

## CURRENT AFFAIRS OCTOBER 2020

### I. POLITY AND GOVERNANCE

#### ELECTIONS DURING COVID TIMES

Several countries, including India, have successfully conducted polls during COVID-19 with safety measures in place.

##### Commission for Bihar elections

- COVID-19 patients were also allowed to take part in the democratic exercise by extending voting time by one hour.
- Number of voters per booth was restricted (to 1000 persons) so that social distancing norms are followed.
- Postal ballot facility was provided wherever required and requested.
- Nomination forms were made available online, apart from offline.
- There were restrictions on door-to-door campaigning. The ECI said only five, including the candidate, will be allowed for door-to-door campaign.

##### Best Practices on elections during COVID-19

- New Zealand: Alternative voting arrangements being considered are extending the online service for voting; extending the telephone dictation voting service; offering proxy voting and postal voting and expanding the use of mobile ballot boxes.
- South Korea: special polling stations for COVID patients, postal voting and early voting, political agreements on electoral calendar and procedures etc.

## Measures for conducting elections during COVID-19

- Political consensus in sustaining decisions made on the electoral calendar and procedures to avoid political friction and not undermining the legitimacy of the electoral result.
- Special Voting Arrangements and enabling various modalities to cast the vote. Voters should be offered voting methods that minimise direct contact with other people and reduce crowd size at polling stations.
- Adopt measures that reduce the risks of contagion, which range from the availability of masks and other protective materials, to the opening of more voting centers and the extension of the voting period.
- Voter education should reach all genders. It is important to understand how women access information during the pandemic and target voter education to ensure they have equal access to that information.

## **FOREIGN CONTRIBUTION (REGULATION) AMENDMENT ACT, 2020**

The Foreign Contribution (Regulation) Amendment Bill, 2020 was passed by parliament.

### Background

- Earlier, Central Bureau of Investigation in its report submitted before the Supreme Court has said less than 10% of the 29-lakh registered NGOs across the country file their annual income and expenditure.
- Also, according to report by Intelligence Bureau (IB) foreign-aided NGOs are actively stalling development projects and impacting GDP growth by 2-3% per annum.
- In this backdrop, the amendments were introduced to FCRA
  - o To regulate non-governmental organisations and make them more accountable and transparent.
  - o To regulate religious conversions, which are supported by foreign funds.
  - o To ensure foreign money is not used against national interests or for anti-national activities.

- The bill amends the Foreign Contribution (Regulation) Act, 2010 (FCRA). The Act regulates the acceptance and utilisation of foreign contribution by individuals, associations and companies. Foreign contribution is the donation or transfer of any currency, security or article (of beyond a specified value) by a foreign source.

### Provisions of the Amendment

- Prohibition to accept foreign contribution: Under the Act election candidates, editor or publisher of a newspaper, judges, government servants, members of any legislature are prohibited to accept any foreign contribution.
  - o The Amendment adds public servants to this list. Public servant includes any person who is in service or pay of the government, or remunerated by the government for the performance of any public duty.
- Transfer of foreign contribution: Under the Act, foreign contribution cannot be transferred to any other person unless such person is also registered to accept foreign contribution.
  - o The Amendment prohibits the transfer of foreign contribution to any other person.
- Aadhaar, passport and OCI card for registration: Amendment adds that any person seeking prior permission, registration must provide the Aadhaar number of all its office bearers, directors etc. In case of a foreigner, they must provide a copy of the passport or the Overseas Citizen of India card for identification.
- FCRA account: Amendment states that foreign contribution must be received only in an account designated by the bank as 'FCRA account' in such branch of the State Bank of India, New Delhi, as notified by the central government.

## II. INTERNATIONAL AFFAIRS

### INDIA AND THE QUAD

Recently, the Foreign Ministers of the Quadrilateral grouping met in Tokyo.

#### About Quad

- The Quad was formed in 2007 after four countries— US, India, Japan and Australia — came together.
- The objective of the Quad remains advancing the security and the economic interests of all countries having legitimate and vital interests.

#### Significance of Quad for India

- Countering China: The Quad provides a platform to India to seek cooperation from likeminded countries on issues such as ensuring respect for territorial integrity and sovereignty and peaceful resolution of disputes.
  - o It also demonstrates a united front to check belligerent activities of China against India. This is especially crucial in present times as relations between India and China have been worsening due to military tensions at the Ladakh border.
- Framing post-COVID-19 international order: The pandemic has brought about a profound transformation globally that has adversely affected global supply chains, manufacturing activities and overall economies of countries.
- India holds regular 2+2 ministerial dialogues with all

#### Quad members.

- India has recently signed all foundational agreements (Basic Exchange and Cooperation Agreement (BECA), Logistics Exchange Memorandum of Agreement (LEMOA), Communications Compatibility and Security Agreement (COMCASA)) with the USA for defence cooperation.

