant vehicles from BS-IV**.

➢ Shutting down of the Badarpur thermal power plant.

➢ Banning of garbage burning.

➢ **Graded Response Action Plan** (GRAP).

➢ Launch of the **National Clean Air Programme** (NCAP).

➢ Setting up of a monitoring network for assessment of the ambient air quality at 779 locations, covering 339 cities in 29 states and six Union territories

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Art & Culture

Highlights

- *Nilgiri Tribals Tensed Over Destruction of Rock Art*
- *Buddhist Relic Unearthed in Andhra Pradesh*
- *Bacterial Spray and Decaying Monuments*
- *Maharaja Ranjit Singh*
- *Modernization of Army*
- *Wide Empire*

Nilgiri Tribals Tensed Over Destruction of Rock Art

Around **40%** of the rock paintings in Karikiyoor at Kil Kotagiri in the Nilgiri forests have been **destroyed by trekkers, tourists, and vandals**.

➤ **Irula tribal community,** who have an ancestral link to the Nilgiri forest's rock art site, are extremely angered at the damage by illegal trekkers.

About Irula Tribe

➤ Irula people reside in northern districts of **Tamil Nadu** and in some parts of **Kerala**.

➤ Tribes have their origin from ethnic groups of **Southeast Asia and Australia**.

➤ They speak Irula language that is closely related to the Dravidian **language** like Kannada and Tamil.

➤ Irulas are among the **Particularly Vulnerable Tribal Groups (PVTGs)**.

  ○ The PVTGs are the **marginalized section** of the Scheduled tribes of India and are relatively isolated, educationally and socio-economically backward, living in a habitat far away from amenities.

  ○ PVTG is **not a constitutional category**. It is a Government of India's classification created with the purpose of enabling improvement in the conditions of certain communities with particularly low development.

➤ **Scripts** on the rock paintings in Karikiyoor resemble the script found in **Indus civilization** sites of northern India.

Rock Art: Rock art is human-made markings placed on natural stone.

➤ Rock art is often divided into three forms: petroglyphs, which are carved into the rock surface, **pictographs**, which are painted onto the surface, and **earth figures**, formed on the ground.

➤ **Significance**

  ○ The rock paintings serve as a **"historical record"**, detailing the hunting habits and **ways of life** of the local communities.

  ○ Rock arts are used for **ritualistic purposes** by local residents.

  ○ Tribal communities rely on the rock arts for deriving their **cultural connections** by following the customs engraved in the rock art.

➤ Rock art in India is extensively found in the caves of:

  ○ **Bhimbetka Caves:** Located between Hoshangabad and **Bhopal**, in the foothills of the Vindhya Mountains.

  ○ **Bagh Caves:** Located on the bank of Baghani river in the Dhar district of **Madhya Pradesh**.

  ○ **Jogimara Caves:** Paintings were created before the Ajanta and Bagh Caves and belong to **Pre-Buddha caves**.

    • Situated at Amarnath near the origin of Narmada, in Surguja in Chhattisgarh.

  ○ **Armamalai Caves:** Armamalai cave paintings located in **Vellore district of Tamil Nadu**, are known for a Jain temple with ancient paintings, petroglyphs and rock art.

Buddhist Relic Unearthed in Andhra Pradesh

A Buddhist relic has been unearthed in Andhra Pradesh. It is a limestone pillar, which is carved with half lotus medallions at the centre and top portions on all four sides.

➤ It belongs to the Amaravati school of Art of the Ikshvaku times.

Amaravati School of Art
➤ Amaravati school of art evolved and flourished for nearly six centuries commencing from 200-100 BC in India itself, i.e. it has no outside influence.
➤ It was patronized first by the Satavahanas and later by the Ikshvakus.
➤ The material used is a distinctive **white marble** and Amaravati sculptures have a sense of movement and energy with profound and quiet naturalism in human, animal and floral forms.
➤ Both religious (mainly Buddhist) and secular images were present in this style.

➤ It might be a part of Shilamandapa Buddhist monastery where buddhist teachers offered regular discourses on the dhamma of the Buddha.

➤ The exploration was undertaken under **'Preserve Heritage for Posterity'**, an awareness campaign launched by the Cultural Centre of Vijayawada and Amaravati (CCVA), to bring artefact to limelight which remained in neglect in different parts of Andhra Pradesh.

Bacterial Spray and Decaying Monuments

A study has identified bacteria responsible for calcification and hardening of lime.

➤ When the rain water seeps into the monumental structure, lime leaches through basaltic rock joints. This leached lime is acted upon by bacteria, which turn it into hard calcified lime.

➤ Many monuments have been losing its shine and beauty due to white deposits on its surface. **For Example: The Salabat Khan tomb,** located 125 kilometres from Aurangabad in Maharashtra, the study of whom was conducted by the **National Museum Institute of History of Art, Conservation and Museology**.
   ○ The study identified certain bacteria responsible for calcification and hardening of lime, which have been given below:
     ● Bacillus sp,
     ● Arthrobacter sp,
     ● Agromyces Indicus and
     ● Aquamicrobium sp species.

➤ **Bacterial Spray:** A spray of identified organisms along with calcium carbonate can create calcite layer that will help preserve exteriors of monuments.
   ○ In this method, micro-organisms are evenly sprayed on the surface and are fed with nutritional medium containing calcium and urea.
   ○ The bacteria then induces carbonate precipitation by creating low acidic medium and converting dissolved calcium into a protective surface coating of calcium carbonate.
   ○ This process is also known as biocoating. Under it, identified organisms are used to preserve exterior of monuments.

➤ The study proves that living bacteria can be used to clean as well as protect old and historic monuments and also to seal the cracks, if any, without causing any damage to the monument or its surface.
   ○ Currently marble surfaces of historic monuments are cleaned by applying mud packs, which at times can be damaging.

National Museum Institute of History of Art, Conservation and Museology
➤ The National Museum Institute of the History of Art, Conservation and Museology was formed and registered on January 27, 1989 under the Societies Registration Act, 1860.
   ○ It is located in Delhi.
➤ It provides for various courses of study, training and research in different branches of History of art, Museology, Conservation, etc.

Maharaja Ranjit Singh

A statue of Maharaja Ranjit Singh, who ruled Punjab for almost four decades (1801-39), was inaugurated in **Lahore** on the occasion of 180th death anniversary of the legendary Sikh ruler.

➤ In 2016, the town of **St Tropez** in France unveiled the Maharaja's **bronze statue** as a mark of respect.

Maharaja Ranjit Singh

➤ He was born on November 13, 1780 in **Gujranwala**, now in **Pakistan**.
➤ At that time, Punjab was ruled by powerful chieftains who had divided the territory into Misls.

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○ Misla refers to the sovereign states of the **Sikh Confederacy**, that rose during the 18th century in the Punjab region in the northern part of the Indian subcontinent after the collapse of the Mughal Empire.

➢ Ranjit Singh overthrew the warring Misls and established a **unified Sikh empire** and was given the title **Lion of Punjab** (Sher-e-Punjab) for his success in freeing Lahore (his capital) from the Afghan invaders.

Modernization of Army

➢ He combined the strong points of the **traditional Khalsa army** with western advances in warfare to raise **Asia's** most **powerful indigenous army** of that time.

➢ He also employed a large number of **European officers**, especially French, to train his troops.

➢ He appointed French General **Jean Franquis Allard** to modernize his army.

Wide Empire

➢ Ranjit Singh's **trans-regional empire** (spread over several states) included the former Mughal provinces of Lahore and Multan besides part of Kabul and the entire Peshawar.

➢ The boundaries of his state went up to **Ladakh** — in the northeast, **Khyber pass** (route the foreign rulers took to invade India) in the northwest, and up to **Panjnad** in the south where the five rivers of Punjab fell into the Indus.

Legacy

➢ The Maharaja was known for his **just** and **secular rule**.
   ○ Both Hindus and Muslims were given powerful positions in his darbar.

➢ He turned **Harimandir Sahib** at Amritsar into the **Golden Temple** by covering it with gold.

➢ He is also credited with funding **Hazoor Sahib gurudwara** at the final resting place of Guru Gobind Singh in Nanded, Maharashtra.

■■■

Note:

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Social Issues

Highlights

- *Draft National Education Policy Unveiled*
- *Disability Summit, 2019*
- *End of Childhood Index*
- *India and the Hunger Fight*
- *Acute Encephalitis Syndrome*
- *Vaccine for Alzheimer's Disease*
- *World Day Against Child Labour*
- *Nipah Virus and Fruit Bat*
- *Hypoglycemia and Acute Encephalitis Syndrome*
- *Piped Water Connection by 2024*

- *National Health Mission and Janani Suraksha Yojana*
- *Anaemia in Women*
- *Trafficking in Persons Report*
- *New Injection for Type-2 Diabetes*
- *National Food and Nutrition Security Analysis*
- *NITI Aayog's Health Index*
- *Celiac Disease*
- *Tricloson and Osteoporosis*
- *Married Women Out of Labour Force*
- *Agreement with the World Bank to Eliminate TB*

Draft National Education Policy Unveiled

Committee led by **Dr K. Kasturirangan** presented **new draft of National Education Policy**.

➢ The draft policy is built on foundational pillars of **access, equity, quality, affordability & accountability**.

Key Recommendations

➢ **Sanskrit at All Levels of Education:** Sanskrit should be taught at all levels of **school and higher education** as one of the optional languages on par with all Schedule 8 languages.
  ○ Sanskrit textbooks at the foundational and middle school level may be rewritten in **Simple Standard Sanskrit (SSS)** in order to teach **Sanskrit through Sanskrit (STS)**.

➢ **Extension of the Right To Education (RTE) Act:** RTE, which currently applies to classes I to VIII, will now be applicable to the entire school system from pre-school to class XII, covering children of ages 3 to 18 years.

➢ **Restructuring of the School Curriculum and 5+3+3+4 Design:** Under the proposed 5+3+3+4 design,
  ○ The first five years of schooling of children in the age group of 3 to 8 years would be marked as **Foundational Stage** (it includes three years of pre-primary plus **grade-1 and grade-2**).

○ The next three years of schooling, to be marked as a **Preparatory Stage** for the children in the age group of 8 to 11 years (will include **grades 3 to 5**).
  ○ **Middle Stage (grades 6 to 8)** for the students in the age group of 11-14 years.
  ○ **Secondary Stage (grades 9-12)** for students in the age group of 14-18 years.

