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# **INTERNATIONAL RELATIONS** (Geopolitics; India and the World; India and it's Neighbourhood)

# **4** SYKES–PICOT AGREEMENT

- The Sykes-Picot Agreement was a secret treaty drawn up in **1916 between Great Britain and France**. It was named after **Mark Sykes** and **François Georges-Picot**, the primary negotiators.
- The treaty **divided up Arab lands** of the Ottoman Empire into British and French zones of control following the end of World War I.
- A century on, the Middle East continues to bear the consequences of the treaty, and many Arabs across the region continue to blame the subsequent violence in the Middle East, from the occupation of Palestine to the rise of the Islamic State of Iraq and the Levant (ISIL), on the Sykes-Picot treaty.





Francois Georges-Picot (1870-1951)

Mark Sykes (1879-1919)

#### **Background of the Sykes-Picot Agreement**

- When World War I broke out in 1914, the Russian, French and British Empires held discussions among themselves on how the erstwhile territories of their enemies would be divided among them. Parallel to this, the British also entered into agreements between Arab nationalists, promising that should a revolt against the Ottoman Empire be carried, independence would be granted in return. Such agreements would be ignored as events unfolded.
- The Sykes-Picot Agreement was based on the assumption that the Allies would defeat the Ottoman Empire.
   The primary negotiations leading to the agreement occurred between 23 November 1915 and 3 January 1916. The agreement was ratified by their respective governments on 9<sup>th</sup> and 16<sup>th</sup> May 1916.
- The Sykes-Picot agreement in practice divided the Ottoman provinces outside the Arabian Peninsula into areas of British and French influence.
- The United Kingdom was allocated modern-day southern Israel, Jordan, southern Iraq and port areas of Haifa and Acre.
- France was handed control of southeastern Turkey, northern Iraq, Syria and Lebanon.

#### Ottoman Arab provinces

- The Ottoman Empire (1516-1924), in the last few decades before its collapse, lost control over many of its territories to the growing powers of colonial countries. France took control of Algeria (1830) and Tunisia (1881), Italy took over Libya (1911), while Britain gained control of Aden protectorate (1939), Oman (1861), Arabian Gulf chiefdoms (1820) and Kuwait (1899).
- As World War I erupted in July 1914, the weakening Ottoman Empire allied with Germany and the Austro-Hungarian Empire to confront Britain and France.
- $\circ$   $\;$  It was then that the political regimes and the region's maps began to transform.

#### The Agreement: parties and course

- During World War I, the foreign ministries of France, Russia, Britain and Italy assigned a group of selected diplomats to hold talks that would determine each country's share of the inheritance of the Ottoman Empire, which at that stage was dubbed **"The Sick Man"**.
- Between November 1915 and May 1916, secret negotiations and memos of understanding were exchanged among the foreign ministries of those countries, mainly represented by Britain's Sykes and France's Picot.
- Britain was the most powerful party among those countries. It was, at the same time, in contact with the Emir and Sharif of Mecca Hussein bin Ali, who had been plotting for a revolution that aimed at establishing an Arab kingdom in the region.
- On May 16, 1916, a deal was secretly signed between Sykes and Picot, and approved Russian Foreign Minister Sergey Sazonov.

The content of the deal: The deal called for the establishment of five entities in the Levant:

- The first entity extended from Baghdad to the south to include Kuwait, reaching to the Gulf coast. This entity was under direct control of the British.
- The second entity combined what is today northern Iraq, Jordan and the Negev desert,



reaching all the way to Sinai. This part was under British influence.

- **3.** The third entity included a coastal area that extended from southern Lebanon to the north towards the provinces of Mersin, Iskenderun and Adana. It extended anteriorly to the inside of Anatolia. This part was under direct French control.
- 4. The fourth entity comprised the Syrian Desert. This part was under French influence.
- 5. The fifth entity included the Ottoman Jerusalem, which was the northern part of historic Palestine. This part was an international zone due to its religious significance. Britain was, however, allocated control of Acre and Haifa.
- With regards to Russia, the agreement stated that Russia's tsar would keep his stake in Istanbul, the territories adjacent to the Bosphorus strait and four provinces near the Russian borders in east Anatolia. Greece was allocated control of Turkey's western coasts. Italy was given control of Turkey's southwest.

#### **Consequences of the Sykes-Picot Agreement**

- The agreement is seen by many as a **turning point in Western and Arab relations**. It negated the UK's promises to Arabs regarding a national Arab homeland in the area of Greater Syria in exchange for supporting the British against the Ottoman Empire.
- It gave way to a legacy of resentment in the region not only among the Arabs but also among the Kurds who were denied a homeland of their own.
- It is largely believed that the Sykes-Picot agreement ended up creating 'artificial' borders in the Middle-East with little regard for ethnic or sectarian characteristics. It created a recipe for endless conflict when hostile groups were put in the same region together. Yet there is still dispute to what extent did Sykes-Picot actually shaped the modern borders of the Middle-East

 To this day the Sykes-Picot agreement continues to be a sour point following the de-colonisation of the Middle-East.

#### BALFOUR DECLARATION

- The Balfour Declaration ("Balfour's promise" in Arabic) was a public pledge by Britain in 1917 declaring its aim to establish "a national home for the Jewish people" in Palestine.
- The statement came in the form of a letter from Britain's then-foreign secretary, Arthur Balfour, addressed to Lionel Walter Rothschild, a figurehead of the British Jewish community.
- It was made during World War I (1914-1918) and was included in the terms of the British Mandate for Palestine after the dissolution of the Ottoman Empire.
- The so-called mandate system, set up by the Allied powers, was a thinly veiled form of colonialism and occupation.

• The system transferred rule from the



- territories that were previously controlled by the powers defeated in the war Germany, Austria-Hungary, the Ottoman Empire and Bulgaria to the victors.
- The declared aim of the mandate system was to allow the winners of the war to administer the newly emerging states until they could become independent.
- The case of Palestine, however, was unique. Unlike the rest of the post-war mandates, the main goal of the British Mandate there was to create the conditions for the establishment of a Jewish "national home" – where Jews constituted less than 10 percent of the population at the time.
- Upon the start of the mandate, the British began to facilitate the immigration of European Jews to Palestine. Between 1922 and 1935, the Jewish population rose from nine percent to nearly 27 percent of the total population.

#### The document was controversial for several reasons.

 Firstly, it was, in the words of the late Palestinian-American academic Edward Said, "made by a European power ... about a non-European territory ... in a flat disregard of both the presence and wishes of the native majority resident in that territory".

In essence, the Balfour Declaration promised Jews a land where the natives made up more than 90 percent of the population.

- o Secondly, the declaration was one of three conflicting wartime promises made by the British.
- When it was released, Britain had already promised the Arabs independence from the Ottoman Empire in the 1915 Hussein-McMahon correspondence.
- The British also promised the French, in a separate treaty known as 1916 Sykes-Picot agreement, that the majority of Palestine would be under international administration, while the rest of the region would be split between the two colonial powers after the war.
- The declaration, however, meant that Palestine would come under British occupation and that the Palestinian Arabs who lived there would not gain independence.
- **Finally,** the declaration introduced a notion that was reportedly unprecedented in international law that of a "national home".

- The use of the vague term "national home" for the Jewish people, as opposed to "state", left the meaning open to interpretation.
- The declaration had many long-lasting consequences. It greatly increased popular support for Zionism within Jewish communities worldwide, and became a core component of the British Mandate for Palestine, the founding document of Mandatory Palestine, which later became Israel and the Palestinian territories.

# **4** ARMENIAN GENOCIDE

Recently, the U.S. President Joe Biden officially recognised the mass killings of Armenians by Ottoman Turks in 1915-16 as "an act of genocide".

- Up to 1.5 million Armenians are estimated to have been killed in the early stage of the First World War within the territories of the Ottoman Empire.
- According to **Article II of the UN Convention on Genocide of December 1948**, genocide has been described as carrying out acts intended "to destroy, in whole or in part, a national, ethnic, racial or religious group".

#### Why Armenians were targeted?

- The Armenians were victims of the great power contests of the late 19th and early 20th centuries. When the Ottoman Empire was in decline on its fringes by the last quarter of the 19th century, Armenians were seen by the rulers in Constantinople as a fifth column.
- o The resentment started building up after the **Russo-Turkish war of 1877-78** in which the Turks lost territories.
- In the Treaty of Berlin, big powers dictated terms to the Ottomans, including putting pressure on Sultan Abdülhamid II to initiate reforms "in the provinces inhabited by Armenians, and to guarantee their security against the Circassians and Kurds." The Sultan saw this as a sign of strengthening ties between the Armenians and other rival countries, especially Russia.
- Post the treaty, there were a series of attacks on Armenians by Turkish and Kurdish militias. In 1908, the Young Turks wrested control from the Sultan and promised to restore imperial glory. Under the Turks when the administration was run by the famous "Three Pashas" (Mehmed Talaat Pasha, the Grand Vizier or Prime Minister; Ismail Enver Pasha, the Minister of War; and Ahmed Cemal Pasha, the Minister of the Navy), the empire became more "Turkik" and persecution against the ethnic minorities picked up.
- In October 1914, Turkey joined the First World War on the side of Germany. In the Caucasus, they fought the Russians, their primary geopolitical rival. But the Ottomans suffered a catastrophic defeat in the Battle of Sarikamish by the Russians in January 1915.
- The Turks blamed the defeat on Armenian "treachery". First, Armenians in the Ottoman Army were executed. On April 24, the Ottoman government arrested about 250 Armenian intellectuals and community leaders. Most of them were later executed. (April 24 is the Remembrance Day).
- As the War was still waging, the Ottomans feared that Armenians in eastern Anatolia would join the Russians if they advanced into Ottoman territories. The Ottoman government passed legislation to deport anyone who is a security risk. Then they moved Armenians, including children, en masse to the Syrian Desert. That was a march of death.

# \rm JCPOA

- The Joint Comprehensive Plan of Action (JCPOA) is a detailed agreement with five annexes reached by Iran and the P5+1 (China France, Germany, Russia, the United Kingdom, and the United States) on July 14, 2015.
- $\circ~$  The nuclear deal was endorsed by UN Security Council Resolution 2231, adopted on July 20, 2015.
- Iran's compliance with the nuclear-related provisions of the JCPOA is verified by the International Atomic Energy Agency (IAEA) according to certain requirements set forth in the agreement.

#### **Timeline for Implementation**

 July 14, 2015, Finalization Day: conclusion of the agreement. Finalization day triggers Iran and the United States to begin domestic review processes of the JCPOA. Iran also begins providing the IAEA with information necessary for the agency to complete its investigation into past activities related to nuclear weapons development.