- India routinely conducts bilateral and multilateral military exercise with its Quad partners. For example JIMEX with Japan, AUSINDEX with Australia, Malabar Exercise with United States and Japan etc.

## WORLD FOOD PROGRAMME

- The **Nobel Peace Prize 2020** was awarded to World Food Programme (WFP) for “its efforts to combat hunger, bettering conditions for peace in conflict-affected areas and preventing the use of hunger as a weapon of war and conflict”.

### WFP and its achievements

- WFP, established in 1961, is an intergovernmental organisation and UN’s primary agency that works towards achieving the SDG Goal of eradicating hunger (Goal 2) by 2030.
- Currently, it is the world’s largest humanitarian agency combating hunger. It delivers food assistance in emergencies and works with communities to improve nutrition and build resilience.
- Its headquartered in Rome, Italy.
- Every year, WFP distributes more than 15 billion rations at an estimated average cost per ration of \$0.61 and two-thirds of its work is in conflict-affected countries where people are three times more likely to be undernourished than other countries.

### About Nobel Peace Prize

- Since March 1901, it has been awarded annually (with some exceptions) to those who have "done the most or the best work for fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses".
- The recipient is selected by the Norwegian Nobel Committee, a five-member committee appointed by the Parliament of Norway.

## UNITED NATIONS HUMAN RIGHTS COUNCIL

- Pakistan has been re-elected to the United Nations Human Rights Council despite opposition from activist groups over its abysmal human rights records.

### United Nations Human Rights Council

- UN Human Rights Council (Council or HRC) is the principle intergovernmental body within the United Nations (UN) system responsible for strengthening the promotion and protection of human rights around the globe, and for addressing and taking action on human rights violations around the globe.
  - o Human Rights Council replaced the former United Nations Commission on Human Rights.
- Council is made up of **47 member States** who are elected by the UN General Assembly by a simple majority vote, through a secret ballot. Members of the Council are elected for three-year terms with one-third of the members being renewed each year.
- Council membership is based on equitable geographical distribution of seats according to the following regional breakdown: 13 African States; 13 Asia-Pacific States; 8 Latin American and Caribbean States; 7 Western European and other States; 6 Eastern European States.
- **Universal Declaration of Human Rights (UDHR)**, adopted by the UN General Assembly in 1948, was the first legal document to set out the fundamental human rights to be universally protected.
  - o UDHR, together with the 2 covenants – the **International Covenant for Civil and Political Rights**, and the **International Covenant for Economic, Social and Cultural Rights** – make up the International Bill of Rights.
- **Key features of Human Rights:**

- o **Universality:** principle of universality of human rights is the cornerstone of international human rights law. This means that we are all equally entitled to our human rights.
- o **Inalienable:** They should not be taken away, except in specific situations and according to due process. For example, the right to liberty may be restricted if a person is found guilty of a crime by a court of law.
- o **Indivisible and interdependent:** This means that one set of rights cannot be enjoyed fully without the other. For example, making progress in civil and political rights makes it easier to exercise economic, social and cultural rights. Similarly, violating economic, social and cultural rights can negatively affect many other rights.
- o **Non-discriminatory:** This principle is present in all major human rights treaties. It also provides the central theme of 2 core instruments: International Convention on the Elimination of All Forms of Racial Discrimination, and Convention on the Elimination of All Forms of Discrimination against Women.

## ARMENIA AZERBAIJAN CONFLICT

Recently, the decades old conflict between Armenia and Azerbaijan over Nagorno-Karabakh region has resurfaced. About Armenia-Azerbaijan conflict

- Nagorno-Karabakh (also known as Artsakh) is internationally recognised as part of Azerbaijan, but most of the region is controlled by Armenian separatists.
- o It has been part of Azerbaijan territory since the Soviet era. o The majority of the population in Nagorno-Karabakh is Armenian Christian whereas Azerbaijan is a Muslim majority country.
- o Nagorno-Karabakh is a breakaway region in South Caucasus/Transcaucasia (strategically important mountainous region in south-east Europe).
- History and ethnicity are two factors that play the biggest role in the present conflict between Armenia and Azerbaijan over Nagorno-Karabakh region.

- o In late 1980 the Armenian parliament had voted for transfer of Nagorno-Karabakh to Armenia, however this demand was rejected by the collapsing Soviet.
- o This followed years of clashes between Azerbaijan forces and Armenian separatists.