➢ Schools will be re-organized into **school complexes**.

➢ **System for flexible and multiple board examinations:** Introduction of a **semester system in school education** for students of classes 10th to 12th, with provisions for holding **"flexible and modular board examinations"**.
  ○ Students will be able to take a board examination in a given subject in whichever semester they take the corresponding class in school, whenever they feel most ready.
  ○ They should be able to take any such subject board examination again if they feel they can study and do better.

➢ **Restructuring of the higher education institutions** by placing them under three categories:
  ○ The first primarily being focused on **research**.
  ○ Second, providing **high-quality teaching** across disciplines with significant contribution to research.
  ○ Third providing **quality teaching focussed on undergraduate education**.
  ○ It also suggests the introduction of **four-year undergraduate programmes** in higher education

Note:

institutions and restructuring of the current 3 year BA, BSc, B.Com. and B.Voc. programmes with provisions to provide students with **"multiple exits and entry options"**.

➤ **Establishment of a Rashtriya Shiksha Aayog (National Education Commission)** as a **constitutional body** through an Act of Parliament, with the **Prime Minister** being its Chairperson.

○ Rajya Shiksha ayog/State Education Commissions may be constituted in each state.

➤ **Establishment of Single Higher Education Regulator— National Higher Education Regulatory Authority (NHERA) —** that will subsume all other bodies like UGC, AICTE and others into it.

➤ **A national programme for the professional development** of faculty members of higher education institutions.

Disability Summit, 2019

The Government of Argentina, International Alliance Disability (IDA), and the Latin American Network of Non-Governmental Organizations of Persons with Disabilities and their Families (RIADIS) has hosted the second **"Disability Summit, 2019"** at the **Buenos Aires**.

➤ The **first "Global Disability Summit"** was held in **London in 2018**.

➤ The Summit represents an opportunity to reflect on the formulation and strengthening of public policies and good practices in the different discussion panels, with the voices of people with disabilities to be at the forefront.

➤ The Summit will bring together governments, organizations of people with disabilities, civil society organizations, international organizations, international cooperation agencies, academia and the private sector, with the hope of achieving real change for people with disabilities.

International Alliance Disability

➤ The **International Disability Alliance (IDA)** was created in 1999. It is an umbrella organization focused on improving awareness and rights for individuals with disabilities around the globe.

➤ It is an alliance of **eight global and six regional organizations** of persons with disabilities.

➤ It advocates at the UN for a more inclusive global environment for persons with disabilities and their organizations.

United Nations Convention on the Rights of Persons with Disabilities

➤ The **United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)** is an optional UN protocol. It was adopted on 13th December 2006 at the United Nations Headquarters in New York.

➤ **India signed** the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and subsequently **ratified** the same on 1st October 2007. The Convention came into effect on 3rd May 2008.

➤ The **International Day of Persons with Disabilities** is observed on **3rd December**.

End of Childhood Index

India ranks 113th out of 176 countries on an index that evaluates countries on the wellbeing of children. **The End of Childhood Index** is part of the **Global Childhood Report** released by UK-based **Save the Children**, a non-profit organisation that works for child rights.

Performance of India

➤ **Child Mortality:** India has **reduced** its child mortality rate by **55%** in the last two decades, from 88 deaths per 1,000 live births in 2000 to 39 deaths per 1,000 live births in 2017.

➤ **Stunting of Children:** Low height for age, among children below age five, **fell 25% globally** between 2000 and 2019.

○ In India, about 38% of children under five were stunted, the second-worst performance compared to its neighbours after Pakistan (40.8%). China (6%) had the lowest rate in the region, followed by Nepal (13.8%), Sri Lanka (17.3%), Bangladesh (17.4%) and Bhutan (19.1%).

○ There are wide **disparities between states in India** – while 48.3% of children are stunted in Bihar, 45.3% in Jharkhand and 37.6% in Chhattisgarh, Kerala has the least at 19%, followed by Tamil Nadu (27.1%)

➤ **Free Universal Education:** Despite India's advances at giving free universal education to its children, about 20% of them (aged 8-16) were still out of school as of 2018.

➤ **Child Marriages:** India halved its number of child marriages in 18 years. This change has been fastest among girls younger than 15 years of age.

Note:

➢ **Adolescent Births:** India alone accounts for nearly three-quarters of the global reduction in adolescent births and has managed to reduce adolescent births by 63% since 2000, which has resulted in 2 million fewer young mothers.

India and the Hunger Fight

The United Nations has set the year 2030 as the deadline to end global hunger and **India as of now has performed poorly in its efforts to eliminate hunger with most states not on track to meet the UN's Sustainable Development Goal-2 (SDG-2).**

Sustainable Development Goal-2 (Zero Hunger)

➢ Goal-2 seeks sustainable solutions **to end hunger in all its forms by 2030** and **to achieve food security**.

➢ Achieving this Goal requires better access to food and the widespread promotion of sustainable agriculture. **This entails improving the productivity and incomes of small-scale farmers by promoting equal access to land, technology and markets,** sustainable food production systems and resilient agricultural practices.

Government of India Initiatives

➢ The **National Nutrition Strategy** aims to accelerate the decline of malnutrition in India. **The National Nutrition Mission monitors the growth of children,** as well as checks the pilferage of food rations provided at Anganwadi Centres.

➢ **POSHAN Abhiyaan,** launched in 2017-18, **aims to reduce stunting, under-nutrition, anaemia and low birth weight through** synergy and convergence among different programmes, better monitoring and improved community mobilisation.

➢ **Antyodaya Anna Yojana (AAY)** aims to provide food at subsidized prices to poor families.

➢ The **Integrated Child Development Scheme (ICDS)** envisages comprehensive early childhood care and development by focussing on children in the age group of 0-6 years, pregnant women and adolescent girls.

➢ **Mid-Day Meal (MDM)** scheme **aims to improve nutritional levels among school children** which also has a direct and positive impact on enrolment, retention and attendance in schools.

➢ Under the **Pradhan Mantri Matru Vandana Yojana (PMMVY)**, ₹6,000 is transferred directly to the bank accounts of pregnant women for availing better facilities for their delivery.

➢ **The National Mission on Agriculture Extension and Technology** enables delivery of appropriate technologies and improved agronomic practices for farmers.

➢ **The National Mission on Sustainable Agriculture** and the **National Food Security Mission** aims to enhance agricultural productivity, and the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** aims to improve water-use efficiency.

Acute Encephalitis Syndrome

Several children have died in the **Muzaffarpur district** of north Bihar, due to **Acute Encephalitis Syndrome (AES)**, which is locally known as *Chamki bukhar* **(brain fever)**.

➢ The AES cases in Muzaffarpur and adjoining **litchi producing districts** have been observed mostly from April to June, particularly in children who are **undernourished** with a history of visiting litchi orchards.

➢ **High temperature** during summer, along with humidity, is considered to be an ideal situation for the outbreak of Acute Encephalitis Syndrome.

➢ Relationship between **consumption of litchi** and **AES** was postulated by National Centre for Disease Control, Delhi (along with Centre for Disease Control US) in acute encephalitis in children in Muzaffarpur.

➢ Unripe litchis contain the **toxins hypoglycin A** (naturally occurring amino acid) and **methylenecyclopropyl-glycine (MCPG)**, which cause vomiting if ingested in large quantities.

Acute Encephalitis Syndrome

➢ **Acute Encephalitis Syndrome** is a severe case of encephalitis **transmitted by mosquitoes** and is characterized by **high fever** and **inflammation of the brain**.

➢ The disease most commonly affects **children and young adults** and can lead to considerable **morbidity and mortality**.

➢ **Causative Agents: Viruses** are the main causative agents in AES cases, although other sources such as **bacteria, fungi, parasites, spirochetes, chemicals, toxins, and noninfectious agents** have also been

reported over the past few decades. **It is not vaccine-preventable.**

  ❍ **Japanese Encephalitis Virus** (JEV) is the major cause of AES in India (ranging from 5%-35%).

  ❍ **Herpes Simplex Virus, Nipah virus, Zika virus,** Influenza A virus, **West Nile virus,** Chandipura virus, mumps, measles, dengue, scrub typhus, S.pneumoniae are also found as causative agents for AES.

➢ **Symptoms:** They include confusion, disorientation, coma, or inability to talk, high fever, vomiting, nausea, and unconsciousness.

➢ **Diagnosis: The National Vector Borne Disease Control Programme** in India has set up countrywide surveillance for AES through sentinel sites with a focus on detecting Japanese Encephalitis Virus (JEV).

Government Initiatives

In order to reduce morbidity, mortality, and disability in children due to JE/AES, Government of India under **National Programme for Prevention and Control of Japanese Encephalitis/Acute Encephalitis Syndrome (NPPCJA)** has developed a multi-pronged strategy with the convergence of the concerned Ministries.

➢ **Ministry of Health and Family Welfare:**

  ❍ Strengthening and expanding JE vaccination

  ❍ Strengthening of public health activities

  ❍ Better clinical management of JE/AES Cases

  ❍ Physical Medicine and Rehabilitation (PM&R)

  ❍ Establishing of the district counselling centre

  ❍ Monitoring, supervision, and coordination

➢ **Ministry of Drinking Water and Sanitation** for the provision of safe water supply.

➢ **Ministry of Women and Child Development** for providing high-quality nutrition to vulnerable children.

➢ **Ministry of Social Justice and Empowerment** for establishing District Disability Rehabilitation Centers for disability management and rehabilitation.

➢ **Ministry of Housing and Urban Poverty Alleviation (HUPA)** for ensuring the supply of safe water in slums and towns.

➢ **Ministry of Human Resource** (Department of School Education) to provide special facilities for disabled children for their education.

Vaccine for Alzheimer's Disease

Dr. Kiran Bhaskar (an Indian-American scientist at the University of New Mexico) led team has developed an early version vaccine for **Alzheimer's disease**.

➢ **Vaccine intervention** could rescue **memory impairments** and **prevent neurons** from dying by **reducing tau tangles** in parts of the brain that are critical to **memory and learning**.

➢ The vaccine uses **Virus-Like Particles (VLP)** that helps mice to develop **antibodies** to get rid of tau tangles in them, which are responsible for breeding symptoms of Alzheimer's in humans also.