- October 18, 2015, Adoption Day: 90 days after the passage of the UN Security Council Resolution endorsing the deal (July 20, 2015). Adoption day triggers Iran and the P5+1 to take steps to meet the commitments to fully implement the JCPOA.
- January 16, 2016, Implementation Day: the IAEA certifies that Iran has taken the key steps to restrict its nuclear program and has put in place increased monitoring. The IAEA's report on implementation day triggers U.S., EU, and UN sanctions relief.
- October 2023, Transition Day: Eight years after adoption day (or the IAEA reaching its broader conclusion on Iran's nuclear program, whichever is sooner). Transition day triggers the UN to lift missile restrictions, Iran to seek ratification of its additional protocol, the EU to terminate all remaining nuclear sanctions, United States to remove certain entities from the sanctioned list, and the United States to seek legislative termination of certain sanctions.
- **October 2025, Termination Day**: Ten years after adoption day. Termination day terminates Resolution 2231 and the Security Council closes Iran's nuclear file.

#### What did Iran agree to?

• **Nuclear restrictions**: Iran agreed not to produce either the highly enriched uranium or the plutonium that could be used in a nuclear weapon. It also took steps to ensure that its **Fordow, Natanz**, and **Arak** facilities pursued only civilian work, including medical and industrial research.

The accord limits the numbers and types of centrifuges Iran can operate, the level of its enrichment, as well as the size of its stockpile of enriched uranium.

(**Note:** Mined uranium has less than 1 percent of the uranium-235 isotope used in fission reactions, and centrifuges increase that isotope's concentration. Uranium enriched to 5 percent is used in nuclear power plants, and at 20 percent it can be used in research reactors or for medical purposes. High-enriched uranium, at some 90 percent, is used in nuclear weapons.)

 Monitoring and verification: Iran agreed to eventually implement a protocol that would allow inspectors from the International Atomic Energy Agency (IAEA), the United Nations' nuclear watchdog, access to its nuclear facilities and potentially to undeclared sites. Inspections are intended to guard against the possibility that Iran could develop nuclear arms in secret, as it has allegedly attempted before.

The IAEA has issued quarterly reports to its board of governors and the UN Security Council on Iran's implementation of its nuclear commitments.

A body known as the **Joint Commission**, which includes representatives of all the negotiating parties, monitors implementation of the agreement and resolves disputes that may arise.

#### What did the other signatories agree to?

- Sanctions relief: The EU, United Nations, and United States all committed to lifting their nuclear-related sanctions on Iran. However, many other U.S. sanctions on Iran, some dating back to the 1979 hostage crisis, remained in effect. They cover matters such as Iran's ballistic missile program, support for terrorist groups, and human rights abuses. Though the United States committed to lifting its sanctions on oil exports, it kept restrictions on financial transactions, which have deterred international trade with Iran.
- **Weapons embargo:** The parties agreed to lift an existing UN ban on Iran's transfer of conventional weapons and ballistic missiles after five years if the IAEA certifies that Iran is only engaged in civilian nuclear activity.

#### How is the Iran deal enforced?

 If any signatory suspects Iran is violating the deal, the UN Security Council may vote on whether to continue sanctions relief. This "snapback" mechanism remains in effect for ten years, after which the UN sanctions are set to be permanently removed.

- In April 2020, the United States announced its intention to snap back sanctions. The other P5 members objected to the move, saying the United States could not unilaterally implement the mechanism because it left the nuclear deal in 2018.
- $\circ$  Recently under US President, Joe Biden, the US has again shown the desire to return to JCPOA.

#### KYRGYZSTAN-TAJIKISTAN CONFLICT

- Kyrgyzstan has said it agreed to a ceasefire with Tajikistan after the heaviest clashes in years erupted along the neighbouring countries' disputed frontier.
- The two countries have long been locked in border disputes, including sporadic clashes along the frontier.
- More than a third of the border is disputed, with the area surrounding the **de facto Tajik enclave of Vorukh**, where conflict erupted is a regular flashpoint over territorial claims and access to water.

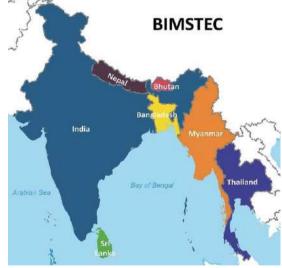


#### Water dispute

- The clashes broke out along the frontier between **Tajikistan's Sughd province and Kyrgyzstan's southern Batken province** because of a dispute over a reservoir and pump, claimed by both sides, on the **Isfara River**.
- Both nations have claimed the area around the water supply facility in **Kok-Tash**, a dispute dating back decades to when they were both part of the Soviet Union.
- Overall, border disagreements between the three countries that share the fertile Fergana Valley Kyrgyzstan, Tajikistan and Uzbekistan – stem from demarcations made during the Soviet era.
- The twisting frontiers left several communities with restricted access to their home countries.

#### BIMSTEC

- BIMSTEC is an inter-regional grouping that seeks to foster regional and economic cooperation among nations in the littoral and adjacent areas of the Bay of Bengal — India, Thailand, Myanmar, Nepal, Bangladesh, Sri Lanka and Bhutan.
- It is headquartered in Dhaka.
- The BIMSTEC region is home to roughly 22 per cent of the global population with a combined GDP of over \$3 trillion.
- Due to setbacks to the South Asian Association of Regional Cooperation (SAARC), particularly when its 2016 summit scheduled to be held in Pakistan was suspended after member countries declined to participate, BIMSTEC has emerged as the "preferred platform" for regional cooperation in South Asia.



#### **BIMSTEC formation & relevance in Indo-Pacific region**

o BIMSTEC is an economic bloc that came into being in June 1997 through the Bangkok Declaration.

- It aims to accelerate economic growth and social progress among members across multiple sectors trade, technology, energy, transport, tourism and fisheries, agriculture, public health, poverty alleviation, counterterrorism, environment, culture, people to people contact and climate change.
- The grouping holds **annual meetings** hosted by member states based **on alphabetical rotation**.
- $\circ$   $\;$  Sri Lanka is the host nation this time.
- Initially, the economic bloc was formed with four countries with the acronym 'BIST-EC' (Bangladesh, India, Sri Lanka and Thailand Economic Cooperation). With the entrance of Myanmar in 1997, the grouping was renamed 'BIMST-EC' (Bangladesh, India, Myanmar, Sri Lanka and Thailand Economic Cooperation).
- Finally, with the entrance of Nepal and Bhutan at the 6th Ministerial Meeting in 2004, the grouping was named Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC).
- Some **key agreements** signed by BIMSTEC members include a convention for combating terrorism, transnational organised crime and illicit drug trafficking. However, this awaits ratification.
- Another is the **BIMSTEC Grid Interconnection**, signed during the BIMSTEC Summit in Kathmandu, Nepal, in 2018, which aims to promote an optimal power transmission in the BIMSTEC region.
- o In the mid-2010s, BIMSTEC gained attention as India-Pakistan tensions began to hamstrung SAARC.

## MIDDLE POWERS

Globally, there is a notion that **Japan, Iran, Turkey** and **India**, which, as **"middle powers"**, have the capacity to project power regionally, build alliances, and support (or disrupt) the strategies of international powers pursuing their interests in the region.

What is a Middle Power?

- Middle power, in international relations, a state that holds a position in the international power spectrum that is in the "middle"—below that of a superpower, which wields vastly superior influence over all other states, or of a great power, but with sufficient ability to shape international events.
- The origins of the concept of the middle power as an analytical tool can be traced to the 16th century, in the writings of the Italian philosopher **Giovanni Botero**.
- There are two ways to define a middle power: one is based on a state's military strength, capabilities, and geostrategic position, while a second is based on a state's leadership capabilities—in other words, that such states are perceived as being liberal, oriented toward democracy, and having legitimate concerns in international politics.
- o The first conceptualization stems from a realist paradigm and the second from a pluralist paradigm.
- Research suggests that middle powers are categorically different because of their **reliance on diplomacy** and the specific conditions under which they pursue foreign policy.
- Middle powers favour multilateral foreign policy and the formation of coalitions rather than unilateral decision making in foreign policy.
- The style of diplomacy used by middle powers has been labeled "niche diplomacy," mainly because middle powers have to follow limited foreign-policy objectives as a result of their power capabilities, which are lower than those of great powers or superpowers. However, middle powers do not challenge the status quo in the international system; they are not revisionist or transformatist states.
- During the Cold War, the concept of middle powers became empirically stronger as an analytical tool in international relations as a result of a balance of power between the two superpowers, the United States and the Soviet Union. States that did not have superpower capability but still exerted some influence in world politics, such as Canada, the Netherlands, and Sweden, were categorized as middle powers. This categorization sought to acknowledge the role they played in international relations while also allowing an analytical differentiation between different types of power.
- The role that middle powers play as legitimate brokers is emphasized in the pluralist paradigm of international-relations theory. Middle powers are important to the creation and maintenance of world order,

and they **favour the establishment of international institutions**. In that sense, they act as stabilizers in the world system.

- Hegemonic powers are responsible for the creation of international institutions, but the maintenance and survival of those institutions depend on the convergence of interests between other players; that is where the role of middle powers is enhanced.
- Middle powers often concern themselves with issues such as nuclear nonproliferation, international economic order, debt relief, banning of land mines—issues that do not directly involve the vital interests of the great powers.
- In such international problems, middle powers are able to set and influence international agendas, build successful coalitions, and challenge great-power hegemony in those issues. That role played by middle powers results partly from perceptions of their legitimate concerns on issues of human security.
- Middle powers can succeed in effecting change because of their diplomatic capability and their ability to project a credible position, which enables them to act as moral and intellectual leaders.
- Middle powers also typically possess highly institutionalized foreign services and are able to disseminate their ideas and foreign-policy objectives through the relatively wide network of diplomatic missions they maintain.

# \rm \rm ASEAN

- The Association of Southeast Asian Nations (ASEAN) is a regional grouping that promotes economic, political, and security cooperation among its ten members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.
- ASEAN countries have a total population of 650 million people and a combined gross domestic product (GDP) of \$3.1 trillion.
- The group has played a central role in Asian economic integration, spearheading negotiations among Asia-Pacific nations to form one of the world's largest free trade blocs



and signing six free trade agreements with other regional economies.

- The bloc's biggest challenge is developing a unified approach to China, particularly in response to Beijing's claims in the South China Sea, which overlap with claims of several ASEAN members.
- ASEAN is headed by a chair—a position that rotates annually among member states—and is assisted by a secretariat based in Jakarta, Indonesia.