### III. ECONOMY

#### NOBEL PRIZE IN ECONOMICS

This year's Nobel Economics Prize has been awarded to U.S. economists Paul Milgrom and Robert Wilson for their works on auction theory.

- They won the Nobel Economics Prize for improvements to auction theory and invention of new auction formats that could also be applied to selling of goods and services (such as radio frequencies) that are difficult to sell through traditional auction formats.
- The discoveries have benefitted sellers, buyers and taxpayers around the world. What is auction theory?
- It is a concept of transparent allocation of resources or items of business in a free market to the best bidder for optimum utilization.
- It is a branch of applied economics and prescribes different sets of rules or designs for transactions.
- Essentially, it is about how auctions lead to the discovery of the price of a commodity.

Auction theory studies:

- o How auctions are designed?
- o What rules govern the auctions?
- o How bidders behave in auction?
- o What outcomes are achieved through auction?

## What is an auction?

- An auction is a price discovery mechanism of various goods and services.
- In any auction, potential buyers place competitive bids on the goods and services (put for bidding) either in an open or closed format.
- Generally, in any auction, the private entities want to maximize their revenue, whereas government may give priority to the factors other than maximizing revenue.

## **SWAMITVA SCHEME**

- The SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas) scheme was recently launched by the Prime Minister on the occasion of National Panchayati Raj.

## About SVAMITVA Scheme

- It is a Central Sector Scheme that aims to provide an integrated property validation solution for rural India, engaging the latest Drone Surveying technology, for demarcating the inhabitant (Aabadi) land in rural areas.
- o It aims to update the 'record-of-rights' in the revenue/property registers and issue property cards to the property owners in rural areas.

## Intended Benefits of the scheme

- **Financial stability to the citizens in rural India:** A 'record of rights' will enable rural households to use their property as a financial asset for taking loans and other financial benefits.
- **Enhanced collection of property tax:** Updation of property and asset register will strengthen tax collection and demand assessment process of Gram Panchayats.
- o The 2018 Economic Survey estimated only 19% of the potential property tax was being collected by Gram Panchayats

- **Making land marketable:** The property cards will help increase liquidity of land parcels in the market.
- **Reduction in property related disputes and legal cases:** through creation of accurate land records.
- **Improved quality of GPDP:** GIS maps of Gram Panchayat and community assets like village roads, ponds, canals, open spaces, school, Anganwadi, Health sub-centres, etc. can be used to prepare better-quality GPDP.
- o Further, these GIS maps and spatial database would also help in preparation of accurate work estimates, allocation of construction permits, elimination of encroachments, etc. for various works undertaken by Gram Panchayats and other Departments of State Government.
- **Aid relief work:** Accurate land records will make relief and compensation work easier in disaster affected areas.

## IV. SECURITY

### ROLE OF TECHNOLOGY IN BORDER MANAGEMENT

- Indian Army is working on converting the existing border fence into a smart fence integrated with several sensors through a **hybrid model**.
- The new hybrid model of the smart fence being tested will cost around ₹10 lakh per km and 60 km is being attempted this year.
- The fence will be integrated with **LIDAR (Light Detection and Ranging)** sensors, infrared sensors and cameras among others.
- The entire fence along 700 km stretch of **Line of Control (LOC)** will be converted into smart fence to improve surveillance and check infiltration.

### Comprehensive Integrated Border Management System (CIBMS)

- It is a robust and integrated system that is capable of addressing the gaps in the present system of border security by seamlessly integrating human resources, weapons, and high-tech surveillance equipment.
- It improves the capability of Border Security Force (BSF) in detecting and controlling the cross border crimes like illegal infiltration, smuggling of contraband goods, human trafficking and cross border terrorism etc.
- It involves deployment of a range of state-of-the-art surveillance technologies —
  - o Thermal imagers, infra-red and laser-based intruder alarms.
  - o Aerostats for aerial surveillance.
  - o Unattended ground sensors that can help detect intrusion bids.
  - o Radars, sonar systems to secure riverine borders.
  - o Fibre-optic sensors.
  - o A command and control system that shall receive data from all surveillance devices in real time.
- 2 pilot projects covering about 71 Kms on Indo-Pakistan Border (10 Kms) and Indo-Bangladesh Border (61 Kms) of CIBMS have been completed.

## V. ENVIRONMENT

### NATIONAL GREEN TRIBUNAL (NGT)

- The National Green Tribunal (NGT) recently completed 10 years.

#### About National Green Tribunal

- The NGT is a statutory and quasi-judicial body established under the National Green Tribunal Act, 2010.
- It aims for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.