➢ **Tau** is a protein that when it occurs in tangled formations in the brain of Alzheimer patients, disrupts the ability of neurons to communicate with one another in the brain.

➢ Body's **immune system** is capable of **generating antibodies** that are responsible for eliminating tau tangles.

Alzheimer's

➢ Alzheimer's disease is a **neurological disorder** which causes brain cells to **degenerate** and **die**. This leads to **loss of memory**, problems with words in **speaking or writing, poor judgment**, changes in **mood and personality, confusion with time or place** etc.

  ❍ At the first stage, these symptoms are mild but they become **more severe with time**.

➢ Alzheimer's is the most common **cause of dementia** among older adults.

  ❍ Dementia is a group of brain disorders that cause the loss of intellectual and social skills.

➢ It is caused by the build-up of proteins known as **tangles or plaques** within the brain and is also known as the third type of diabetes.

➢ **Ageing** is the greatest risk factor for Alzheimer's disease but sometimes symptoms may occur at the age of 30s or so because of rare genetic changes in the people.

➢ Alzheimer's is an **incurable disease**, as the death of brain cells cannot be reversed.

➢ **Women** have a **higher risk** of having Alzheimer's disease than men.

Note:

○ According to the US Department of Health and Human Services, nearly twice as many women have Alzheimer's disease as men.

Fact and Findings

➢ India houses more than **4 million** people suffering from some form of dementia and this number is set to **triple by 2050**.

➢ Worldwide, at least 44 million people are living with dementia, making the disease a global health crisis that must be addressed.

➢ **Western countries** report a high rate of Alzheimer's, mainly on account of better diagnosis compared to countries like India where it is often ignored as a natural process of ageing.

World Day Against Child Labour

A **'Baal Panchayat' (Children's Parliament)** was organised in the Delhi by Kailash Satyarthi's Children's Foundation on the occasion of **World Day against Child Labour**.

➢ Children presented a charter of demands in the children's parliament which they wished to convey to the Government of India.

➢ According to the Census 2011, most child labour in India are employed for agriculture and allied activities. This is in sync with the global trend which shows that 71 per cent of child labour is concentrated in this sector.

World Day Against Child Labour

➢ Every year **12th June** is celebrated as the **World Day Against Child Labour**. The International Labour Organization (ILO) launched the **World Day Against Child Labour in 2002** to focus attention on the global extent of child labour and the action and efforts needed to eliminate it.

➢ **The theme of 2019: "Children shouldn't work in fields but on dreams".**

➢ **Target 8.7 of the SDG** calls on the global community to take immediate and effective measures to eradicate forced labour and end modern slavery.

ILO Convention on Child Labour

➢ India has ratified six out of the eight core/fundamental International Labour Organisation (ILO) Conventions.

○ The Forced Labour Convention, 1930 (No. 29)

○ Abolition of Forced Labour Convention, 1957 (No. 105)

○ Equal Remuneration Convention, 1951 (No. 100)

○ Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

○ Minimum Age Convention, 1973 (No. 138)

○ Worst Forms of Child Labour Convention, 1999 (No. 182).

➢ India has **not ratified** the core/fundamental Conventions, namely **Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)** and **Right to Organise and Collective Bargaining Convention, 1949 (No. 98)**.

Nipah Virus and Fruit Bat

Fruit bats have been identified as carriers of the deadly Nipah virus in Kerala.

Fruit Bat

➢ Fruit bats, as opposed to insectivorous bats, survive largely on a diet of fruit, which they **locate with their sense of smell** (insectivorous bats locate their prey through **echolocation**, i.e, locating the source of the echoes of their own sound).

➢ Fruit bats belong to the Pteropodidae family; those in the Pteropus genus within this family are natural hosts for the Nipah virus.

➢ Fruit bats are widely found in South and Southeast Asia and are also known as **flying foxes**.

Nipah Virus and Fruit Bat Connection

➢ The virus survives in the bat's body without causing disease, allowing it to jump to susceptible mammals like humans or pigs when bats come in contact with them.

➢ The National Institute of Virology had found that the virus was first transmitted from fruit bats identified as Pteropus.

➢ In Bangladeshi outbreaks, researchers found antibodies to Nipah in the Indian flying fox.

Significance

➢ Identifying the source of the Nipah infection will help prevent future spread, as Nipah virus has a spillover

effect i.e virus seems to have moved from **bats to humans** in one event and after this moved from **one human to another**.

Why are so many diseases linked to bats?

➢ All bats can carry viruses, some of them deadly like:
  ❍ Severe Acute Respiratory Syndrome (SARS) antibodies were found in insectivorous bats.
  ❍ Ebola antibodies were found in Hammer-headed fruit bat.
  ❍ Indian Flying Fox hosts over 50 viruses.
➢ With around 1,200 species, bats comprise 20% of the earth's mammalian diversity.
➢ Long periods of flying raises the temperatures of bats, boosting their immune responses and helps them survive the microbes' pathogenic effects.

Hypoglycemia and Acute Encephalitis Syndrome

In the outbreak of Acute Encephalitis Syndrome (AES) in Bihar, witnessing around 350 cases and 103 deaths, **most of these deaths have been attributed to hypoglycaemia** *i.e.* **low blood suga**r.

➢ Hypoglycemia is a commonly seen sign among patients of AES, and the link has been the subject of research over the years.

About AES

➢ **Acute Encephalitis Syndrome (AES)** is a broad term involving several infections which affects young children. The syndrome can be caused by **viruses, bacteria or fungi**. In India, the most common cause is the virus that causes Japanese Encephalitis (JE).
➢ The syndrome is also caused by infections such as **scrub typhus, dengue, mumps, measles,** and even **Nipah or Zika virus**.

How is Hypoglycemia linked to AES?

➢ Hypoglycemia is not a symptom but a sign of AES. The combination of AES with hypoglycaemia is **unique** to Muzaffarpur (Bihar), Vietnam and Bangladesh.
➢ In Bihar, convulsions in children (which is AES) are found in combination with hypoglycemia. This hypoglycemia is caused by malnourishment and lack of proper diet.

➢ **Methylene Cyclopropyl Glycine (MCPG)** which has been known to be a content of litchi fruit has been shown to cause hypoglycemia in experimental animals.
➢ When litchi harvesting starts in May, it is common for children to feed on fallen litchis and sleep without food. The toxin in litchi lowers blood sugar level during the night, and these children are found unconscious in the morning.
➢ The attributing factors to **hypoglycaemic AES are malnutrition, heat, lack of rain** and **entero-virus**.
➢ A team from the Centers for Disease Control, Atlanta, and Christian Medical College, Vellore, has concluded that heat, humidity, unhygienic conditions and malnutrition, unique to these areas, together contribute to the rise in AES.

How is the government tackling AES?

➢ The Bihar government introduced **free vaccines** at all primary health centres. The current coverage is 70%.
➢ The central and state governments have conducted **awareness campaign** since February asking people not to expose their children to sun, ensure a proper diet and increase fluid intake.
➢ **Early hospital referral** and standard treatment for convulsions, high fever and vomiting can save lives.

Piped Water Connection by 2024

The Prime Minister has recently said that the **government will provide piped water to every household** in the next five years i.e. by **2024**.

➢ This is the **12th time** that India has set a deadline to take water at the household-level.

Challenges

➢ It would be an **enormous exercise**:
  ❍ Some 8.43 million households, currently without drinking water facilities, have to be connected to piped water in the next five years.
  ❍ Some 4,620 households would have to be added to the network every day for the next five years, at the rate of 40 litres per day.
➢ India remains haunted by what is known as the **"slippage" problem**. It means **villages/habitations covered** with safe drinking water facilities **slip back**

Note:

to 'not-covered' status **due to** various reasons that include **drying up of the source** or collapse of the facilities due to non-maintenances.

- ❍ Currently, India is facing a **water stressed situation**, two major reasons being, **drying reservoirs** and **dipping groundwater levels**.

- ❍ It is to be seen from where the piped water supply scheme would draw water as currently the country is going through a **water crisis situation**.

➢ **The quality of water sources** — both surface and ground sources — is hardly suited to drinking. According to NITI Aayog, nearly 70% of all of the country's fresh water sources are contaminated.

➢ **Water, being a state subject,** the scope of the centre's intervention is therefore limited.

Way Forward

➢ There is an urgent need to **create awareness among the people** for the conservation of water.

➢ **The Jal Shakti Ministry needs to work with states** to ensure piped water to every household in the country.

➢ The **sources as well as the quality of water** in the country needs to be maintained on an urgent basis.

National Health Mission and Janani Suraksha Yojana

Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the **National Health Mission (NHM)**. The Yojana was launched on 12th April 2005. It is being implemented in all states and UTs with special focus on low performing states.

JSY is a **100% centrally sponsored scheme** and it integrates **cash assistance with delivery and post-delivery care**.

➢ **Objectives:** It was launched for reducing **maternal and neonatal mortality**, to promote institutional delivery among pregnant women especially with **weak socio-economic status** i.e. women from Scheduled Castes, Scheduled Tribes and BPL households.

➢ **Cash Assistance:** Under the JSY, eligible pregnant women are entitled to cash assistance irrespective of the age of mother and number of children for giving birth in a government or accredited private health facility.

➢ **Area of Focus:** The scheme focuses on the poor pregnant woman with special dispensation for states that have low institutional delivery rates, namely, the states of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Rajasthan, Odisha, and Jammu and Kashmir.

- ❍ While these states have been named **Low Performing States (LPS)** under the scheme, the remaining States/UTs have been named **High Performing States (HPS)**.

➢ The scheme also provides performance-based incentives to women health volunteers known as **ASHA (Accredited Social Health Activist)** for promoting institutional delivery among pregnant women.

Accredited Social Health Activist (ASHA)

➢ ASHA is a trained female community health activist. Selected from the community itself and accountable to it, the ASHA workers are trained to work as an interface between the community and the public health system.

➢ The role of an ASHA is that of a community level care provider. This includes a mix of tasks: facilitating access to health care services, building awareness about health care entitlements especially amongst the poor and marginalized, promoting healthy behaviours and mobilizing for collective action for better health outcomes and meeting curative care needs as appropriate to the organization of service delivery in that area and compatible with her training and skills.