#### The Bloc's History

- It was formed in **1967.** ASEAN united Indonesia, Malaysia, the Philippines, Singapore, and Thailand, which sought to create a common front against the spread of communism and promote political, economic, and social stability amid rising tensions in the Asia-Pacific.
- In **1976**, the members signed the **Treaty of Amity and Cooperation in Southeast Asia**, which emphasizes mutual respect and noninterference in other countries' affairs.
- Membership doubled by the end of the 1990s.
   Membership: 10 States Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. 1 Observer – Papua New Guinea.

#### **ASEAN Regional Forum (ARF) Membership**

 27 States – Australia, Bangladesh, Brunei Darussalam, Cambodia, Canada, China, European Union, India, Indonesia, Japan, Democratic Peoples' Republic of Korea, Republic of Korea, Laos, Malaysia, Myanmar, Mongolia, New Zealand, Pakistan, Papua New Guinea, Philippines, Russian Federation, Singapore, Sri Lanka, Thailand, Timor Leste, United States, and Vietnam.

#### **Fundamental Principles**

- The Treaty of Amity and Cooperation (TAC) in Southeast Asia, signed at the First ASEAN Summit on 24 February 1976, declared that in their relations with one another, the High Contracting Parties should be guided by the following fundamental principles:
- Mutual respect for the independence, sovereignty, equality, territorial integrity, and national identity of all nations;
- The right of every State to lead its national existence free from external interference, subversion, or coercion;
- Non-interference in the internal affairs of one another;
- Settlement of differences or disputes by peaceful manner;
- Renunciation of the threat or use of force; and
- Effective cooperation among themselves.

# **4** THREE SEAS INITIATIVE (3SI)

- The 3SI format was conceived by the President of Croatia and the President of Poland in 2015 during the United Nations General Assembly.
- The idea for the initiative was envisioned by the U.S. think-tank Atlantic Council in a report titled "Completing Europe", which brought attention to the investment gap in Central and Eastern Europe.
- The first Three Seas Summit was



held in 2016 in Dubrovnik, Croatia. The Summit initiated annual Three Seas Summits on a presidential level.
 The Three Seas Initiative (3SI) is a regular cooperation format that brings together 12 European Union member states between the Adriatic Sea, the Baltic Sea and the Black Sea: Austria, Bulgaria, Estonia, Croatia, Lithuania, Latvia, Poland, Romania, Slovakia, Slovenia, the Czech Republic and Hungary.

• The **partners of the 3SI** are the United States, Germany and the European Commission. The initiative is designed to promote cooperation in order to contribute to economic growth and energy security, as well as to boost cohesion and unity in Europe.

The Three Seas Initiative was born out of a shared interest in developing the **transport, energy and digital connections** on the European Union's north-south axis to increase the economic growth and resilience of the region.

- **Economic growth**: The main aim of the overall initiative is to boost economic growth and well-being in the region. Increased activity in trade and the provision of services within the region and with neighbouring countries creates such opportunities and makes Europe, as a whole, more competitive in global terms.
- **Greater interest among investors**: In the context of the European Union, the countries in the Three Seas Initiative have stood out for many years for their above-average rates of economic growth, and as such, they

offer investors potentially higher rates of return. By working together and pursuing similar policies, these countries will make the region more attractive on the global financial market.

- **Energy security:** Energy is not only an economic issue; it has also become a strategic and security concern. A cohesive, well-functioning energy market and the freedom to choose between suppliers will increase open competition, ensure an improved supply for the region, and boost energy security.
- Geopolitics: Strong economic development across the board in Europe, including the Three Seas region, will help to defend current geopolitical interests more effectively, while making a stand against interests that do not align with those of the region.
- Smart connectivity: Where new investments are concerned, the aim is to make the most of the region's experience and potential for implementing digital solutions. This goes beyond the development of a separate digital infrastructure, and encompasses the creation of smart, modern solutions for data exchange and a more efficient use of information.
- Achieving climate goals: A common market based on an effective and sufficient infrastructure will help the region move towards lower carbon emissions and achieve carbon neutrality.
- The **Three Seas Initiative Investment Fund** provides economic support to the political initiative. The main objective of the Three Seas is to develop the region's infrastructure, which requires large investments. The Fund was created to support the practical implementation of ambitious infrastructure projects.

# \rm ICAO

- The International Civil Aviation Organization (ICAO) formed in **1947** is a **specialized and funding agency of the United Nations**.
- It changes the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.
- o Its headquarters is located in the Quartier International of Montreal, Quebec, Canada.
- The ICAO Council adopts standards and recommended practices concerning air navigation, its infrastructure, flight inspection, prevention of unlawful interference, and facilitation of border-crossing procedures for international civil aviation.
- ICAO defines the protocols for air accident investigation that are followed by transport safety authorities in countries signatory to the Chicago Convention on International Civil Aviation.

What does ICAO manage today? There are a variety of different areas that ICAO regulates, that without them, international travel would be incredibly complicated to do.

- ICAO determines the **infrastructure for aviation**, from communication rules, navigation, air traffic management (such as speaking in English), as well as standards for passports.
- They also manage the **measure units in aviation**, such as units of pressure, temperature, altitude, and more, so all aircraft and operations are in sync no matter what country you are in.
- ICAO also chooses how big an airport needs to be to take particular aircraft. There are six levels of airports. The smallest, A, can only handle small prop-planes, and the biggest, F, can take 747s and A380s.
- ICAO issues **airport codes to new and existing airports**. IATA, another organization, also supplies codes, but this is only for airports that operate airline services. ICAO is for all airstrips, big or small.
- ICAO issues three-letter airline codes use for radio designations. While these are sometimes similar to the IATA two-letter codes you see on a flight number (QF001, for example, for Qantas), they can be very different when it comes to radio transmissions.
- ICAO is also **helping the aviation industry face climate change.** They are bringing together members and proposing various solutions such as different fuels to carbon offset scenes.

# GEOGRAPHY AND ENVIRONMENT

# (Ecology; Biodiversity and Disaster Management)

# **4** NET-ZERO EMISSIONS

- Net-zero, which is also referred to as carbon-neutrality, does not mean that a country would bring down its emissions to zero. Rather, net-zero is a state in which a country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere.
- Absorption of the emissions can be increased by creating more carbon sinks such as forests, while removal of gases from the atmosphere requires futuristic technologies such as carbon capture and storage.
- This way, it is even possible for a country to have negative emissions, if the absorption and removal exceed the actual emissions. A good example is **Bhutan which is often described as carbon-negative** because it absorbs more than it emits.
- A very active campaign has been going on for the last two years to get every country to sign on to a **net-zero** goal for 2050. It is being argued that global carbon neutrality by 2050 is the only way to achieve the Paris Agreement target of keeping the planet's temperature from rising beyond 2°C compared to pre-industrial times.

#### What Does It Mean to Reach Net-Zero Emissions?

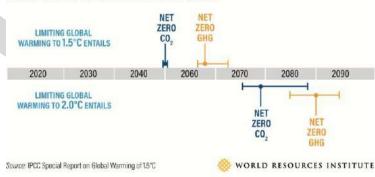
- We will achieve net-zero emissions when any remaining human-caused GHG emissions are balanced out by removing GHGs from the atmosphere in a process known as **carbon removal**.
- First and foremost, human-caused emissions like those from fossil-fueled vehicles and factories should be reduced as close to zero as possible. Any remaining GHGs would be balanced with an equivalent amount of carbon removal, for example by restoring forests or through direct air capture and storage (DACS) technology.
- o The concept of net-zero emissions is akin to "climate neutrality."

#### When Does the World Need to Reach Net-Zero Emissions?

Under the Paris Agreement, countries agreed to limit warming well below 2 degrees C (3.6 degrees F) and ideally 1.5 degrees C (2.7 degrees F). Climate impacts that are already unfolding around the world, even with only 1.1 degrees C (2 degrees F) of warming — from melting ice to devastating heat waves and more intense storms — show the urgency of minimizing temperature increase to no more than 1.5 degrees C. The latest science suggests that to meet the Paris Agreement's temperature goals, the world will need to reach net-zero emissions on the following timelines as given in image below:

Global timeline to reach net-zero emissions

In scenarios that limit warming to 1.5 degrees C, carbon dioxide (CO2) reaches net-zero on average by 2050 (in scenarios with low or no overshoot) to 2052 (in scenarios that have high overshoot, in which temperature rise surpasses 1.5 degrees C for some time before being brought down). Total GHG emissions reach net-zero between 2063 and 2068.



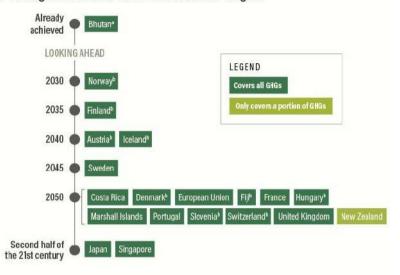
- In 2 degrees C scenarios, CO2 reaches net-zero on average by 2070 (in scenarios with a greater than 66% likelihood of limiting warming to 2 degrees
   C) to 2085 (50–66% likelihood). Total GHG emissions reach net-zero by the end of the century.
- The Special Report on Global Warming of 1.5°C, from the Intergovernmental Panel on Climate Change (IPCC), finds that if the world reaches net-zero emissions one-decade sooner, by 2040, the chance of limiting

warming to 1.5 degrees C is considerably higher. The sooner emissions peak, and the lower they are at that point, the more realistic it is that we achieve net-zero in time. We would also need to rely less on carbon removal in the second half of the century.

#### Do All Countries Need to Reach Net-Zero at the Same Time?

- The timelines above are global averages. Because countries' economies and stages of development vary widely, there is no one-size-fits-all timeline for individual countries.
- There are, however, hard physical limits to the total emissions the atmosphere can support while limiting global temperature increase to the agreed goals of the Paris Agreement.
- At the very least, major emitters (such as the United States, the European Union and China) should reach netzero GHG emissions by 2050, or it will be hard for the math to work regardless of what other countries do. Ideally, major emitters will reach net-

The Timing of Countries' Net-Zero Emissions Targets





zero much earlier, given that the largest economies play an outsize role in determining the trajectory of global emissions.