- The Tribunal is not bound by the Code of Civil Procedure, 1908 or the Indian Evidence Act, 1872 but is guided by principles of natural justice.
- Structure: It consists of a Chairperson, Judicial members and Expert Members
  - o Chairperson or Judicial Member of the Tribunal should be a Judge of the Supreme Court of India or Chief Justice of a High Court.
  - o These members are not eligible for reappointment.
- Jurisdiction of NGT: The NGT deals with civil cases under the seven laws related to the environment:
  - o The Water (Prevention and Control of Pollution) Act, 1974
  - o The Water (Prevention and Control of Pollution) Cess Act, 1977
  - o The Forest (Conservation) Act, 1980
  - o The Air (Prevention and Control of Pollution) Act, 1981
  - o The Environment (Protection) Act, 1986
  - o The Public Liability Insurance Act, 1991
  - o The Biological Diversity Act, 2002

### Significant judgments of the NGT over the years

- In 2012, NGT suspended the clearance given to the South Korean steel maker, POSCO, to set up a 12 million-tonne steel plant in Odisha in favour of the nearby communities and forests.
- In 2012 Almitra H. Patel vs. Union of India case, NGT gave judgment of entire prohibition on open burning of waste on lands, which include landfills and directed states to implement Solid Waste Management Rules.
- In 2013 in Uttarakhand floods case, NGT relied on the precept of 'polluter pays' to order the Alaknanda Hydro Power Co. Ltd. to compensate to the petitioner .
- In 2015, the NGT banned all diesel motors over 10 years in Delhi-NCR.

- In 2017, the Art of Living Festival on Yamuna Food Plain was declared violating the environmental norms and the NGT panel imposed a penalty of Rs. 5 Crore.
- The NGT, in 2017, imposed an intervening time ban on plastic bags of less than 50-micron thickness in Delhi due to the fact “they had been inflicting animal deaths, clogging sewers and harming the environment”.

## GREEN BUILDINGS

- Vice President of India, inaugurated the Confederation of Indian Industry’s Green Building Congress 2020.

### What is a green building?

- A ‘green’ building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment.
- Some features which can make a building ‘green’ include:
  - o Efficient use of energy, water and other resources
  - o Use of renewable energy, such as solar energy
  - o Pollution and waste reduction measures, and the enabling of re-use and recycling
  - o Use of materials that are non-toxic, sustainable
  - o Consideration of the environment in design, construction and operation etc.
- Currently India has over 7.61 Billion Sq. Ft of green building footprint and amongst the top 5 countries in the world.

## UN BIODIVERSITY SUMMIT

Recently, India participated in the UN Biodiversity Summit.

- The summit is first of its kind which had taken place on Biodiversity in the United Nations General Assembly.

- It was convened by UN secretary general António Guterres on the sidelines of the General Assembly aimed to build political momentum and bolster financial commitments ahead of talks next year in China.
- It was participated by Head of States/Minister level representing the countries which are party to Convention on Biological Diversity (CBD).
- Theme of the summit: “Urgent action on biodiversity for sustainable development.”

### About Convention on Biological Diversity (CBD)

- It is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources".
- It has been ratified by 196 nations including India.

### India & Biodiversity Performance

- **Enhanced Tree cover:** India has enhanced the combined forest and tree cover to 24.56% of the total geographical area of the country.
- **Wildlife:** India has the highest number of tigers in the wild and has doubled its numbers ahead of the deadline of 2022 and recently announced the launch of Project Lion and Project Dolphin.
- **Land restoration:** India at summit announced that it aims to restore 26 million hectares of degraded and deforested land, and achieve land-degradation neutrality by 2030.
- **Aichi Targets & other objectives:** India has already set aside extensive area for meeting the conservation objectives, contributing to Aichi Biodiversity Target-11 and the SDG -15. It has established a comprehensive institutional and legal system to realize the objectives of the CBD.

## BLUE FLAG

Recently, Kasarkod and Padubidri beaches in Karnataka were accorded 'Blue Flag' tag from the international agency Foundation for Environment Education (FEE), Denmark.

### About Blue Flag Certification

- The 'Blue Flag' is a certification that can be obtained by a beach, marina, or sustainable boating tourism operator, and serves as an eco-label.
  - o The certification is awarded annually by the Denmark-based non-profit Foundation for Environmental Education (FEE).
  - o It sets stringent environmental, educational, safety-related and access-related criteria that applicants must meet and maintain.
- A 'Blue Flag' beach is an eco-tourism model to provide tourists clean and hygienic bathing water, facilities/amenities, safe and healthy environment and sustainable development of the area.