National Health Mission

➢ National Health Mission (NHM) was launched by the government of India in 2013 subsuming the **National Rural Health Mission** and the **National Urban Health Mission**. It was further extended in March 2018, to continue till March 2020.

➢ The main components include health system strengthening in rural and urban areas for - **Reproductive-Maternal-Neonatal-Child and Adolescent Health (RMNCH+A)**, and **Communicable and Non-Communicable Diseases**. The NHM envisages achievement of universal access to equitable, affordable & quality health care services that are accountable and responsive to people's needs.

➢ The National Health Mission seeks to ensure the achievement of the following indicators:

- o Reduce **Maternal Mortality Rate** (MMR) to 1/1000 live births.
- o Reduce Infant Mortality rate (IMR) to 25/1000 live births.
- o Reduce Total Fertility Rate (TFR) to 2.1.
- o Prevention and reduction of anaemia in women aged 15–49 years.
- o Prevent and reduce mortality & morbidity from communicable, non- communicable; injuries and emerging diseases.
- o Reduce household out-of-pocket expenditure on total health care expenditure.
- o Reduce annual incidence and mortality from Tuberculosis by half.
- o Reduce the prevalence of Leprosy to <1/10000 population and incidence to zero in all districts.
- o Annual Malaria Incidence to be <1/1000.
- o Less than 1 per cent microfilaria prevalence in all districts.
- o Kala-azar elimination by 2015, <1 case per 10000 population in all blocks.

Anaemia in Women

According to **National Family Health Survey (NFHS)– IV (2015-16)**, the prevalence of anaemia among women aged **15 to 49 years is 53%** and among adolescent girls aged **15-19 years is 54%**.

Anaemia

- ➢ It is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status.
- ➢ Iron deficiency is the most common cause of anaemia, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can also cause anaemia.
- ➢ In its severe form, it is associated with fatigue, weakness, dizziness and drowsiness. Pregnant women and children are particularly vulnerable.

Under the National Health Mission (NHM), the steps taken to tackle anaemia are:

- ➢ **Anaemia Mukt Bharat (AMB):** It has been launched in the year 2018 as part of Intensified National Iron Plus Initiative (NIPI) Program for accelerating the annual rate of decline of anaemia from one to three percentage points.
  - o The target groups for AMB are children aged 6-59 months, 5-9 years, adolescent girls & boys of 10-19 years, women of reproductive age (15-49 years), pregnant women and lactating mothers.
- ➢ **Weekly Iron and Folic Acid Supplementation (WIFS):** This Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys.
  - o The intervention under WIFS includes supervised weekly ingestion of **Iron Folic Acid (IFA)** tablet.
  - o To control worm infestation, biannual deworming with **Albendazole** is provided.
- ➢ **Health Management Information System & Mother Child Tracking System** is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.
- ➢ **Universal screening** of pregnant women for anaemia is a part of ante-natal care and all pregnant women are provided iron and folic acid tablets during their ante-natal visits through the existing network of sub-centres and primary health centres and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs).
- ➢ **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA):** It has been launched to focus on conducting special Antenatal Care (ANC) check up on the 9th of every month with the help of medical officers/OBGYN to detect and treat cases of anaemia.
- ➢ **Operationalization of Blood Bank:** In District Hospitals and Blood Storage Unit in sub district facilities such as Sub-Divisional Hospital/Community Health Centers is being undertaken to tackle complications due to severe anaemia.

National Family Health Survey (NFHS-4)

- ➢ The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India.
- ➢ All National Family Health Surveys have been conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India, with the International Institute for Population Sciences, Mumbai, serving as the nodal agency.

Note:

➢ **ICF International** (formerly Macro International), Maryland, USA, provided technical assistance for all four surveys conducted as on date.

Trafficking in Persons Report

The U.S. State Department has released the **Trafficking In Persons (TIP) report** for 2019. India continued to be placed in **Tier-2** on the country trafficking scale.

➢ The U.S. State Department report has used the **International Labour Organisation (ILO)** data.

Finding of the Report

➢ There are 25 million adults and children suffering from labour and sex trafficking all over the world. In 77% of the cases, victims are trafficked within their own countries of residence, rather than across borders.

➢ The number of victims trafficked domestically was high compared to foreign victims being trafficked in all regions of the world except Western and Central Europe, the Middle East, and certain East Asian countries.

  ○ Victims of sex trafficking were more likely to be trafficked across borders while victims of forced labour were typically exploited within their own countries.

➢ The report stresses on the implementation of the **Palermo Protocol**. The countries need building **legal frameworks** to prosecute traffickers and provide care for survivors.

Palermo protocols

The Palermo protocols are three protocols that were adopted by the United Nations to supplement the 2000 Convention against Transnational Organized Crime (the Palermo Convention). These protocols and convention fall within the jurisdiction of the United Nations Office on Drugs and Crime. They are:

➢ The Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children.

➢ The Protocol against the Smuggling of Migrants by Land, Sea and Air.

➢ The Protocol against the Illicit Manufacturing and Trafficking in Firearms, their Parts and Components and Ammunition.

Categorisation of Countries

➢ The categorisation is based not on the magnitude of a country's trafficking problem but on efforts to meet minimum standards for the elimination of human trafficking.

➢ The report contains country narratives and category designations for all countries, including the U.S.

➢ The countries are designated on the three-tier system:

  ○ **Tier-1 countries** are those countries whose governments fully comply with the Trafficking Victims Protection Act (TVPA) minimum standards.

  ○ **Tier-2 countries** are those countries whose governments do not fully comply with a TVPA's minimum standards but are making significant efforts to bring themselves into compliance with those standards.

  ○ **Tier-3 countries** whose governments do not fully comply with the minimum standards and are not making significant efforts to do so.

  ○ There are also a few **"Special Cases"** such as Yemen, where the civil conflict and humanitarian crisis make gaining information difficult, and Sint Maarten where the devastation caused by Hurricane Irma has made reporting difficult.

India's Position

➢ **India is placed in Tier-2:** The government demonstrated overall increasing efforts compared to the previous reporting period. The report highlights efforts by the government to crack down on trafficking and convicting traffickers.

  ○ The government took some action following reports of government complicity in forced labour and sex trafficking, although the **systemic failure to address forced labour and sex trafficking** in government-run and government-funded shelter homes remained a serious problem. The report also highlighted the government's failures in this regard.

  ○ **Recommendations for India:** It includes amending the definition of trafficking in Section-370 of the Indian Penal Code to **include forced labour trafficking and ensure that force, fraud, or coercion are not required to prove a child sex trafficking offence**.

  ○ To establish **Anti-Human Trafficking Units** in all districts with dedicated funding and clear mandates.

Note:

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New Injection for Type-2 Diabetes

The U.S. Food and Drug Administration approved **Victoza (liraglutide) injection** for treatment of pediatric **patients of 10 years or older with type-2 diabetes**.

➢ Victoza is the **first non-insulin drug approved to treat type-2 diabetes** in pediatric patients since **metformin** was approved for pediatric use in 2000.

➢ **Victoza** has been approved to treat **adult patients with type-2 diabetes since 2010**.

➢ It has now been shown to improve blood sugar control in pediatric patients with type-2 diabetes.

  ❍ **The expanded indication** provides an additional treatment option at a time **when an increasing number of children are being diagnosed with this disease**.

➢ Although type-2 diabetes primarily occurs in patients over the age of 45, the prevalence rate among younger patients has been rising dramatically over the past couple of decades.

➢ Victoza improves blood sugar levels by creating the same effects in the body as the Glucagon-Like Peptide (GLP-1) receptor protein in the pancreas.

  ❍ GLP-1 is often found in insufficient levels in type 2 diabetes patients.

  ❍ Like GLP-1, Victoza slows digestion, prevents the liver from making too much glucose (a simple sugar), and helps the pancreas produce more insulin when needed.

➢ **Victoza is not a substitute for insulin and is not indicated for patients with type-1** diabetes or those with **diabetic ketoacidosis**, a condition associated with diabetes where the body breaks down fat too quickly because there is inadequate insulin or none at all.

➢ The patients who have had, or have family members who have ever had **Medullary Thyroid Carcinoma (MTC)** should not use Victoza.

  ❍ Medullary carcinoma of the thyroid (MTC) is a distinct thyroid carcinoma that originates in the parafollicular C cells of the thyroid gland.

Diabetes

Diabetes is a condition that impairs the body's ability to process blood glucose, otherwise known as blood sugar.

➢ Types

  ❍ **Type-1 diabetes:** Also known as juvenile diabetes, this type occurs when the body fails to produce insulin. People with type I diabetes are insulin-dependent, which means they must take artificial insulin daily to stay alive.

  ❍ **Type-2 diabetes:** It affects the way the body uses insulin. While the body still makes insulin, unlike in type I, the cells in the body do not respond to it as effectively as they once did.

    ● This is the most common type of diabetes and it has strong links with obesity.

  ❍ **Gestational diabetes:** This type occurs in women during pregnancy when the body can become less sensitive to insulin. Gestational diabetes does not occur in all women and usually resolves after giving birth.

National Food and Nutrition Security Analysis

According to the **National Food and Nutrition Security Analysis report**, malnutrition amongst children in India is projected to remain high, despite all the progress made in food security.

➢ **National Food and Nutrition Security Analysis** report, was developed in partnership between the **World Food Programme (WFP)** and the **Ministry of Statistics and Programme Implementation,** Government of India.

Findings of the Report

➢ **The Slow Decline of Child Stunting:** Over the last decade, child stunting has reduced at a rate of about 1% per year, the slowest decline among emerging economies. At this rate, 31.4% of children would be stunted by the 2022 deadline.

  ❍ **Almost one in three Indian children under five years would be stunted by 2022** going by current trends.

➢ **Access to Nutritious Food has not Increased:** Foodgrain yields have risen 33% over the last two decades, but are still only half of 2030 target yields.