#### How Do We Achieve Net-Zero Emissions?

- Policy, technology and behavior need to shift across the board. For example, in pathways to 1.5 degrees C, renewables are projected to supply 70-85% of electricity by 2050.
- Energy efficiency and fuel-switching measures are critical for transportation.
- Improving the efficiency of food production, changing dietary choices, halting deforestation, restoring degraded lands, and reducing food loss and waste also have significant potential to reduce emissions.
- It is critical that the structural and economic transition necessary to limit warming to 1.5 degrees C is approached in a just manner, especially for workers tied to high-carbon industries.
- The good news is that most of the technologies we need are available and they are increasingly costcompetitive with high-carbon alternatives. Solar and wind now provide the cheapest power for 67% of the world. Markets are waking up to these opportunities and to the risks of a high-carbon economy, and shifting accordingly.
- Additionally, investments will need to be made in carbon removal. The different pathways assessed by the IPCC to achieve 1.5 degrees C rely on different levels of carbon removal, but all rely on it to some extent. Removing CO2 from the atmosphere will be necessary to compensate for emissions from sectors in which reaching zero emissions is more difficult, such as aviation. Carbon removal can be achieved by several means, including land-based approaches (such as restoring forests and boosting soil uptake of carbon) and technological approaches (such as direct air capture and storage, or mineralization).

#### Does the Paris Agreement Commit Countries to Achieving Net-Zero Emissions?

- $\circ$   $\,$  In short, yes.
- The Paris Agreement has a long-term goal of achieving "a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty." The concept of balancing emissions and removals is akin to reaching net-zero emissions.
- Coupled with the ultimate goal to limit warming well below 2 degrees C, and aiming for 1.5 degrees C, the Paris Agreement commits governments to sharply reduce emissions and ramp up efforts to reach net-zero emissions in time to avoid the worst consequences of climate change. The Paris Agreement framework also invites countries to submit long-term, lowemissions development strategies by



2020. These strategies can be a vehicle for setting net-zero targets and chart how countries aim to make such transitions.

 Commitments to create bold short- and long-term targets that align with a net-zero emissions future would send important signals to all levels of government, to the private sector, and to the public that leaders are betting on a safe and prosperous future, rather than one devastated by climate impacts.

## GREEN ENERGY

- Green energy is any energy type that is generated from natural resources, such as sunlight, wind or water. It often comes from renewable energy sources although there are some differences between renewable and green energy, which we will explore, below.
- The key with these energy resources are that they don't harm the environment through factors such as releasing greenhouse gases into the atmosphere.
- As a source of energy, green energy often comes from renewable energy technologies such as solar energy, wind power, geothermal energy, biomass and hydroelectric power. Each of these technologies works in different ways, whether that is by taking power from the sun, as with solar panels, or using wind turbines or the flow of water to generate energy.

#### What Does it Mean?

- In order to be deemed green energy, a resource cannot produce pollution, such as is found with fossil fuels. This means that not all sources used by the renewable energy industry are green. For example, power generation that burns organic material from sustainable forests may be renewable, but it is not necessarily green, due to the CO2 produced by the burning process itself.
- Green energy sources are usually naturally replenished, as opposed to fossil fuel sources like natural gas or coal, which can take millions of years to develop. Green sources also often avoid mining or drilling operations that can be damaging to eco-systems.

10 Key Solutions Needed to Reduce Greenhouse Gas Emissions



**Types:** The main sources are wind energy, solar power and hydroelectric power (including tidal energy, which uses ocean energy from the tides in the sea). Solar and wind power are able to be produced on a small scale at people's homes or alternatively, they can be generated on a larger, industrial scale. The six most common forms are as follows:

- 1. Solar Power: This common renewable, green energy source is usually produced using photovoltaic cells that capture sunlight and turn it into electricity. Solar power is also used to heat buildings and for hot water as well as for cooking and lighting. Solar power has now become affordable enough to be used for domestic purposes including garden lighting, although it is also used on a larger scale to power entire neighbourhoods.
- 2. Wind Power: Particularly suited to offshore and higher altitude sites, wind energy uses the power of the flow of air around the world to push turbines that then generate electricity.
- **3. Hydropower:** Also known as hydroelectric power, this type of green energy uses the flow of water in rivers, streams, dams or elsewhere to produce energy. Hydropower can even work on a small scale using the flow of water through pipes in the home or can come from evaporation, rainfall or the tides in the oceans.
- 4. Geothermal Energy: This type of green power uses thermal energy that has been stored just under the earth's crust. While this resource requires drilling to access, thereby calling the environmental impact into question, it is a huge resource once tapped into. Geothermal energy has been used for bathing in hot springs for thousands of years and this same resource can be used for steam to turn turbines and generate electricity. The energy stored under the United States alone is enough to produce 10 times as much electricity as coal currently can. While some nations, such as Iceland, have easy-to-access geothermal resources, it is a resource that is reliant on location for ease of use, and to be fully 'green' the drilling procedures need to be closely monitored.
- 5. Biomass: This renewable resource also needs to be carefully managed in order to be truly labelled as a 'green energy' source. Biomass power plants use wood waste, sawdust and combustible organic agricultural waste to create energy. While the burning of these materials releases greenhouse gas these emissions are still far lower than those from petroleum-based fuels.

6. Biofuels: Rather than burning biomass as mentioned above, these organic materials can be transformed into fuel such as ethanol and biodiesel. Having supplied just 2.7% of the world's fuel for transport in 2010, the biofuels are estimated to have the capacity to meet over 25% of global transportation fuel demand by 2050.

#### Why is it Important?

- Green energy is important for the environment as it **replaces the negative effects of fossil fuels** with more environmentally-friendly alternatives.
- Derived from natural resources, green energy is also often renewable and clean, meaning that they emit no or few greenhouse gases and are often readily available.
- Even when the full life cycle of a green energy source is taken into consideration, they **release far less greenhouse gases** than fossil fuels, as well as few or low levels of air pollutants. This is not just good for the planet but is also better for the health of people and animals that have to breathe the air.
- Green energy can also lead to stable energy prices as these sources are often produced locally and are not as affected by geopolitical crisis, price spikes or supply chain disruptions. The economic benefits also include job creation in building the facilities that often serve the communities where the workers are employed. Renewable energy saw the creation of 11 million jobs worldwide in 2018, with this number set to grow as we strive to meet targets such as net zero.
- Due to the local nature of energy production through sources like solar and wind power, the energy infrastructure is **more flexible and less dependent on centralised sources** that can lead to disruption as well as being less resilient to weather related climate change.
- Green energy also represents a low cost solution for the energy needs of many parts of the world. This will
  only improve as costs continue to fall, further increasing the accessibility of green energy, especially in the
  developing world.

#### Which Type Is the Most Efficient?

- Renewable energy sources are currently ranked as follows in efficiency (although this may change as developments continue):
- Wind Power
- Geothermal
- Hydropower
- Nuclear
- Solar Power

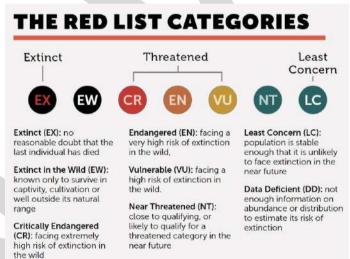
#### Green Energy vs Clean Energy vs Renewable Energy – What is the Difference?

- Green energy is that which comes from natural sources, such as the sun. Clean energy are those types which do not release pollutants into the air, and renewable energy comes from sources that are constantly being replenished, such as hydropower, wind power or solar energy.
- Renewable energy is often seen as being the same, but there is still some debate around this. For example, can a hydroelectric dam which may divert waterways and impact the local environment really be called 'green?'
- However, a source such as wind power is renewable, green and clean since it comes from an environmentally-friendly, self-replenishing and non-polluting source.

#### **IUCN**

- International Union for Conservation of Nature (IUCN), in full International Union for Conservation of Nature and Natural Resources was formerly called World Conservation Union.
- It is a network of environmental organizations founded as the International Union for the Protection of Nature in October 1948 in Fontainebleau, France, to promote nature conservation and the ecologically sustainable use of natural resources.

- It changed its name to the International Union for Conservation of Nature and Natural Resources (IUCN) in 1956 and was also known as the World Conservation Union (IUCN) from 1990 to 2008. The IUCN is the world's oldest global environmental organization.
- o Its headquarters are in Gland, Switz.
- Through its member organizations, the IUCN supports and participates in environmental scientific research; promotes and helps implement national conservation legislation, policies, and practices; and operates or manages thousands of field projects worldwide.
- The IUCN's activities are organized into several theme-based programs ranging from business and biodiversity to forest preservation to water and wetlands conservation. In addition, a smaller number of special initiatives draw upon the work of different programs to address specific issues, such as climate change, conservation, and poverty reduction.
- The volunteer work of more than 10,000 scientists and other experts is coordinated through special commissions on education and communication; environmental, economic, and social policy; environmental law; ecosystem management; species survival; and protected areas.
- All of the IUCN's work is guided by a global program, which is adopted by member organizations every four years at the IUCN World Conservation Congress.
- The IUCN maintains the IUCN Red List of Threatened Species, a comprehensive assessment of the current risk of extinction of thousands of plant and animal species. The organization also publishes or coauthors hundreds of books, reports, and other documents each year.
- The IUCN has been granted observer status at the United Nations General Assembly.
- The IUCN's membership includes more than 1,000 governmental and nongovernmental organizations from more than 140 countries.



 It is governed by a democratically elected council, which is chosen by member organizations at each World Conservation Congress. The IUCN's funding comes from a number of governments, agencies, foundations, member organizations, and corporations.

# 

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora, often referred to as CITES, is an agreement between governments that regulates the international trade of wildlife and wildlife products—everything from live animals and plants to food, leather goods, and trinkets.
- It **came into force in 1975** with the goal of ensuring that international trade does not threaten the survival of wild plants and animals.
- There are about 5,800 species of animals and 30,000 species of plants protected by CITES currently. They're categorized into one of three appendices, depending on how at risk from trade they are.
- As of June 2019, CITES had 183 party governments, which must abide by CITES regulations by implementing legislation within their own borders to enforce those regulations.
- CITES was **first conceived of at a 1963 meeting** of the International Union for the Conservation of Nature (IUCN), the global authority on the conservation status of wild animals and plants.

#### What are CITES appendices?

There are three appendices: Appendix I, II, and III. Each denotes a different level of protection from trade.

 Appendix I includes species that are in danger of extinction because of international trade. Permits are required for import and export, and trade for commercial purposes is prohibited.

Trade may be allowed for research or law enforcement purposes, among a few other limited reasons, but first the source country must confirm that taking that plant or animal won't hurt the species'



chance of survival. (This is known as a "non-detriment finding.")