### List of Beaches in India awarded Blue Flag certification

- Ghoghala beach (Diu)
- Shivrajpur beach (Gujarat)
- Padubidri and Kasarkod (Karnataka)
- Kappad beach (Kerala)
- Eden beach (Puducherry)
- Rushikonda beach (Andhra Pradesh)
- Golden beach (Odisha)
- Radhanagar beach (Andaman & Nicobar Islands)

## VI. SOCIAL ISSUES

### ELDERLY POPULATION IN INDIA

Ministry of Health and Family Welfare launched **Decade of Healthy Ageing (2020-2030)** on International Day for Older Persons (1st October).

#### Elderly Population - status in India

- According to Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above) in India; 53 million females and 51 million males.
  - o A report released by the United Nations Population Fund and HelpAge India suggests that the number of elderly persons is expected to grow to 173 million by 2026.
  - o 71% of elderly population resides in rural areas while 29 % is in urban areas.
- The old - age dependency ratio climbed from 10.9% in 1961 to 14.2% in 2011 for India as a whole. For females and males, the value of the ratio was 14.9 % and 13.6% in 2011.
  - o The dependency ratio is an age-population ratio of those typically not in the labour force (the dependent part) and those typically in the labour force (the productive part).
  - o It is used to measure the pressure on productive population.
- State - wise data on elderly population divulge that Kerala has maximum proportion of elderly people in its population (12.6 per cent) followed by Goa (11.2 per cent) and Tamil Nadu (10.4 per cent) as per Population Census 2011.

### GLOBAL HUNGER INDEX 2020

As per Global hunger Index (GHI) report 2020, India has ranked 94 out of 107 countries.

GHI scores are based on the values of 4 component indicators:

- o **Undernourishment** -share of the population with insufficient caloric intake.

- o **Child wasting** - share of children under age 5 who have low weight for their height.
- o **Child stunting** - share of children under age 5 who have low height for their age.
- o **Child mortality** - mortality rate of children under age 5.
- GHI score is determined on a 100-point scale - 0 is best possible score (no hunger) and 100 is the worst. Each country's score is classified by severity - from Low to Extremely alarming.

### India's Hunger Dilemma

- Out of the total 107 countries, only 13 countries fare worse than India (Rwanda, Nigeria, Afghanistan etc.). Countries like Nepal, Pakistan, Bangladesh and Indonesia are ahead of India.
- GHI 2020 gave score of **27.2 on a 100 point scale** to India which puts the country in the "serious" category of hunger.
- In terms of overall undernourishment, 14% of India's population does not get enough calories.
  - o Almost 35% of Indian children are stunted.
  - o 17.3% of Indian children under five are wasted. o Under 5 mortality rate is at 3.7%.
- Food insecurity, poor sanitation, inadequate housing, limited access to healthcare — all result in maternal distress, that leads to the kind of slow, chronic wasting seen in Indian children.
- India has around **70 million tonnes of foodstock** (excluding un-milled paddy) in central pool stored at Food Corporation of India's warehouses. This is enough to ensure no one stays hungry.
- The **National Food Security Act, 2013** is in place to ensure food security for the most vulnerable communities.

- o Ration distribution through fair price shops, mid-day meal programmes at schools, nutrition, maternity benefit programmes for children and pregnant mothers at anganwadis all fall within the Act.

## ANNUAL STATUS OF EDUCATION REPORT 2020

Recently, fifteenth Annual Status of Education Report (ASER 2020 Wave 1) was released  
About ASER report

- ASER is an annual survey that aims to provide reliable annual estimates of children's schooling status and basic learning levels for each state and rural district in India.
  - o Urban areas are not covered.
- Schooling status is recorded for children in the age group 3 to 16, and children in the age group 5 to 16 are tested for their ability to read simple text and do basic arithmetic.
- Except for 2015, ASER has been conducted every year since 2005.
- ASER is conducted by volunteers from local partner organizations in each district. ASER is facilitated by Pratham.

### ASER 2020 Findings

- Children's enrolment: As compared to data from ASER 2018, data from ASER 2020 (September 2020) show a small shift in enrolment from private to government schools, across all grades and among both girls and boys.
  - o Reasons: financial distress in household and/or permanent school shutdown among private schools.
- Children not currently enrolled: It found that 5.3% of rural children aged 6-10 years had not yet enrolled in school this year, in comparison to just 1.8% in 2018. This proportion is particularly large in Karnataka (11.3% 6 - and 7- year-olds not enrolled in 2020), Telangana (14%), and Rajasthan (14.9%).
  - o Reasons: families are waiting for schools to open to seek admission.