Note:

- ❍ The consumer's access to rice, wheat and other cereals has not increased at the same rate, due to **population growth, inequality, food wastage and losses, and exports**.
- ❍ As a result, the average per capita consumption of energy among the poorest 30% of the population is 1811 kilocalories, much lower than the norm of 2155 kilocalories per day.
- ➢ **Under and Overnutrition:** For several decades India was dealing with only one form of malnutrition- undernutrition. However, in the last decade, the double burden which includes both over- and undernutrition, is becoming more prominent and poses a new challenge for India.
- ➢ Despite positive trends and patterns in improving food security, the prevalence of malnutrition in India remains high, with many people, especially **women and children, suffering from micronutrient deficiency**.
- ➢ **Performance of States:** In Bihar and Uttar Pradesh, the stunting rate is around 48% and 46% respectively. It shows that in these states almost every 2nd child is stunted whereas in Kerala and Goa, it is only one in five children.
- ➢ **Most Vulnerable:** There are high rates of stunting among children in the poorest wealth quintile (51.4%), Scheduled Tribes (43.6%) and Scheduled Castes (42.5%), and children born to mothers with no education (51%).

- ➢ **Stunting:** It is the impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation. Children are defined as stunted if their **height-for-age** is more than two standard deviations below the WHO Child Growth Standards median.
- ➢ According to **UNICEF, 38% of children younger than five years of age in India** are stunted, a manifestation of chronic undernutrition. Stunting and other forms of under-nutrition are thought to be responsible for nearly half of all child deaths globally.

Key Recommendations

Recommendations are grouped by the three pillars of food security: **availability, access** and **utilisation**.
- ➢ Farmers should be encouraged and incentivised for **agricultural diversification**.

- ➢ Innovative and low-cost farming technologies, increase in the irrigation coverage and enhancing knowledge of farmers in areas such as appropriate use of land and water should be encouraged to **improve the sustainability of food productivity**.
- ➢ The government should improve policy support for **improving agricultural produce of traditional crops** in the country.
- ➢ **Storage capacity should be improved** to prevent post-harvest losses.
- ➢ The **targeting efficiency of all food safety nets should be improved,** especially that of the Targeted Public Distribution System (TPDS), to ensure that the poorest are included.
  - ❍ In addition, **fortification of government-approved commodities** within the social safety net programmes can improve nutritional outcomes.
- ➢ **Child feeding practices should be improved** in the country, especially at the critical ages when solid foods are introduced to the diet.
  - ❍ **Fortification, diversification and supplementation** may be used as simultaneous strategies to address micro and macronutrient deficiencies.
- ➢ There is a need for more robust measures that can take cognizance of all aspects of SDG 2.
- ➢ All the major welfare programmes need to be gender sensitive.

Sustainable Development Goal-2

- ➢ **Goal-2** of the 2030 Sustainable Development agenda seeks to **end hunger and all forms of malnutrition** and double agricultural productivity in the next 15 years.
  - ❍ Ensuring sustainable access to nutritious food universally will require sustainable food production and agricultural practices.
- ➢ **Target 2.1:** By 2030, end hunger and ensure access by all people, in particular, the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
- ➢ **Target 2.2:** By 2030, end-all forms of malnutrition, including achieving the internationally agreed targets on stunting and wasting in children under 5 years of age by 2025, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

Note:

World Food Programme

➢ WFP is the food assistance branch of the United Nations and the world's largest humanitarian organization addressing hunger and promoting food security.

➢ Its **headquarters are in Rome** and it works to help people who cannot produce or obtain enough food for themselves and their families.

➢ The WFP was **formally established in 1963 by the FAO and the United Nations General Assembly** on a three-year experimental basis. In 1965, the programme was extended to a continuing basis.

➢ It is a member of the United Nations Development Group and part of its executive committee.

NITI Aayog's Health Index

NITI Aayog in its **annual health index** has named **Kerala** as the top performer among larger states for **overall performance** on health indicators.

Health Index

➢ The **second edition** of NITI Aayog's report focuses on measuring the overall **performance** and **incremental improvement** in the states and union territories (UTs) over a two **year** period (2016-17 and 2017-18 with **2015-16** as the **base year** and **2017-18** as the **reference year**).

➢ The health index has been developed by **NITI Aayog**, with technical assistance from the **World Bank**, in consultation with the **Ministry of Health and Family Welfare**.

➢ Health index is based on 23 health indicators with major weightage given to **mortality rate, total fertility rate** and **sex ratio**.

➢ The ranking was done under three categories **larger states, smaller states** and **union territories** (UTs) to ensure comparison among similar entities.

Key Findings
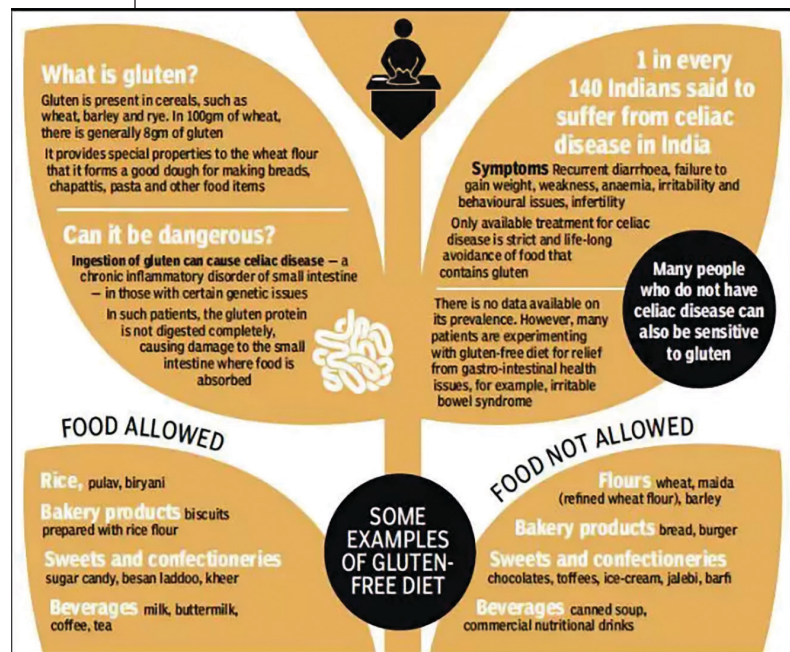
➢ In **overall performance, Kerala** followed by Andhra Pradesh and Maharashtra, are top performers.

➢ Madhya Pradesh, Odisha, Uttarakhand, Uttar Pradesh and Bihar have shown no improvement in health status.

➢ In **incremental performance,** Haryana, Rajasthan, and Jharkhand are at the top while Uttar Pradesh, Bihar, Odisha, Madhya Pradesh, and Uttarakhand have been shown as the worst performers.

➢ The report highlighted a **decline** in the **overall health index score** of the five Empowered Action Group (EAG) states of Bihar, Uttar Pradesh, Uttarakhand, Madhya Pradesh, and Odisha.

➢ Among the **Union Territories (UTs), Chandigarh** ranked first in overall performance, while Dadra and Nagar Haveli have shown significant improvement.

➢ Among the **smaller states, Mizoram** ranked first in **overall performance**, while **Tripura and Manipur** were the top two states in terms of **incremental performance**.

○ Overall health index scores have decreased the most for Sikkim and Arunachal Pradesh.

Celiac Disease

According to Celiac Society of India, **one of every 140 persons in India** is estimated to **have celiac disease**.

➢ Celiac disease, also called as **Wheat Allergy**, is a chronic inflammation of the small intestine caused by an **intolerance to gluten** and usually present in genetically predisposed individuals.

○ **Gluten** is a general name for the **proteins** found in **wheat, rye, barley and triticale** – a cross between wheat and rye.

What is gluten?
Gluten is present in cereals, such as wheat, barley and rye. In 100gm of wheat, there is generally 8gm of gluten.
It provides special properties to the wheat flour that it forms a good dough for making breads, chapattis, pasta and other food items

Can it be dangerous?
Ingestion of gluten can cause celiac disease – a chronic inflammatory disorder of small intestine – in those with certain genetic issues
In such patients, the gluten protein is not digested completely, causing damage to the small intestine where food is absorbed

1 in every 140 Indians said to suffer from celiac disease in India
Symptoms Recurrent diarrhoea, failure to gain weight, weakness, anaemia, irritability and behavioural issues, infertility
Only available treatment for celiac disease is strict and life-long avoidance of food that contains gluten
There is no data available on its prevalence. However, many patients are experimenting with gluten-free diet for relief from gastro-intestinal health issues, for example, irritable bowel syndrome

Many people who do not have celiac disease can also be sensitive to gluten

FOOD ALLOWED
Rice, pulav, biryani
Bakery products biscuits prepared with rice flour
Sweets and confectioneries sugar candy, besan laddoo, kheer
Beverages milk, buttermilk, coffee, tea

SOME EXAMPLES OF GLUTEN-FREE DIET

FOOD NOT ALLOWED
Flours wheat, maida (refined wheat flour), barley
Bakery products bread, burger
Sweets and confectioneries chocolates, toffees, ice-cream, jalebi, barfi
Beverages canned soup, commercial nutritional drinks

Note:

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○ Gluten helps food maintain its shape, acting as the glue that holds food together.

➤ **Effect of the Disease on the Body:** When people with celiac disease eat gluten, their body mounts an immune response that attacks the small intestine, indicating the disease being an **autoimmune disease**.

　○ These attacks lead to **damage of the villi**, small fingerlike projections that line the small intestine and promote nutrient absorption.

　○ When the villi get damaged, **nutrients cannot be absorbed properly into the body**.

　○ Also, the **modern wheat** which is hexaploid rather than diploid, is **more antigenic**, meaning it **stimulates the production of antibodies when introduced into the body**.

➤ People with celiac disease have a two times greater risk of developing **coronary artery disease**, and a four times greater risk of developing **small bowel cancers**.

➤ Currently, **the only treatment** for celiac disease is **lifelong adherence to a strict gluten-free diet**. People living gluten-free must avoid foods with wheat, rye and barley, such as bread and beer.

➤ Many people **who do not have celiac disease can also be sensitive to gluten**, known as **non celiac gluten sensitivity**.

Issues with Gluten Free Diet

➤ People not diagnosed with celiac disease are giving up cereal grains for perceived benefits such as weight loss and better digestion.

➤ Cereal grains such as wheat are a **source of dietary fibre** and is needed for the bowels to work properly.

➤ Food containing gluten also are an important **source of protein** that most Indians lack.

➤ Going gluten-free might also increase the **risk of heart disease**.

Autoimmune Disease

➤ A body has an immune system, which is a complex network of special cells and organs that defends the body from germs and other foreign invaders.

➤ In a body suffering from autoimmune disease, **the immune system attacks the body's own tissues and organs**.