The Asiatic lion and tigers are two species listed as Appendix I.

 Appendix II includes species that aren't facing imminent extinction but need monitoring to ensure that trade doesn't become a threat.

Export is allowed if the plant, animal, or related product was obtained legally and if harvesting it won't hurt the species' chance of survival.

American alligators are listed on Appendix II, for example. They were overhunted through the 1960s for their skin, but their numbers are now on the rise.

CITES Appendix II listing helps ensure the alligator skin trade doesn't become a threat again.

• Appendix III includes species that are protected in at least one country, when that country asks others for help in regulating the trade.

Regulations for these species vary, but typically the country that requested the listing can issue export permits, and export from other countries requires a certificate of origin.

## PROJECT TIGER

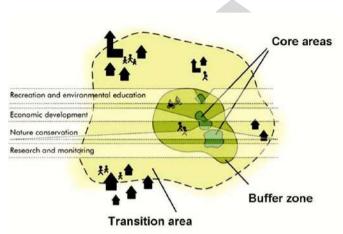
- India is now home to almost 75% of the world's Wild Tigers. The relative transparency in the estimation process and the dedication to the project in India of Saving the Tiger is unparalleled.
- A previous estimation by the data collected, and number of Tigers shot for sport it was estimated that, at the beginning of the 20th Century, there likely could have been upwards of 50,000 Tigers in India alone. The continued hunting, poaching and habitat destruction has decimated their populations and by the 1960's, wildlife in India had hit rock bottom. They were treated like vermin, and nearly exterminated.
- It was around 1970, that, a group of conservationists and researchers applied sustained pressure on the Indian Government. Notable Conservationist Dr.Kailash Sankhla made a personal appeal to then Prime Minister Mrs. Indira Gandhi, who turned out to be empathetic and understanding towards the need to protect India's Natural Heritage – the oldest heritage of India.
- Wildlife Protection Act was drawn up in 1972 as a result, and it ended legally, all hunting in India and protected individual species by Law.
- Project Tiger was launched subsequently, in 1973, and Dr.Kailash Sankhla was appointed the 1st Director of Project Tiger in India.
- Jim Corbett Tiger Reserve in Uttarakhand was the 1st Tiger Reserve in India. A further 8 Tiger Reserves were established with around 9115 sq.km of forests under the wing of Project Tiger.
- This figure stands today at 71,000 sq.km a stark improvement from its initial days but nearly not enough forest cover for a burgeoning country such as India with a beautiful and rich Natural Heritage.

o Today, there are **50 Tiger Reserves** established in India.

Each Tiger Reserve is divided into 02 areas: Core Area and Buffer Area

#### **Core Area /Critical Tiger Habitat**

- This is the critical habitat of surviving Tigers and prey species which can support or already support Tiger populations in the landscape due to favourable ecological conditions having potential for improving existing habitat to ensure long-term success of the species.
- No human activity save for conservationrelated or Park-management related activities are permitted here. Everyday tasks of wood collection, grazing and utilisation of forest produce is banned.



- Tourism is permitted, however according to NTCA guidelines, only upto 20% of the Core Area is available for Wildlife Tourism.
- These areas usually have a legal status of National Park or Wildlife Sanctuary.

#### **Buffer Area**

- o Demarcated areas adjoining or surrounding the Core Area have been given the status of the Buffer Area.
- These are peripheral areas of the Core or newly created habitat for wildlife which inevitably spills over from the declared Core Area.
- However, activities such as livestock grazing, controlled collection of firewood and minimal use of forest produce for the sake of livelihood by the locals are permitted.
- Forest Check-Posts and Patrolling Camps have been strategically established across Tiger Reserves in the Core and Buffer Areas to mitigate poaching threats and ensure management of the reserve and swift action in case of emergency situations.

#### **Village Relocation**

- One of the most difficult and herculean of all tasks has been the ongoing Village Relocation Programmes in Tiger Reserves, ongoing since 1973.
- Voluntary relocation of people and settlements has been one of the major tasks and a massive challenge ineffective establishment and management of Tiger Reserves across India in addition to reducing poaching threats and preserving the habitat.
- Many villages were/are situated in the identified Critical Tiger Habitats in India, as well as in the newly identified Critical Tiger Habitats for the future establishment of Tiger Reserves. The need to educate the local people of the benefits of relocating/moving away from their present homes in the Tiger Reserve. Compensatory land or money is provided as aid from the government along with logistical assistance.
- The challenge of Human Rights, Political pressure and vested interest groups has definitely ensured that this task be a Herculean effort however, relatively good governance practices and diligence of the various Forest Departments has resulted in various positive breakthroughs for Project Tiger.

#### **Tiger Task Force**

- In light of heavy poaching and formation of strong poaching networks by smugglers within India, a need for greater monitoring and an additional layer of protection was included in the year 2005.
- Following the exposure by the media and ground-level conservationists on the sudden disappearance of Tigers in the notable plight of Sariska Tiger Reserve in Rajasthan, the then Prime Minister of India Dr. Manmohan Singh set up the Tiger Task Force to strengthen the conservation of the National Animal of India.

- $\circ$  The guiding principles for all the Tiger Reserves in the country by the Tiger Task Force include : –
- Looking into the various problems of Tiger Conservation and suggesting methods for its improvement.
- Improving methods to check-poaching of tigers and illegal practices followed in the wildlife sanctuaries.
- To improve the method of counting and forecasting Tigers.
- To educate the local indigenous population inhabitant in the Reserves towards the conservation of tigers and preservation of habitat.

## PROJECT RHINO

- Launched in 2005, Indian Rhino Vision 2020 is an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam.
- International Rhino Fund has partnered with the Assam Forest Department, the Bodoland Territorial Council, the World Wide Fund for Nature (WWF), and the US Fish & Wildlife Service to address the threats facing Indian rhinos.
- They are moving rhinos from overcrowded areas, like Kaziranga National Park and Pabitora Wildlife Sanctuary, to other protected areas where they can breed. Along with continuing strict protection and community engagement, spreading Indian rhinos out among more protected areas will create a larger, safer and more stable population.
- IRF and Indian Rhino Vision 2020 partners worked with local communities and park and government authorities to improve protection and monitoring of existing populations, constructing guard posts, patrol roads, and bridges.



# \rm NTCA

The National Tiger Conservation Authority (NTCA) is the Apex body that administers Project Tiger. Powers and functions of the National Tiger Conservation Authority as prescribed under Section 38 of the Wildlife (Protection) Act, 1972 are as under:-

- To approve the Tiger Conservation Plan prepared by the Individual State Governments.
- o To evaluate and assess the various aspects of sustainable ecology.
- Disallowing unsustainable land use for projects such as Mining, Industry and other such projects within Tiger Reserves.
- Establishment of **Standards for Tourism Guidelines** within the Tiger Reserves has to be set by the NTCA. It encapsulates those in the Core as well as the Buffer Area of the Tiger Reserve.
- To focus on addressing inevitable Human-Animal Conflict scenarios. To ensure due processes are established on the areas surrounding the National Park, Sanctuaries or Tiger Reserve to enable co-existence around forest areas.
- To provide information on Protection Measures including the Future Conservation Plan, Estimation of Tiger Population and its Natural Prey Species, Status of Habitats, Disease Surveillance, Mortality Survey, Patrolling, reports on any Untoward Happenings and such Management Aspects as deemed fit in the Future Conservation Plan.

- To **approve and co-ordinate Research and Monitoring** on ecological aspects of the Tiger, Prey, Habitat as well as related ecological and socio-economic parameters and their evaluation.
- To ensure that Tiger Reserves and areas linking a protected area with another, are not diverted for ecologically unsustainable use, except in absolute public interest; with approval from the National Board for Wildlife and the advice of the NTCA.
- To facilitate Eco-development and People's Participation in Biodiversity Conservation Initiatives as per the approved management plans. Additionally, to support similar initiatives in adjoining areas consistent with State and Central Laws.
- To **ensure critical support** including Scientific, Information Technology and Legal Support for ideal implementation of the Future Conservation Plan.
- To ensure Training and Development of Officers and Staff of Tiger Reserves through Capacity building Programs.
- To perform any such other functions to carry out purposes of the Project with regards to protecting the Tiger and its Habitat.

# PROJECT ELEPHANT

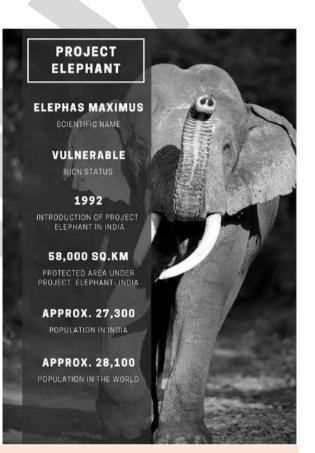
- Project Elephant was launched by the Government of India in the year **1992** as a Centrally Sponsored Scheme.
- The Ministry of Environment, Forest and Climate Change provides the financial and technical support to major elephant range states in the country through Project Elephant.
- The Project is being implemented in 16 States / UTs
   , viz. Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Kerala, Maharashtra, Meghalaya, Nagaland, Orissa, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

#### **Project Elephant - Objectives**

- To protect elephants, their habitat & corridors.
- To address issues of man-animal conflict.
- Welfare of captive elephants.

#### **Project Elephant - Activities**

- Main activities under Project Elephant are as follows:
- Research on Elephant management related issues;
- Public education and awareness programmes;
- Eco-development;
- Veterinary care;
- Elephant Rehabilitation/Rescue Centers;
- Ecological restoration of existing natural habitats and migratory routes of elephants;
- Development of scientific and planned management for conservation of elephant habitats and viable population of Wild Asiatic elephants in India;
- Promotion of measures for mitigation of man-elephant conflict in crucial habitats and moderating pressures of human and domestic stock activities in crucial elephant habitats;



 Strengthening of measures for the protection of Wild elephants from poachers and unnatural causes of death.

#### 4 MIKE

- The Monitoring the Illegal Killing of Elephants (MIKE) programme is an international collaboration that measures the levels, trends and causes of elephant mortality, thereby providing an information base to support international decision-making related to conservation of elephants in Asia and Africa.
- The MIKE Programme was established by the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) by Resolution 10.10** adopted at the tenth Conference of the Parties in 1997.
- There are currently 28 sites participating in the MIKE programme in Asia, distributed across 13 countries: India has 10 sites, followed by two sites each in Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar and Thailand, and one site each in Bangladesh, Bhutan, China, Nepal, Sri Lanka and Viet Nam.
- In 2017, IUCN was engaged by CITES to implement the MIKE Asia programme in two sub-regions: South Asia (via the IUCN India Country Office in New Delhi); and Southeast Asia (through the IUCN Asia Regional Office in Bangkok). This forms part of the wider Asia Wildlife Law Enforcement and Demand Reduction Management Project funded by the European Union.
- The main objective of the MIKE Asia programme is to identify spatial, temporal and other trends in elephant mortalities by collating and analysing data on elephant carcasses (which are collected by management agencies). Other objectives include support for law enforcement activities, capacity-building for front-line field staff and limited provision of field equipment to sites. The program's analytical outputs and field activities support international decision-making related to elephant conservation in Asia.