- Household Resources: While schools are closed, children rely mainly on the resources available at home to help them learn. These resources can consist of people who can help them to study (for example, educated parents); technology (TV, radio or smartphone); or materials (such as textbooks for the current grade).
  - o Children in lower grades get more family support than in higher ones. Similarly, children with more educated parents receive more family support than those with less educated parents.
- Access to Learning Materials and Activities: Governments and others have used a variety of mechanisms to share diverse learning materials with students during school closures. However, data shows large variation in access.
  - o A higher percentage of private school children received learning materials/activities as compared to government school children in the same grades.

## MINIMUM AGE FOR GIRLS MARRIAGE

Recently, Prime Minister said that the government will soon decide on revising the minimum age of marriage for women.

### Child marriage laws in India

- In India, **Prohibition of Child Marriage Act (PCMA), 2006**, sets the minimum age of marriage at 18 years for women and at 21 for men.
  - o As per a report by SBI, mean marriage age in India is already above 21 years (i.e. 22.3 years).
- PCMA treats underage marriages as valid, but voidable. It means that an underage marriage is valid as long as the minors involved in the marriage want it to remain valid.
  - o PCMA allows the minor party to repudiate the marriage or to have it nullified right up till two years of attaining majority.
- PCMA also treats those underage marriages as void or having no legal validity, where they involve trafficking, enticement, fraud and deceit.

- **Protection of Children from Sexual Offences (POCSO) Act** penalizes penetrative sexual assault on a child by anyone related to the child through marriage.
- **Section 375 of IPC** penalizes sexual acts with a girl below 18 years of age, with or without her consent.
- Exception to Section 375 permitting men to consummate marriage with their brides above 15 but below 18 years of age was read down by Supreme Court in 2017 in the case of **Independent Thought v. Union of India**. Thus, now husbands can be booked for raping their minor wives.

## VII. SCIENCE AND TECHNOLOGY

### GENOME SEQUENCING

**IndiGen programme**, the Council of Scientific and Industrial Research's (CSIR) resource, was completed in six months, and the results were recently published.

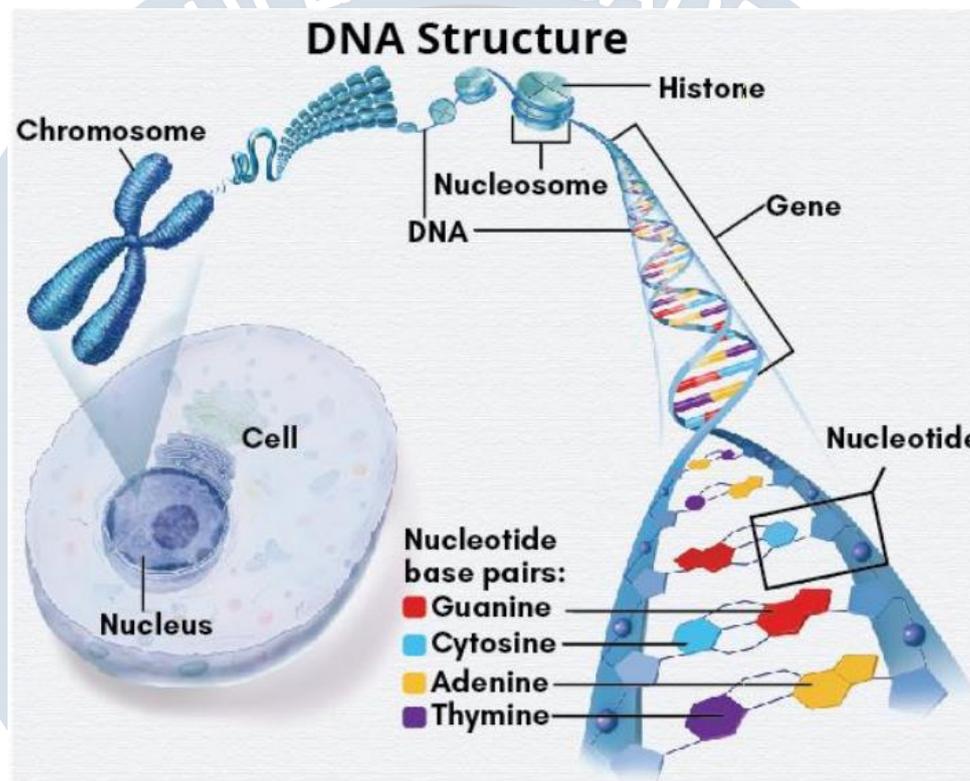
#### About IndiGen programme

- IndiGen programme aims to undertake whole genome sequencing of a thousand Indian individuals representing diverse ethnic groups from India.
- It is funded by the CSIR India (autonomous body).
- CSIR has announced the conclusion of 'Whole Genome Sequencing' of 1,008 Indians from different populations across the country.
  - o It was found that 32% of genetic variations in Indian genome sequences are unique as compared to global genomes.