➤ The body parts that are affected depend on the type of autoimmune disease. There are more than 80 known types. **Some of them are Multiple Sclerosis, Leucoderma etc.**

Tricloson and Osteoporosis

A study has found that **women exposed to triclosan,** a chemical widely used as an antibacterial in soaps, toothpastes and other personal care products, **are more likely to develop osteoporosis**.

Triclosan (TCS)

➤ Triclosan is a broad-spectrum of **antimicrobial agent** that is frequently used in pharmaceuticals and personal care products.

➤ When one uses a product containing triclosan, one can absorb a small amount through one's skin or mouth.

➤ Triclosan added to toothpaste has been shown to **help prevent gingivitis**.

　○ **Gingivitis** is a common and mild form of **gum disease** that causes irritation, redness and swelling (inflammation) of gingiva, the part of gum around the base of teeth.

➤ **Concerns**

　○ Some short-term animal studies have shown that exposure to high doses of triclosan is associated with **a decrease in the levels of some thyroid hormones**, thus making triclosan an **endocrine disruptor**.

　　• **Endocrine disruptors** are chemicals that may interfere with the body's endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife.

　○ Some other studies have raised the possibility that exposure to triclosan contributes to **making bacteria resistant to antibiotics**.

　○ Laboratory studies have demonstrated that triclosan may have potential to adversely **affect bone mineral density** in cell lines or in animals.

　○ Also, there is no evidence that triclosan in consumer antibacterial soaps and body washes provides any benefit over washing with regular soap and water.

Osteoporosis

➤ Osteoporosis, which literally means porous bone, **is a disease in which the density and quality of bone are reduced**.

➤ **Occurrence:** Bone is a living tissue that is constantly being broken down and replaced. Osteoporosis occurs when the creation of new bone doesn't keep up with the loss of old bone.

➢ **Impact:** As bones become more porous and fragile, the risk of fracture greatly increases.

➢ **Symptoms:** Often there are no symptoms until the first fracture occurs as the loss of bone usually occurs silently and progressively.

➢ **Diagnosis: A bone mineral density (BMD) test** measures how much calcium and other types of minerals are in an area of a bone.This test helps health care provider detect osteoporosis and predict the risk for bone fractures.

➢ **Prevention:** Good nutrition with adequate calcium, protein, and Vitamin D as well as regular exercise can help in keeping bone healthy throughout the life.

Why women are more likely to get osteoporosis than men?

➢ Women tend to have **smaller, thinner bones than men**.

➢ **Estrogen,** a hormone in women that protects bones, **decreases sharply** when women reach **menopause**.

Married Women Out of Labour Force

The United Nations report on **"Progress of The World's Women, 2019-2020"**, has stated that more than half the married women (aged 25-54) didn't participate in the global labour force. The report has cited data from the **International Labour Organization**.

Findings of the Report

➢ While families assume a central role in care provision, other institutions and actors like paid domestic workers, a care home for older people run by a municipality or a community childcare centre also play a part in financing and delivering care.

  ❍ When these care services are inaccessible or of poor quality, much of the work falls back on women and girls when needs are not met.

➢ **Global Performance:** The **labour force participation rate** for women who are married or in a union is particularly low in the Central and Southern Asia region (29.1%), compared to the much higher rates in Sub-Saharan Africa (73.8%), Europe and Northern America (78.2%) and Latin America and the Caribbean (60.3%).

  ❍ **Sub-Saharan Africa** stands out as the only region where women who are married or in a union have a higher labour force participation rate than single/ never married women.

➢ **Gender Division:** For women having young children (under age 6), the labour force participation **reduces by 5.9%** worldwide, while among men it **increased by 3.4%**.

  ❍ The disparate outcomes are the product of traditional gender norms that classify childcare and domestic work (cooking, cleaning, etc) as maternal responsibilities and breadwinning as a paternal duty.

➢ **In low-income countries,** motherhood did not shrink women's labour force participation as compared to middle-and high-income countries.

  ❍ It could be because of poverty status which compels women to join or remain in the labour force to support their families even when young children are present.

➢ **In Developing Economies:** Despite witnessing an increase in economic growth, India and China have seen a significant decline in women's labour force participation.

  ❍ Women's labour force fell by **6.9%** in India, during the period 1997–2018, which is one of the largest globally.

In the context of India

➢ **Temporal Variation: Women's Labour Force Participation** has stagnated in urban areas since the late 1980s and has seen a concentrated decline among younger (aged 25-40) married women in rural areas.

➢ **Quality of Work:** The poor quality of the paid work is available to women, often on top of long hours of arduous unpaid domestic chores.

➢ According to the **Demographic and Health Survey** 26% of women and 17% according to the **National Sample Survey Organisation,** aged between 15 -49, receives a wage or income on their own. The majority of women are financially dependent on their spouses, fathers, in-laws and other extended kin.

Recommendations to Bring Equality at Home

➢ **National Care System:** In developing countries, in particular, the existing care infrastructure, including professional care providers, is insufficient to meet existing care needs. In recognition of care as a 'public good' and to more **equitably redistribute care responsibilities** between women and men, and

Note:

between families and other institutions, national care systems need to be built.

- ➢ **The policy components** that aim to provide families with time, money and services to support care work.
  - ○ Time can be provided in the form of **paid maternity** and **parental leave** for parents with young children and **cash benefits that** enable self-employed workers in the informal economy to take time off.
  - ○ Time and money should also be provided to those caring for **older family members** or those living with a disability.
- ➢ **Greater Public Investment:** It is needed in professional care-related services including early childhood education and care, long-term care for people living with disabilities and older persons.
- ➢ **Basic infrastructure** to reduce the drudgery of care work. These investments have significant pay-offs:
  - ○ They build children's human capabilities.
  - ○ Safeguard the dignity and human rights of people living with disabilities and older persons.
  - ○ Create decent employment opportunities for women and men in the care sector.

Agreement with the World Bank to Eliminate TB

The Government of India and the **World Bank** have signed a loan agreement of **$400 million** for the **Program Towards Elimination of Tuberculosis** (TB).

Program Towards Elimination of Tuberculosis

- ➢ The program aims to **improve the coverage and quality of TB** control interventions in nine states: **Uttar Pradesh, Maharashtra, Bihar, Rajasthan, Madhya Pradesh, Karnataka, West Bengal, Assam and Tamil Nadu**.
- ➢ It will **support the Government of India's (GoI) National Strategic Plan to end TB in India by 2025**. It will help to improve and strengthen diagnostics and management of drug-resistant tuberculosis and increase the capacity of public institutions engaged in monitoring and treating TB in the country.
- ➢ The program will **provide financial incentives to private sector care providers** for reporting cases of TB and ensuring that their patients complete the treatment regimen.

Tuberculosis (TB)

- ➢ TB is caused by **bacteria (Mycobacterium tuberculosis)** that most often **affect the lungs**.
- ➢ **Transmission:** TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.
- ➢ **Symptoms:** Cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- ➢ **Treatment:** TB is treatable and curable disease. It is treated with a standard 6 month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
- ➢ Anti-TB medicines have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.
  - ○ **Multidrug-resistant tuberculosis (MDR-TB)** is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs.
  - ○ **Extensively drug-resistant TB (XDR-TB)** is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

Global Burden

- ➢ In the year 2017, the largest number of new TB cases occurred in the South-East Asia and Western Pacific regions, with 62% of new cases, followed by the African region with 25% of new cases.
- ➢ Also, eight countries accounted for **two thirds of the new TB cases: India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa**.
- ➢ According to the **WHO's 2018 Global TB Report,** nearly half of the world's MDR-TB cases are in India (24 %), China (13 %), and Russia (10 %).

Global Actions Against TB

- ➢ **Ending the TB epidemic by 2030** is among the health targets of the newly adopted **Sustainable Development Goals**.
- ➢ **The WHO End TB Strategy** outlines global impact targets to reduce TB deaths by 90%, to cut new cases by 80% between the years 2015 and 2030, and to ensure that no family is burdened with catastrophic costs due to TB.

Note:

➢ It will also provide **Direct Benefit Transfers to patients** for acquiring the critical nutrition needed during treatment.

➢ The program will even help the GoI **strengthen** the monitoring and implementation of **Nikshay** – a web-based TB case monitoring system introduced by the government.

Underlying Need

➢ TB kills approximately half a million people in India every year.

➢ Drug resistant TB is a major public health threat in the country.

➢ Despite a growing number of TB cases being notified, India has more than a million **missing cases** every year with most of them being either undiagnosed or inadequately diagnosed and treated in the private sector.

➢ Other **challenges** that India face while eliminating TB in its region are: **delayed care-seeking by suspected TB patients**, low adherence to treatment, and

fragmented health care service providers, including **an unregulated private sector** which is treating more than half of TB cases in India.

National Strategic Plan to end TB

➢ It encapsulates the bold and innovative steps required to **eliminate TB in India** by the **year 2025**.

➢ **Objective** (Detect-Treat-Prevent-Build)

  ○ **Detect:** Find all Drug Sensitive TB and Drug Resistant TB cases with an emphasis on reaching TB patients seek care from private providers and undiagnosed TB in high-risk populations.

  ○ **Treat:** Initiate and sustain all patients on appropriate anti-TB treatment wherever they seek care, with patient friendly systems and social support.

  ○ **Prevent** the emergence of TB in susceptible populations.

  ○ **Build** and strengthen enabling policies, empowered institutions, additional human resources with enhanced capacities, and provide adequate financial resources.

■■■

Security

Highlights

- *Anti Hijacking Act, 2016*
- *ReCAAP ISC Capacity Building Workshop*
- *Storage of Payment System Data*

Anti Hijacking Act, 2016

A special court in Ahmedabad has sentenced a man to life and fined him Rs. 5 crores for creating a hijack scare aboard a Jet Airways Mumbai-Delhi flight and forcing it to land in Ahmedabad in October 2017. **This is the first conviction under the Anti Hijacking Act, 2016.**

Anti Hijacking Act, 2016

➢ It **replaced the Anti Hijacking Act, 1982**.

➢ It aims to enforce the **Hague Hijacking Convention** and the 2010 Beijing Protocol Supplementary to the Convention.