#### **Expected outputs:**

- o Collation and quality control of annual records of elephant carcasses from MIKE sites in Asia.
- o Data analysis to identify patterns at the level of site, local region and country.

#### RAINWATER HARVESTING

Water is one of the basic necessities of every living being for their survival. Despite being renewable, water is also a finite resource and therefore, needs extreme precautionary and judicious use of it. Out of the total water available on the planet, only 3% is fresh and can be used for drinking purposes. However, the available fresh water is distributed very unevenly, rendering serious implications on the steady supply across the globe. Moreover, with increasing population, increasing urbanization, expanding agriculture, and rising standards of living, the water demand has now touched a new arena, where it is getting difficult to meet even the essentialities.

- In Indian perspective, water shortage is one of the most difficult problems being faced in present time.
   Rainfall is quite erratic and non-uniform across the length and breadth of the country
- About 80 90% of the total rainfall is received during the summer monsoons (i.e. July to September) while rest of the period goes dry.
- **Urban centres in India are more prone to water shortage**. During the rainy seasons, it is often seen that roads get flooded while during the summers, acute water shortage is faced by the dwellers. Although the cities receive good amount of rainfall, still the problem of flooding during monsoon and droughts during summers has become a very common phenomenon. This is because of the fact that the rainfall usually occurs for short duration but with high intensity. Such conditions result in the heavy flow of water leaving very little amount for the recharge of groundwater. Thus, groundwater does not get chance to replenish.
- Considering this situation, the rainwater harvesting (RWH) technique has emerged as a boon.
- Rainwater harvesting (RWH) is a process of collecting, conveying, and storing the rainfall in an area for the beneficial purposes.

- Considering the problems of severe water scarcity, pollution in existing surface water bodies, and floods during rainy seasons in India; the adoption of rainwater harvesting practices is quite necessary and need of the hour.
- The methods involved in this practice are simple and can be maintained at a minimal cost. Besides this, rainwater harvesting is also very attractive because India is having a good potential for harvesting rains. Being a tropical monsoonal country, India's rains are sufficient to cater the need of its people, if there is judicious use of it.
- Rainwater harvesting does not only improve the water usage practices, rather it is also helpful in the groundwater recharge. Considering the depletion of groundwater resources due to excessive pumping of water, and its pollution from the leachate of waste dumping sites and agricultural lands, replenishment of groundwater resources is also necessary.

Methods of rainwater harvesting: Basically, the water harvesting methods can be classified into two:

- 1. **Surface run-off harvesting**: During heavy downpour, the water flows away as surface runoff. This runoff water can be collected and used for recharging aquifers.
- 2. **Rooftop harvesting**: In this system, the roof itself becomes the catchment and rainwater can be collected from the roof of the house / building. The water can either be stored for utilization or it can be diverted to an artificial recharge system. In this method, water can be collected without much expense. This method is highly effective and it can also help in the recharge of ground water level.

#### Components of rainwater harvesting system: It includes the following components:

- $\circ$  Catchments
- The area or surface which receives the rainfall is known as catchment area for rainwater harvesting. It may be rooftop, courtyard, open ground etc.
- In the simplest method, rainwater is collected in vessels at the edge of the roof / open ground. Moreover, gutters may also be used at some places which drain into the collection vessel with the use of various pipes. Sometimes, the collected water is also passed through the settling tanks for the suspension of sinkable particles before the collection in storage tank for domestic use.
- In rooftop catchment, the amount and quality of rainwater collected depends on the area and type of roofing material. As per the Indian standard guidelines for rainwater harvesting, rooftop water may be collected from roofs constructed with galvanized iron sheet, aluminium sheet, deleterious glass fibre sheet, asbestos cement sheets, tiles, and slates etc. Bamboo gutters and thatched roof may also be used as rooftop material for the collection of water if these are covered by water proof sheeting like food grade low density polyethylene films.
- To obtain the fresh quality of water, the roofs having metallic paint or any other type of coating should be avoided. The catchment area should also be cleaned on regular basis to remove dust, leaves, and bird droppings so that water quality can be maintained.
- Only non-toxic paints should be used in case the water has to be collected from painted roof. Moreover, water collected from roofs painted with toxic materials should not be used for potable purposes.
- If the catchment area is a land surface or ground, then water can be collected in reservoirs using drain pipes. As compared to rooftop catchment, it is easier to collect rainwater from the ground surface or open area. However, in ground surface catchment, there is the possibility of water infiltration into the underground reservoir. Therefore, water collection after the rain should be immediate and sufficient measures should be taken to reduce the infiltration to the ground.
- **Gutters (drains) and downtake pipes** are essential for taking up the water from catchment area to the storage tanks. The materials to be used for gutters, as per the Indian standard guidelines for rainwater harvesting, are galvanized iron sheet, wood, bamboo, or reinforced cement concrete.
- **Filters and first flush devices**: These devices remove grit, leaves, and dirt which are often found in the first rains. It is necessary to remove these from the water as it may contaminate the whole water of the storage tank. Sometimes, these devices are also useful when rains occur after a long time. In such conditions, the

rainwater carries with it, various dissolved pollutants. Materials such as gravel, sand, or coconut, palm, or betelnut fibre, etc. may be used as filter media. Filters and first flush divert the water from the first rain to avoid mixing of it with the water of storage tank.

 Storage tanks: These tanks might be either above ground or underground or partly underground. The tank should always be covered so that water should be clean. The storage tanks may be made up of reinforced cement concrete, masonry etc. The size of the tank depends upon factors like daily demand, duration of dry spell, catchment area, and rainfall.

Underground storage tanks should be suitably lined with water proofing material and preferably have a hand pump installed for withdrawal of water.

#### **Delivery systems**

There should be efficient piping system which can deliver the stored water for the end use. In the absence
of any treatment, rainwater should be avoided for the consumption and cooking. However, it can be used
for other purposes. To be used for consumption, conventional water treatment is necessary. Leaking and
rusted pipes should be avoided completely. To avoid any leakage, timely check-up of the pipes is necessary.

#### **Recharge structures**

- Harvested rainwater can also be used for charging the ground water aquifers through the construction of various kinds of structures like **dugwells**, **borewells**, **recharge trenches**, **and recharge pits**.
- There may be different depths in recharge structures, such as depth can be such that water reaches to lower soil strata. Examples of such structures are recharge trenches, permeable pavements etc.
- In other case, the depth of the pipe down in the soil can be such that it reaches to the level of ground water and joins it. Examples of these kinds of structures are recharge wells.

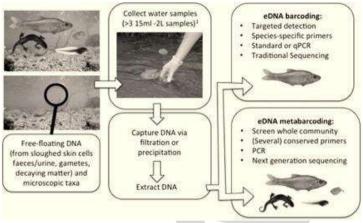
#### ENVIRONMENTAL DNA

- All living organisms, regardless of their size or ecology, **leave traces of DNA in their environments**, reflecting their current or past presence. This DNA can be released into the environment **through faeces**, **urine**, **gametes**, **mucus**, **etc**. It can also result from the **decomposition of dead organisms**.
- eDNA is characterized by a complex mixture of nuclear, mitochondrial or chloroplast DNA, and can be intracellular (from living cells) or extracellular. It enables the detection of a species regardless of its life stage or gender.
- Once released in the environment, DNA can be degraded by biotic (bacteria, fungi, endonucleases, etc.) and abiotic factors (UV radiation, acidity, temperature, etc.), or persist in the environment, adsorbed on organic or inorganic particles.
- In general, **cold and dry conditions** slow down eDNA degradation. For example, in permafrost, eDNA can be stored for hundreds of thousands of years.
- In **contemporary soils or in lacustrine or marine sediments**, the persistence of eDNA varies from months to thousands of years depending on environmental conditions.
- o In aquatic environments, the DNA released by an organism can be detected for only a few days.

#### Use of eDNA for Inventory and Monitoring

 Improved Detection of Native Species: Protocols using eDNA may allow for rapid, cost-effective, and standardized collection of data about species distribution and relative abundance. For small, rare, secretive, and other species that are difficult to detect, eDNA provides an attractive alternative for aquatic inventory and monitoring programs. • Early Detection of Invasive Species: eDNA may also be an effective tool for early detection of aquatic invasive

species. Application of eDNA methods for invasive species monitoring may include periodically collecting water samples and screening them for several invasive species at once. Some intensive eradication programs for invasive species fail when a few surviving individuals recolonize the ecosystem. eDNA methods may provide a means of confirming eradication of all invaders.



# SCIENCE AND TECHNOLOGY

# (Inventions, Innovations, Discoveries and Explorations)

# **4** INTERNATIONAL SPACE STATION (ISS)

- The International Space Station (ISS) is a modular space station (habitable artificial satellite) in low Earth orbit.
- It is a multinational collaborative project involving five participating space agencies: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada).
- Originally called Freedom in the 1980s by U.S. Pres. Ronald Reagan, who authorized the National Aeronautics and Space



Administration (NASA) to build it within 10 years, it was redesigned in the 1990s to reduce costs and expand international involvement, at which time it was renamed.