#### About Genome sequencing

- A genome is an organism's complete set of DNA. It includes all chromosomes, which houses the DNA, and genes. o Hence, each genome has approximately 3.2 billion DNA base pairs.

- The genome contains all the data that is needed to describe the organism completely — acting essentially as a blueprint. The genome can be understood through the process described as sequencing.
- Genome sequencing is means deciphering the exact order of base pairs in an individual. This data can be analysed to understand the function of various genes, identify genetic mutations and explore how the mutations impact gene functions.



## NOBEL PRIZE IN CHEMISTRY

- The 2020, Nobel Prize in Chemistry was awarded jointly to Emmanuelle Charpentier and Jennifer A. Doudna for discovering the CRISPR-Cas9 genetic scissors, which allows scientists to 'cut-paste' inside a genetic sequence.

### Clusters of Regularly Interspaced Short Palindromic Repeats (CRISPR)

- **CRISPR:** They are specific segments in the bacterial DNA that contain palindromic repeats interspaced with pieces of DNA (called spacer) that bacteria snip off from attacking viruses.
- **Cas9:** It is a CRISPR-associated (Cas) endonuclease, or enzyme, that acts as "molecular scissors" to cut DNA at a location specified by a guide RNA.
- **CRISPR-Cas9:** It is a unique genome editing technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence.

## NOBEL PRIZE IN MEDICINE

- Harvey Alter, Charles Rice, and Michael Houghton have received the Nobel Prize in Nobel Prize for Medicine or Physiology, 2020 for discovering the Hepatitis C virus (HCV).

### Hepatitis

- Hepatitis is inflammatory disease of the liver.
- Hepatitis viruses are the most common cause of hepatitis in the world but other infections, toxic substances (e.g. alcohol, certain drugs), and autoimmune diseases can also cause hepatitis.

## NOBEL PRIZE IN PHYSICS

- The Nobel Prize in Physics 2020 was awarded to Roger Penrose, Reinhard Genzel and Andrea Ghez for furthering the understanding of black holes, the most "enigmatic" objects in the universe.

### More about their discovery

- Black hole formation is a robust prediction of the general theory of relativity
- Discovery of a supermassive black hole (Sagittarius A\*) at the centre of our galaxy:

### What are black holes?

- A black hole is a place in space where gravity pulls so much that even light cannot get out. The gravity is so strong because matter has been squeezed into a tiny space.
  - o This can happen when a big star is dying (our sun will never turn into a black hole as it is not big enough to make a black hole).
  - o Because no light can get out they are invisible.
  - o In the centre of a black hole is a gravitational singularity, a one-dimensional point which contains a huge mass in an infinitely small space, where density and gravity become infinite and space-time curves infinitely, and the laws of physics as we know them cease to operate.

## AQUAPONICS

Recently, a pilot Aquaponics facility developed by Centre for Development of Advanced Computing (C-DAC), Mohali was inaugurated.

### About Aquaponics

- Aquaponics is a combination of aquaculture, which is growing fish and other aquatic animals, and hydroponics (see box).
- Aquaponics uses these two in a symbiotic combination. Fish waste from the aquaculture portion of the system is broken down by bacteria (microbes or nitrifying bacteria) into dissolved nutrients (e.g. nitrogen and phosphorus compounds) that plants utilize to grow in a hydroponic unit.
- This nutrient removal improves water quality for the fish and also decreases overall water consumption by limiting the amount released as effluent.

### Hydroponics

- Hydroponics is the cultivation of plants without using soil. In the absence of soil, water provides nutrients, hydration, and oxygen to plant life.
- This system fosters rapid growth, stronger yields, and superior quality.

- When a plant is grown in soil, its roots are perpetually searching for the necessary nutrition to support the plant. If a plant's root system is exposed directly to water and nutrition, the plant does not have to exert any energy in sustaining itself.

## VIII. HISTORY AND CULTURE

### 350TH JAYANTI OF BABA BANDA SINGH BAHADUR

The Prime Minister recently paid tribute to Baba Banda Singh Bahadur Ji on his 350<sup>th</sup> Jayanti.