- ○ **The Hague Convention (Convention for the Suppression of Unlawful Seizure of Aircraft)** sets out the principle of *"aut dedere aut judicare"* — *a* state that is a party to the Convention must prosecute an aircraft hijacker if no other state requests his or her extradition for prosecution.
- ○ **The 2010 Protocol Supplementary,** which made amendments and additions, came into effect on 1st January 2018 and had **27 signatories as of September 2018**.

➢ The **new Act applies even if the offence is committed outside India.** If the aircraft is registered in India or leased to Indians, or the offender is Indian, or the offender is stateless but lives in India (such as an illegal Bangladeshi migrant), or the offence is committed against Indians.

➢ The key new introductions are the death penalty, life sentence for hoax calls, and a wider definition for aircraft "in service".

- ○ **Under the old Act,** an aircraft was considered "in service" between the time the doors shut and the time every passenger had disembarked.
- ○ **Under the new Act,** "an aircraft shall be considered to be 'in service' from the beginning of the pre-flight preparation of the aircraft by ground personnel or by the crew for a specific flight until twenty-four hours after any landing".

Offence of Hijacking

➢ **Section 3(1) of the Anti Hijacking Act, 2016 defines the offence of hijacking as:** "Whoever unlawfully and intentionally seizes or exercises control of an aircraft in service by force or threat thereof, or by coercion, or by any other form of intimidation, or by any technological means, commits the offence of hijacking".

➢ The act aims to **punish** not only an actual act of hijacking but **even a false threat** that may appear genuine.

➢ It takes into account that armed possession of an aircraft may not be necessary for hijacking and that it may be hijacked remotely through a **technological threat**.

➢ Hijacking attempts, directing others to commit hijacking, being an accomplice and assisting another person to evade investigation are punishable as hijacking and so is the **preparation for hijacking**.

➢ Punishment: If hijacking leads to **death of a passenger** or a crew member, it is **punishable with death**. If not, the hijacking is punishable with life imprisonment.

ReCAAP ISC Capacity Building Workshop

The **Indian Coast Guard** (ICG) has **co-hosted** the **12th Capacity Building Workshop** with **Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) Information Sharing Centre** (ISC) in New Delhi.

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ReCAAP

➢ The ReCAAP is the **first regional Government-to-Government agreement** to deal with **piracy and armed robbery at sea in Asia**.

➢ The ReCAAP Agreement was launched in **November, 2006** with 14 Asian contracting parties including North, Southeast, and South Asian countries.

➢ It has 20 contracting parties as of now, including countries from Europe (Norway, the Netherlands, Denmark, and the United Kingdom), Australia, and the United States.

➢ **Information sharing, Capacity building and Mutual legal assistance** are the three pillars of co-operation under the ReCAAP agreement.

➢ The ReCAAP **Information Sharing Centre** (ReCAAP ISC) was established in **Singapore** on November 29, 2006.

➢ The Union Government has designated **ICG as the focal point** within India for ReCAAP.

Capacity Building Workshop

➢ Capacity building workshop is **organised annually by the ISC** and is co-hosted by one of the contracting parties.

➢ The main **objective** of this workshop is to share **updated situation of piracy** and armed robbery against ships in Asia and best practices of Asian countries.

➢ The workshop also aims to deepen the knowledge of participants on various issues related to piracy and armed robbery such as international laws, prosecution process, forensics and emerging threats.

➢ India also hosted the workshop earlier in November 2011 at Goa and December 2017 at New Delhi.

Indian Coast Guard

➢ The ICG was **formally inaugurated on 19th August, 1978**. It operates under the **Ministry of Defence**.

➢ It has a wide range of task capabilities for both surface and air operations.

➢ The organization is headed by the **Director General Indian Coast Guard (DGICG)** exercising his overall command and superintendence from the Coast Guard **Headquarters (CGHQ) located at New Delhi**.

➢ Some of the important duties of the Coast Guard include:

○ Ensuring the **safety and protection** of artificial Islands, offshore terminals, installations and other structures and devices in any maritime zones of India.

○ Providing protection and **assistance to fishermen** in distress while at sea.

○ **Preservation and protection** of maritime environment including prevention and control of marine pollution.

○ Assisting the Customs and other authorities in anti-smuggling operations.

○ Enforcement of the **Maritime Zones of India Act, 1981**.

○ Precautionary measures for the safety of life and property at sea and collection of scientific data.

Storage of Payment System Data

The **Reserve Bank of India** in its directive on 'Storage of Payment System Data' has made it clear that entire payment data shall be stored in systems **located only in India**.

➢ All system providers need to ensure that within a period of **six months**, the entire data relating to payment systems operated by them is stored in a system only in India.

➢ Data stored in India should include **end-to-end transaction** details and info about **payment transactions**. The data could be pertaining to:

○ **Customer data** like name, mobile number, Aadhaar number, PAN.

○ **Payment-sensitive data** like customer and beneficiary account details.

○ **Payment credentials** like OTP, PIN.

○ **Transaction data** such as originating and destination system information amount.

➢ All data related to payments must be stored only in India and data processed (in case the processing is done abroad) will have to be brought back to the country within 24 hours.

○ There is no bar on the **processing of payment transactions** outside India if so desired by the Payment System Operators (PSO).

Note:

➢ Data stored in India can be accessed or fetched whenever required for handling **customer disputes** as well as for any other related processing activity, such as **chargeback**.

　○ The data may be shared with the **overseas regulator**, if so required, depending upon the nature/**origin of a transaction** with prior approval of the RBI.

➢ For **cross border transaction data**, (consisting of a foreign component and a domestic component) a copy of the domestic component may also be stored abroad.

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Miscellaneous

Highlights

- National Testing Agency
- Traffic Index 2018
- Milk Fortification Project
- World Population Prospects

- AWaRe
- UNCCD Drought Tool Box
- Richer Nations have Lower Trust in Vaccinations
- QS World University Ranking

National Testing Agency

The National Testing Agency (NTA) has announced the results of the National Eligibility Cum Entrance Test (NEET) (undergraduate medical entrance exam).

➢ National Testing Agency is responsible for **conducting competitive entrance exams** like NEET, JEE, CTET, GATE, GPAT, GMAT, CAT, UGC NET, etc.

National Testing Agency

➢ NTA was established as a **Society** registered under the **Indian Societies Registration Act, 1860**.

➢ It is an **autonomous** and **self-sustained testing organization** to conduct entrance examinations for admission/fellowship in **higher educational institutions**.

➢ NTA is chaired by an **eminent educationist** appointed by the **Ministry of Human Resource Development**.

➢ The **Chief Executive Officer (CEO)** will be the Director-General to be appointed by the Government.

Functions

➢ To provide **training and advisory services** to the institutions in India.

➢ To **collaborate with international organizations** like Educational Testing Services (ETS).

➢ To **undertake the reforms** and training of school boards as well as other bodies where the testing standards should be comparable with the entrance examinations.

➢ To establish a **strong R&D culture** as well as a pool of experts in different aspects of testing.

➢ To undertake **any other examination** that is **entrusted to it by the Ministries/Departments** of Government of India/State Governments.

Significance

➢ Establishment of a specialized testing body like NTA has **relieved the agencies such as CBSE, AICTE** of their responsibilities of conducting entrance examinations.

➢ Examinations are conducted by NTA in the **online mode at least twice a year**, in order to give enough opportunities to candidates and to bring out the best in them.

➢ In order to **increase the accessibility** and meet the requirements of the rural students, it will locate centres at **sub-district and district level**.

➢ NTA has launched a **'mobile app'** and **Test Practice Centres** (TPCs) through which students can practice or take mock tests on their own computers or smartphones.

Traffic Index 2018

As per the GPS-based study on traffic congestion, **Mumbai** has been ranked as the **most traffic-congested city in the world** for the second consecutive year.

➢ Traffic Index 2018 is published by **TomTom**, an **Amsterdam** based company that offers traffic solutions, by using location technology to collect traffic information.

➢ **Delhi** is the **fourth** most traffic congested city in the world.

➢ **Congestion** has been defined in terms of the **additional time taken** to reach a destination as opposed to when the road would have been clear of traffic.

➢ Mumbai's extra travel time is **65%** more than an average trip time during uncongested conditions and **Delhi's** extra travel time is **58% more**.

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Effects of Traffic Congestion

➢ **Environmental concerns** like increasing air and noise pollution.
  ○ In 2016, a World Health Organisation (WHO) study found that fourteen of the twenty world's most polluted cities belonged to India.
➢ **Road accidents:** India experiences 1,20,000 deaths per year due to traffic fatalities, more than any other country.
  ○ Delhi has the highest accident rate in India and third-highest in the world.
➢ **Economic loss** is concerned with the monetary value of the time spent sitting in traffic.
  ○ Congestion in Delhi, Mumbai, Bangalore, and Kolkata costs the economy Rs 1.47 lakh crores annually, according to a study conducted by a global consultancy firm.
➢ **On a positive side, traffic congestion indicates a strong global economy.**

Way Forward

➢ Improvement in **public transport** and additional schemes like the **Bus Rapid Transport (BRT)**. The BRT is implemented in some cities like Pune, and it can be very helpful if implemented correctly.
➢ Proper **road network planning** and **Traffic engineering and management**.
➢ Provision of **commuter subsidies** for public transport, carpooling or **ridesharing**.
  ○ In Delhi alone 22,369 acres can be freed up by ridesharing.
  ○ There is a need for a shift from **car-centric policy** to a restriction imposed over the purchase of cars or four wheelers.
➢ **Last mile connectivity** through public transport.
➢ A **commuter guidebook** for all employees containing comprehensive information about alternative transport options.

Milk Fortification Project

The **Milk Fortification Project of National Dairy Development Board (NDDB)** which intends to address vitamin deficiency in consumers, has seen significant progress in the past two years.

➢ The fortification is being carried out as per Standard Operating Procedures (SOP) developed by NDDB and Food Safety and Standards Authority of India (FSSAI).

About the Project

➢ It was launched by the **NDDB** in collaboration with the **World Bank** and **Tata Trusts**, as a pilot project on 5th September 2017.
➢ The project **aims to process about two million tonnes of fortified milk**, reaching around 30 million consumers.
➢ The **duration of the project is 23 months**. It is **financed by the South Asia Food And Nutrition Security Initiative (SAFANSI)** and, administered by the World Bank.
  ○ **SAFANSI** seeks to address chronic malnutrition by fostering cross-cutting actions to achieve measurable improvements in food and nutrition security in the South Asian countries.
➢ **The NDDB** provides **consultancy services** to the **World Bank** for implementation of the project. It also provides **technical** and **financial support** to milk federations, producer companies and unions for project implementation, including development of SOPs for milk fortification and testing; quality assurance and quality control; trials, training, capacity building and for developing promotional materials.