- In 1993, the United States and Russia agreed to merge their separate space station plans into a single facility, integrating their respective modules and incorporating contributions from the European Space Agency (ESA) and Japan.
- Assembly of the International Space Station (ISS) began with the launches of the Russian control module Zarya on November 20, 1998, and the U.S.-built Unity connecting node the following month, which were linked in orbit by U.S. space shuttle astronauts.
- In mid-2000 the Russian-built module Zvezda, a habitat and control centre, was added, and in November of that year the ISS received its first resident crew, comprising Russian cosmonauts Sergey Krikalev and Yuri Gidzenko and American astronaut William Shepherd, who flew up in a Soyuz spacecraft.
- A NASA microgravity laboratory called **Destiny** and other elements were subsequently joined to the station, with the overall plan calling for the assembly, over a period of several years, of a complex of laboratories and habitats crossed by a long truss supporting four units that held large solar-power arrays and thermal radiators.
- Much of the early research work by ISS astronauts was to focus on long-term life-sciences and materialsciences investigations in the weightless environment.
- The **ISS became fully operational in May 2009** when it began hosting a six-person crew; this required two Soyuz lifeboats to be docked with the ISS at all times. The six-person crew typically consisted of three Russians, two Americans, and one astronaut from either Japan, Canada, or the ESA.
- After completion of the ISS, the shuttle was retired from service in 2011. Thereafter the ISS was serviced by Russia's Progress, Europe's ATV, Japan's H-II Transfer Vehicle, and two commercial cargo vehicles, SpaceX's Dragon and Orbital Sciences Corporation's Cygnus.
- The station serves as a microgravity and space environment research laboratory in which scientific research is conducted in astrobiology, astronomy, meteorology, physics, and other fields.
- The ISS is suited for testing the spacecraft systems and equipment required for possible future long-duration missions to the Moon and Mars.

# 4 1967 OUTER SPACE TREATY

- The United States and its Western allies submitted proposals in 1957 on reserving space exclusively for "peaceful and scientific purposes," but the Soviet Union rejected these efforts because it was preparing to launch the world's first satellite and test its first intercontinental ballistic missile.
- In 1963, the UN General Assembly approved two resolutions on outer space that subsequently became the basis for the Outer Space Treaty. UN Resolution 1884 called on countries to refrain from stationing WMD in outer space. UN Resolution 1962 set out legal principles on outer space exploration, which stipulated that all countries have the right to freely explore and use space.
- The United States and Soviet Union submitted separate draft outer space treaties to the UN General Assembly in June 1966. A mutually agreed treaty text was worked out over the next six months, and the UN General Assembly gave its approval of the treaty on December 19, 1966. The treaty opened for signature in Washington, Moscow, and London on January 27, 1967 and entered into force October 10, 1967.
- The **1967 Outer Space Treaty bans** the stationing of weapons of mass destruction (WMD) in outer space, prohibits military activities on celestial bodies, and details legally binding rules governing the peaceful exploration and use of space.
- The treaty entered into force Oct. 10, 1967, and has 110 states-parties, with another 89 countries that have signed it but have not yet completed ratification.

#### **Treaty Terms**

- The treaty forbids countries from deploying "nuclear weapons or any other kinds of weapons of mass destruction" in outer space.
- The term "weapons of mass destruction" is not defined, but it is commonly understood to include nuclear, chemical, and biological weapons.
- The treaty, however, **does not prohibit the launching of ballistic missiles**, which could be armed with WMD warheads, through space.
- The treaty repeatedly emphasizes that space is to be used for peaceful purposes, leading some analysts to conclude that the treaty could broadly be interpreted as prohibiting all types of weapons systems, not just WMD, in outer space.

The treaty's key arms control provisions are in Article IV. States-parties commit not to:

- o Place in orbit around the Earth or other celestial bodies any nuclear weapons or objects carrying WMD.
- $\circ$   $\:$  Install WMD on celestial bodies or station WMD in outer space in any other manner.
- Establish military bases or installations, test "any type of weapons," or conduct military exercises on the moon and other celestial bodies.

Other treaty provisions underscore that space is no single country's domain and that all countries have a right to explore it. These provisions state that:

- Space should be accessible to all countries and can be freely and scientifically investigated.
- Space and celestial bodies are exempt from national claims of ownership.
- o Countries are to avoid contaminating and harming space or celestial bodies.
- Countries exploring space are responsible and liable for any damage their activities may cause.
- Space exploration is to be **guided by "principles of cooperation and mutual assistance,"** such as obliging astronauts to provide aid to one another if needed.
- Like other treaties, the Outer Space Treaty allows for amendments or member withdrawal.
- Article XV permits countries to propose amendments.
- An amendment can only enter into force if accepted by a majority of states-parties, and it will only be binding on those countries that approve the amendment.
- Article XVI states a country's withdrawal from the treaty will take effect a year after it has submitted a written notification of its intentions to the depositary states: the United States, Russia, and the United Kingdom.

# \rm \rm LIGO

- It is the **world's largest gravitational** wave observatory.
- $\circ~$  The acronym LIGO stands for Laser Interferometer Gravitational-Wave Observatory.
- o It consists of a pair of huge interferometers, each having two arms which are 4 km long.
- Remarkable precision is needed to detect a signal as faint as a gravitational wave, and the two LIGO detectors work as one unit to ensure this.
- LIGO, unlike usual telescopes, does not "see" the incoming ripples in spacetime.

**Possible sources of gravitational waves:** Mergers of black holes or neutron stars, rapidly rotating neutron stars, supernova explosions and the remnants of the disturbance caused by the formation of the universe, the Big Bang itself, are the strongest sources.

**Why does one study gravitational waves?** The study offers a new way to map out the universe, using gravitational-wave astronomy. Gravitational waves are an extreme illustration of general relativity. Detecting and analyzing the information carried by gravitational waves is now allowing us to observe the Universe.

#### Types of gravitational waves

- **Continuous Gravitational Waves-** are thought to be produced by a single spinning massive object, like a neutron star.
- Compact Binary Inspiral Gravitational Waves- are produced by orbiting pairs of massive and dense ("compact") objects like white dwarf stars, black holes, and neutron stars.
- Stochastic Gravitational Waves- These small waves from every direction make up what is called a "Stochastic Signal", so called because the word, 'stochastic' means having a random pattern that may be analyzed statistically but not predicted precisely.
- **Burst Gravitational Waves**-detection of such gravitational waves is currently difficult, however detecting them has the greatest potential to reveal revolutionary information about the Universe.

# **4** MARS MISSION

NASA's Mars 2020 Perseverance Rover recently touched down on the Martian surface.

- Perseverance is the most advanced, most expensive and most sophisticated mobile laboratory sent to Mars.
   The results of the experiments on Perseverance will likely define the next couple of decades of Mars exploration it will determine the course of search for life and a future manned mission to Mars.
- Mars was considered to be a dry planet in the 20th century. This changed in 2001, when the Gamma Ray Spectrometer on board the Mars Odyssey spacecraft detected a fascinating hydrogen signature that seemed to indicate the presence of water ice. But there was ambiguity – this was because hydrogen can be part of many other compounds as well, including organic compounds.
- To test for the presence of water, NASA sent a spacecraft to land near the Martian South Pole in 2007. The spacecraft studied the soil around the lander with its robotic arm and was able to establish, without any ambiguity, the presence of water on Mars for the first time.
- The **Curiosity rover carries an instrument called SAM** (or Sample Analysis at Mars), which contains a suite of spectrometers with the goal of detecting organic compounds on Mars. SAM has a mass spectrometer that can measure not just the elements, but the isotopes as well. This instrument has made the fascinating discovery of large chain **organic compounds on Mars**.
- It is not known how these organics form on Mars: the process would likely be inanimate, but there is a fascinating possibility that such complex molecules were formed by processes associated with life.

# Why is Mars so interesting to scientists? And to the explorer-adventurer in all of us?

There are two primary reasons.

- First, Mars is a planet where life may have evolved in the past. Life evolved on Earth 3.8 billion years ago. Conditions on early Mars roughly around 4 billion years ago were very similar to that of Earth. It had a thick atmosphere, which enabled the stability of water on the surface of Mars. If indeed conditions on Mars were similar to those on Earth, there is a real possibility that microscopic life evolved on Mars.
- Second, Mars is the only planet that humans can visit or inhabit in the long term. Venus and Mercury have extreme temperatures the average temperature is greater than 400 degree C, or hotter than a cooking oven. All planets in the outer solar system starting with Jupiter are made of gas not silicates or rocks and are very cold. Mars is comparatively hospitable in terms of temperature, with an approximate range between 20 degrees C at the Equator to minus 125 degrees C at the poles.

#### **Mars Orbiter Mission**

- MOM also called Mangalyaan is a space probe orbiting Mars since 24 September 2014. It was launched on 5 November 2013 by the Indian Space Research Organisation (ISRO).[
- It is India's first interplanetary mission and it made it the fourth space agency to achieve Mars orbit, after Roscosmos, NASA, and the European Space Agency. It made India the first Asian nation to reach Martian orbit and the first nation in the world to do so on its maiden attempt.
- The mission is a "technology demonstrator" project to develop the technologies for designing, planning, management, and operations of an interplanetary mission. It carries five scientific instruments.
- The spacecraft is currently being monitored from the Spacecraft Control Centre at ISRO Telemetry, Tracking and Command Network (ISTRAC) in Bengaluru with support from the Indian Deep Space Network (IDSN) antennae at Bengaluru, Karnataka.

## KESSLER SYNDROME

- In 1978, the NASA scientist Donald J.
   Kessler proposed that a chain reaction of exploding space debris can end up making space activities and the use of satellites impossible for generations.
- He predicted that the number of objects that we keep launching into Low Earth Orbit (LEO) can create such a dense environment above the planet that inevitable collisions could cause a cascading effect. The space junk and shrapnel generated by one



collision could make further collisions much more possible. And if you have enough collisions, the amount of space debris could overwhelm the orbital space entirely.

- What makes that situation possible is the fact that there are millions of micrometeoroids as well as manmade debris that is already orbiting Earth. The danger posed by even a small fragment that's traveling at high speeds is easy to see. As calculated by NASA, a 1-centimeter "paint fleck" traveling at 10km/s (22,000 mph) can cause the same damage as a 550-pound object traveling 60 miles per hour on Earth. If the size of the shard was increased to 10 centimeters, such a projectile would have the force of 7 kilograms of TNT. Now imagine thousands of such objects flying around at breakneck speeds and crashing into each other.
- If a chain reaction of exploding space junk did occur, filling the orbital area with such dangerous debris, the space program would indeed be in jeopardy. Travel that goes beyond the LEO, like the planned mission to Mars, would be made more challenging but still conceivably possible.

- What would, of course, be affected if the Kessler Syndrome's worst predictions came to pass, are all the services that rely on satellites. Core aspects of our modern life—GPS, television, military and scientific research—all of that would be under threat.
- NASA experienced a small-scale Kessler Syndrome incident in the 1970s when Delta rockets that were left in orbit started to explode into shrapnel clouds. This inspired Kessler, an astrophysicist, to show that there is a point when the amount of debris in an orbit gets to critical mass. At that point, the collision cascading would start even if no more things are launched into space. And once the chain of explosions begins, it can keep going until the orbital space can no longer be used.
- NASA says that its experts caution that we are already at critical mass in the low-Earth orbit, which is about 560-620 miles (900 to 1,000 kilometers) out.
- According to NASA estimates, the Earth's orbit currently has 500,000 pieces of space debris up to 10cm long, over 21,000 pieces of debris longer than 10cm, and more than 100 million pieces of space debris smaller than 1cm.