- He was a Sikh warrior known for his struggle against the Mughal Empire in the early eighteenth century after meeting with Sri Guru Gobind Singh.
- He was also called Lachman Das, Lachman Dev, or Madho Das and was born in a Minhas Rajput family.
  - o He established a monastery at Nanded (in present day Maharashtra), on the bank of river Godavari, where in 1708 he was visited by, and became a disciple of, Guru Gobind Singh, who gave him the new name of Banda Bahadur.
- After the fortress town of Gurdas Nangal fell to the Mughals in 1715, Baba Banda Singh was captured and brought to Delhi where he was tortured to death in 1716 in the reign of Mohammad Farrukhsiyar.

## X. MISCELLANEOUS

### RIGHT TO PROTEST IN PUBLIC SPACE

- Supreme Court gave a verdict on **Right to protest vs. Right to mobility** on a plea against blocking of road in Shaheen Bagh in Delhi over Citizenship Amendment Act protests.

Highlights of the verdict

- o Judgment upheld the right to peaceful protest against a law but made it unequivocally clear that public ways and public spaces cannot be occupied, and that too indefinitely.
- o In democracy, rights of free speech and peaceful protest were indeed “treasured”, but were subject to reasonable restrictions.
- o Fundamental rights do not live in isolation. The right of the protester has to be balanced with the right of the commuter.

### **CENTRE AMENDS LAND LAWS IN JAMMU & KASHMIR (J&K)**

- Government omitted “permanent resident of the state” from Section 17 of Jammu and Kashmir Development Act, which deals with disposal of land in UT.
  - o Before **Article 370 and Article 35-A** were repealed in August 2019, non-residents could not buy any immovable property in J&K.
- Under new laws, government can also transfer land in favour of a person or an institution for promotion of healthcare or educational institutions.
  - o Amendments, however, do not allow transfer of agricultural land to non-agriculturists.

### **MINISTRY OF LABOUR REVISES BASE YEAR OF THE CONSUMER PRICE INDEX (CPI)-INDUSTRIAL WORKERS (IW)**

- Base year will be revised to 2016 from 2001, giving more weight to non-food items (spending on housing, education and health) in inflation index calculation.
- At the national level, there are **four CPI numbers**: CPI (IW), CPI for Agricultural Labourers (AL), CPI for Rural Labourers (RL) and CPI for Urban Non-Manual Employees (UNME).
  - o While the first three are managed by Labour Bureau (Ministry of Labour), the fourth one is released by Central Statistical Organisation (Ministry of Statistics and Programme Implementation).

## INDIA GETS ITS FIRST EVER BRAND & LOGO FOR ITS COTTON ON 2<sup>nd</sup> WORLD COTTON DAY (7TH OCTOBER)

- India's premium Cotton would be known as Kasturi Cotton in the world cotton Trade.
  - o Kasturi Cotton brand will represent Whiteness, Brightness, Softness, Purity, Luster, Uniqueness and Indianness.
- India grows all four species of cultivated cotton: *Gossypium arboreum* and *herbaceum* (Asian cotton), *G. barbadense* (Egyptian cotton) and *G. hirsutum* (American Upland cotton).
- Cotton is a Kharif crop and grows well in black cotton soil (high water retention capacity) of Deccan plateau.
- India is the **2<sup>nd</sup> largest cotton producer** (produces 23% of the world cotton) and the **largest consumer** of cotton in the world.
  - o India produces about 51% of the total organic cotton production of the world.
  - o It provides livelihood to about 6 million cotton farmers.
- Cotton Corporation of India (CCI) has developed a mobile app, Cott-Ally for providing information regarding weather condition, Crop situation and best farm practices.

## PANNA TIGER RESERVE INCLUDED IN WORLD NETWORK OF BIOSPHERE RESERVES UNDER MAB PROGRAMME

- Biosphere reserves are sites established by countries and recognized under UNESCO's **Man and the Biosphere (MAB) Programme** to promote sustainable development based on local community efforts and sound science.
  - o World Network of Biosphere Reserves (WNBR) is a unique global network of biosphere reserves (BR) explicitly linking sustainable development and biodiversity conservation.
  - o Presently, there are **18 notified biosphere reserves in India** of which 12 are recognised under MAB Program.

## ASAN CONSERVATION RESERVE (ACR) BECOMES UTTARAKHAND'S FIRST RAMSAR SITE

- ACR is declared as a site of international importance. With this, the number of Ramsar sites in India goes up to 38, the highest in South Asia.
- o ACR is located on the banks of Yamuna river near Dehradun district in Garhwal region of Uttarakhand.
- o ACR hosts many species like white-rumped vulture, ruddy shelduck, red-headed vulture etc.