Micronutrient Malnutrition

➢ It refers to diseases caused by a dietary deficiency of vitamins or minerals.
➢ **Vitamin A deficiency, Anaemia (iron deficiency) and Iodine deficiency** disorders are the most common forms of micronutrient malnutrition.
➢ Poverty, lack of access to a variety of foods, lack of knowledge of optimal dietary practices and high incidence of infectious diseases are some of the factors which lead to micronutrient malnutrition.
➢ Micronutrient malnutrition leads to high social and public costs, **reduced work capacity in populations** due to high rates of illness and disability, and tragic loss of human potential.
➢ **Food Fortification or Food Enrichment is one of the solutions** to overcome micronutrient malnutrition. Fortification is the addition of key vitamins and minerals such as iron, iodine, zinc, Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.

Note:

- **India is the world's largest milk producing country with its per capita milk availability increased to 375 g per day (2017-18).** Milk, with its high volume of production, widespread distribution network, affordability and all-around acceptability in the daily food habit has emerged as the best vehicle for fortification.

Micronutrient Malnutrition in India

- India bears the burden of more than a quarter of the world's vitamin A deficient preschool children and more than 13 million susceptible infants to iodine deficiency.

- According to **National Family Health Survey-4 data,** among children under the age of five years in India, **38.4% are stunted, 21% are wasted** and **35.7% are underweight**.

> **The National Dairy Development Board**
> - NDDB was **founded in 1965** to replace exploitation with empowerment, tradition with modernity, stagnation with growth, transforming dairying into an instrument for the development of India's rural people.
> - The **NDDB**, initially registered as a society under the Societies Act 1860, was **merged with the erstwhile Indian Dairy Corporation** by the NDDB Act 1987. The new body corporate was also declared **an institution of national importance** by the Act.

World Population Prospects

According to **'The World Population Prospects 2019'** published by the Population Division of the **UN Department of Economic and Social Affairs,** India is projected to surpass China as the world's most populous country by 2027.

- During the period **2019** to **2050, India** (with an estimated population of 1.37 billion) is expected to remain the world's most populous country, followed by **China, Nigeria, United States of America** and **Pakistan**.

- The global population is projected to increase by another **2 billion** people by 2050.

- **Aging** of the world's population will also spike due to increasing **life expectancy** and **falling fertility levels**.
  - By 2050, one in six people in the world will be over **age 65** (16%), up from 1 in 11 in 2019 (9%).

- Aging will result in a decline in the proportion of the **working age population** that in turn will exert pressure on **social security systems**.
  - **Europe and North America** will have a much higher number of aging population.

- Many countries are experiencing a reduction in population size (between 2019 and 2050) and many countries will experience **population shrink** by at least 1%.
  - **Population Shrink** can be attributed to sustained **low levels of fertility** and, in some cases, high rates of **emigration**.

- In countries like Bangladesh, Nepal and the Philippines out-migration plays a key in **population change** (outflow of migrant workers).
  - In some instances, out-migration could also be caused by violence, war or lack of **security** as in Myanmar, Syria and Venezuela.

- Many of the **fastest growing populations** are in category of the **poorest countries**, where population growth brings additional challenges in the effort to eradicate poverty, achieve greater equality, combat hunger and malnutrition, strengthen the coverage and quality of health and education systems to ensure that no one is left behind.

AWaRe

The World Health Organization (WHO) in its global campaign against antibiotics has launched a new online tool called **AWaRe**.

- The campaign aims to achieve a 60% increase in the use of antibiotics under the access group — cheap, 'narrow-spectrum' drugs (that target a specific microorganism rather than several) and also to **lower the risk of resistance**.

AWaRe

- The AWaRe tool was developed by the **WHO Essential Medicines List** to contain **rising resistance** and make antibiotic use safer and more effective by providing guidelines (over the effective use of antibiotics) to the **policy-makers** and **health workers**.

- It classifies antibiotics into three groups:
  - **Access –** antibiotics used to treat the most common and serious infections.

Note:

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○ **Watch –** antibiotics available at all times in the healthcare system.

○ **Reserve –** antibiotics to be used sparingly or preserved and used only as a last resort.

Significance

➢ By classifying antibiotics into three distinct groups, and advising on when to use them, AWaRe makes it easier for **policy-makers, prescribers and health workers** to select the right antibiotic at the right time, and to protect endangered antibiotics.

Antimicrobial Resistance

➢ With the emergence of infections that are untreatable by all classes of antibiotics, **antimicrobial resistance** is turning into an invisible pandemic and is estimated to kill **50 million** people worldwide and 10 million in India (by 2050).

➢ According to a report by the **International Coordination Group on Antimicrobial Resistance,** antimicrobial resistance is a **global health** and **development threat** that continues to escalate globally and threatens to undo a century of medical progress.

➢ It is estimated that more than 50% of antibiotics in many countries are used inappropriately, such as for **treatment of viruses** (when they only treat bacterial infections) or **use of the wrong** (broader spectrum) antibiotic, thus contributing to the spread of antimicrobial resistance.

Concerns

➢ One of the most pressing concerns is the spread of resistant **gram-negative bacteria**, including **Acinetobacter, Escherichia coli and Klebsiella pneumoniae**.

○ These bacteria, which are commonly seen in hospitalized patients, cause infections like **pneumonia, bloodstream infections, wound** or surgical site infections and **meningitis**.

➢ Although over 100 countries have put in place national plans to tackle antimicrobial resistance, only about **one-fifth** of those plans are funded and implemented.

➢ Antibiotic resistance (when antibiotics stop working effectively) increases health expenditure and makes **accessibility and affordability** of medicines an expensive affair.

Gram-Negative Bacteria

➢ Bacteria are classified into two groups – Gram-positive or Gram-negative – depending on whether they retain a specific stain color.

➢ Gram-positive bacteria retain a purple-colored stain, while Gram-negative bacteria appear pinkish or red.

➢ Several species of gram negative bacteria including Escherichia coli, are common causes of foodborne disease and Vibrio cholerae – the bacteria responsible for cholera – is a waterborne pathogen.

➢ Gram-negative bacteria can also cause respiratory infections, such as certain types of pneumonia, and sexually transmitted diseases, including gonorrhea.

UNCCD Drought Tool Box

➢ The **United Nations Convention to Combat Desertification (UNCCD)** is currently testing a drought toolbox which uses a total of 15 to 30 different parameters to assess drought risk and vulnerability of a geographical region.

➢ UN convention was given this task during the previous Conference of Parties (CoP) meeting at Ordos in China in 2017.

➢ The UNCCD has been working with other UN organisations including World **Meteorological Organisation (WMO)** and **Food and Agriculture Organisation (FAO)** and experts to design the toolbox.

➢ Drought toolbox is an online web platform, a one-stop shop for all drought-preparedness measures with a link to the various relevant tools in other organisations.

➢ The tools are categorised in line with **three pillars of drought preparedness**:

○ Monitoring, early warning and forecasting tools used by decision makers.

○ Vulnerability assessment tools for identifying hotspots.

○ Risk mitigation tools with key "policy" and "technical" measures.

➢ The current procedure for declaring drought is very complex in most countries. This tool can be used by countries to assess and evaluate drought vulnerability in their regions. This can help countries improve their preparedness for dealing with drought.

Note:

Drought Declaration in India

➤ Drought is generally considered as a deficiency in rainfall /precipitation over an extended period, usually a season or more, resulting in water shortage causing adverse impacts on vegetation, animals and/or people.

➤ There is no single, legally accepted definition of drought in India. Some states resort to their own definitions of drought. **State Government is the final authority** when it comes to declaring a region as drought affected. Government of India has published two important documents with respect to managing a drought.

Richer Nations have Lower Trust in Vaccinations

➤ According to the **Wellcome Trust**, a UK-based biomedical research charity, richer and more developed nations appear to have a lower trust in immunisation than those in the developing world.

➤ As per survey, the people in Europe have the lowest levels of trust in vaccines.

➤ The people living in high-income countries have the lowest confidence in vaccines, a result that ties in to the rise of the anti-vaccination movement, in which people refuse to believe in the benefits of vaccination or claim that the treatment is dangerous.

   ○ France has the lowest levels of confidence, as one third (33%) of people do not agree that immunisation is safe.

➤ Globally, 79% of people agreed that vaccines are safe and 84% said they were effective.

➤ Bangladesh and Rwanda had the highest levels of confidence in vaccines, with almost 100% people in both countries agreeing, that vaccintions are safe, effective and important for children.

➤ The spread of Measles in the US, Philippines and Ukraine, is one of the health risks associated with low confidence in vaccines.

   ○ An estimated 169 million children missed out on the vital first dose of the measles vaccine between 2010 and 2017, according to a UN report issued in April, 2019.

QS World University Rankings

IIT-Bombay has been ranked **India's best university** for the second year in **a row, gaining a global ranking of 152** in the **QS World University Rankings for 2020**.

➤ **Massachusetts Institute of Technology topped the QS World University Rankings for the eighth consecutive year.**

➤ Two other Indian universities — IIT Delhi (182) and the Indian Institute of Science, Bengaluru (184) — are now under 200.

➤ Other Indian universities included in the top 500 list are IIT-Madras (271), IIT-Kharagpur (281), IIT- Kanpur (291), IIT-Roorkee (383), University of Delhi (474) and IIT-Guwahati (491).

➤ There are a total of 23 Indian institutions in the top 1,000. While most are government-funded universities, **five are privately funded**.

➤ The **Manipal Academy of Higher Education**, which falls within the 701-750 ranking band, is the **top private university** in the country.

➤ **For private institutions,** it was the indicators such as **teacher-student ratio** and **international faculty and student populations** that propelled them to the top.

QS World University Rankings

➤ **QS is a leading global career and education network** for ambitious professionals looking to further their personal and professional development.

➤ QS develops and successfully implements **methods of comparative data collection** and **analysis** used to highlight institutions' strengths.

➤ **The QS World University Rankings is an annual publication of university rankings** which comprises the global overall and subject rankings.

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Key Points

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