#### BIOROCK TECHNOLOGY

- A biorock structure was installed one nautical mile off the Mithapur coast in the Gulf of Kachchh. The location for installing the biorock had been chosen keeping in mind the high tidal amplitude in the Gulf of Kachchh. The low tide depth where the biorock has been installed is four metres, and at high tide it is about eight metres.
- Need: Coral reefs were the most diverse ecosystem on the earth. They are getting degraded across the world and also in India by threats posed both by climate change induced acidification as well as by anthropogenic factors. India has four major coral reefs areas: Andaman and Nicobar Islands, Lakshadweep, Gulf of Mannar and the Gulf of Kachchh.

#### What is Biorock?

 It is the name given to the substance formed by electro accumulation of minerals dissolved in seawater on steel structures that are lowered onto the sea bed and are connected to a power source, in this case solar panels that float on the surface.

#### What is Biorock Technology?

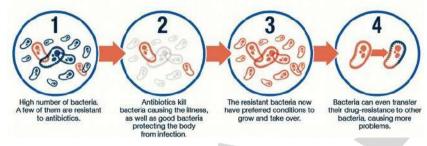
- Biorock Technology, or mineral accretion technology is a method that applies safe, low voltage electrical currents through seawater, causing dissolved minerals to crystallize on structures, growing into a white limestone similar to that which naturally makes up coral reefs and tropical white sand beaches. This material has a strength similar to concrete. It can be used to make robust artificial reefs on which corals grow at very rapid rates.
- The change in the environment produced by electrical currents accelerates formation and growth of both chemical limestone rock and the skeletons of corals and other shell-bearing organisms.
- Biorock methods speed up coral growth in damaged areas and restore authentic coral reef habitat and species. Biorock structures become rapidly colonized by a full range of coral reef organisms, including fish, crabs, clams, octopus, lobster, sea urchins.
- Species typically found in healthy reef environments are given an electrical advantage over the weedy
  organisms which often overgrow them in reefs stressed by humans. The advantages corals gain from mineral
  accretion are cancelled if they no longer receive current, at which point weeds will overgrow the corals. If
  the current is maintained, coral reefs can often be restored even in areas where water quality would prevent
  their recovery by any other method.

**Future:** Ongoing initiative of coral restoration using biorock technology could potentially help to sustain faster revival of corals. The technology helps corals, including the highly sensitive branching corals, to counter the threats posed by global warming.

## **4** ANTIMICROBIAL RESISTANCE

• Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.

# How does antibiotic resistance occur?



- Antimicrobials including antibiotics, antivirals, antifungals and antiparasitics are medicines used to prevent and treat infections in humans, animals and plants. Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".
- $\circ$   $\,$  Bacteria develop drug resistance both when they are within the body and outside.
- o The intake of drugs stopped mid-way could lead to the development of drug resistance.
- Low doses of such drugs available intermittently in the environment can also cause drug resistance to evolve in the bacteria.
- According to studies, the process of the development of drug resistance is rapid. E.Coli can evolve resistance to rifampicin within a few generations of drug exposure.
- When E.Coli is exposed to low concentration of anti-biotics it form biofilm. These are dangerous as biofilms are themselves a major challenge for hospitals.
- They found that biofilm formation was mediated by the activation of particular gene called the **fim operon promoter**. Activation of the gene allowed the expression of a type of fimbriae thread-like structures that help a bacterium attach itself to another bacterium. These are important in the formation of biofilms.

#### Anti-Biotic Resistance in India

- The misuse and overuse of antibiotics is rampant in India, resulting in super bugs that are resistant to all known types of drugs. The major cause of the increase in anti-biotic resistance are unnecessary prescription of drugs, lack of awareness among patients, by excessive usage on livestock and by poor sanitation.
- Poor sanitation, corruption and low public health spending have a bigger role in pushing up drug-resistant infections in low- and middle-income countries.
- In the story of co-evolution and natural selection, bacteria have evolved to resist the threat posed by these drugs. Antibiotic resistance is a worldwide problem. But experts fear that India's excessive antibiotic usage is now leading to a powerful never-before-seen mutation within bacteria.

**Way forward:** Providing sanitation, clean water and good governance, increasing public health expenditure and better regulating the private health sector are all necessary to reduce antimicrobial resistance.

# HEPATITIS

- Hepatitis is a term used to describe inflammation (swelling) of the liver.
- It can be caused due to viral infection or when liver is exposed to harmful substances such as alcohol.
- The disease may occur with limited or no symptoms, but often leads to jaundice, anorexia (poor appetite) and malaise.
- Hepatitis is of 2 types: acute and chronic.
- Hepatitis B infection at a young age turns chronic, causing over 1,00,000 premature deaths annually from liver cirrhosis or liver cancer.
- o The most common types of hepatitis are:

- Hepatitis A- It is the most common type of viral hepatitis. It is generally seen in the areas where sanitation and sewage disposal are poor.
- **Hepatitis B** caused by the **hepatitis B virus.** It is common in India and other parts of the world, such as China, Central and Southeast Asia and sub-Saharan Africa.
- **Hepatitis C** It is particularly concentrated in the blood, so it is usually transmitted through blood-to-blood contact.
- One of the major reason of prevalence of this disease is the low coverage of birth dose vaccination.

# \rm **DIPHTHERIA**

- Diphtheria is an infectious disease caused by the bacterial microorganism known as Corynebacterium diphtheriae. Some strains of this bacterium produce a toxin, and it is this toxin that causes the most serious complications of diphtheria. The bacteria produce a toxin because they themselves are infected by a certain type of virus called a phage.
- The toxin that is released:
- inhibits the production of proteins by cells;
- destroys the tissue at the site of the infection;
- leads to membrane formation;
- gets taken up into the bloodstream and distributed around the body's tissues;
- causes inflammation of the heart and nerve damage;
- can cause low platelet counts, or thrombocytopenia, and produce protein in the urine in a condition called proteinuria.
- Diphtheria is an infection spread only among humans. It is contagious by direct physical contact with:
- droplets breathed out into the air;
- secretions from the nose and throat, such as mucus and saliva;
- infected skin lesions;
- objects, such as bedding or clothes an infected person has used, in rare cases;
- The infection can spread from an infected patient to any mucous membrane in a new person, but the toxic
  infection most often attacks the lining of the nose and throat.

o Early features of the infection, before the pseudomembrane appears, include:

- low fever, malaise, and weakness.
- swollen glands on the neck
- Swelling of soft tissue in the neck, giving a 'bull neck' appearance
- nasal discharge
- fast heart rate
- Children with a diphtheria infection in a cavity behind the nose and mouth are more likely to have the following early features:
- nausea and vomiting
- chills, headache, and fever

# **PLASMA**

• Plasma is the clear, **straw-colored liquid portion of blood** that remains after red blood cells, white blood cells, platelets and other cellular components are removed. It is the single largest component of human blood, comprising about 55 percent, and contains water, salts, enzymes, antibodies and other proteins.

- The main role of plasma is to take nutrients, hormones, and proteins to the parts of the body that need it.
   Cells also put their waste products into the plasma. The plasma then helps remove this waste from the body.
   Blood plasma also carries all parts of the blood through the circulatory system.
- Plasma is a critical part of the treatment for many serious health problems. This is why there are blood drives asking people to donate blood plasma.
- Along with water, salt, and enzymes, plasma also contains important components. These include antibodies, clotting factors, and the proteins albumin and fibrinogen. When you donate blood, healthcare providers can separate these vital parts from your plasma. These parts can then be concentrated into various products. These products are then used as treatments that can help save the lives of people suffering from burns, shock, trauma, and other medical emergencies.
- The proteins and antibodies in plasma are also used in therapies for rare chronic conditions. These include autoimmune disorders and haemophilia. People with these conditions can live long and productive lives because of the treatments. In fact, some health organizations call plasma "the gift of life."

#### **Convalescent plasma therapy**

- Plasma therapy uses antibodies found in the blood of people who have recovered from an infection (or convalesced), to treat patients who are infected.
- In this therapy, blood is drawn from a person who has recovered and the serum is separated and screened for virus-neutralising antibodies. When attacked by a pathogen, our immune systems produce antibodies and in this therapy these antibodies from recovered patients are used to treat other sick people. Immunity develops early in asymptomatic or persons with mild symptoms, while it develops later in severe and critically ill Covid-19 patients.
- When an infection strikes, the body starts making **proteins called antibodies** specially designed to target that germ. Those antibodies float in survivors' blood specifically **plasma** for months, even years. Convalescent plasma is an experimental procedure for coronavirus patients.
- The process for donating plasma is similar to donating blood and takes about an hour. Plasma donors are hooked up to a small device that removes plasma while simultaneously returning red blood cells to their bodies. Unlike regular blood donation in which donors have to wait for red blood cells to replenish between donations, plasma can be donated more frequently, as often as twice a week.

#### DRS TECHNOLOGY

- The Decision Review System(DRS) is a technology based system in cricket to assist the match officials with their decision making.
- Using UDRS (Umpire's Review) the on-field umpire can take help of Third Umpire and players may request the Third Umpire to consider a decision of the on field umpires using DRS (Player's Review).
- The technologies used in Decision Review System are Television Replays, The Ball Tracking technology used to track the path of the ball, Microphones, Snickometer, Infra-Red imaging to detect temperature changes as the ball hits the pad or the bat. The Technologies Used in Decision Review System are:
- 1. **TELEVISION REPLAYS**: including Slow Motion which is mainly used to check whether the catch is cleanly taken or not.
- 2. HAWK EYE: Ball Tracking technology that plots the trajectory of a bowling delivery that has been interrupted by the batsmen/batswomen often by the pad and predict whether it would have hit the stumps or not. This technology is mainly used for Leg Before Wicket(LBW) decisions where the umpire can check whether the impact of the ball is in line to the stumps, whether the ball is hitting the stumps, and whether the ball is pitching outside the leg stump or not. These three conditions are mandatory for LBW decision which is reviewed using Hawk Eye Technology.

- 3. SNICKOMETER: Directional microphones to detect small sounds made as the ball passes the bat or the pad. It is mainly used for caught behind and LBW decisions. If the Snickometer shows spikes while passing the bat then it indicates that the ball has hit the bat which can be used for both caught behind and LBW decisions.
- 4. **HOTSPOT:** Infra-Red imaging system that shows where the ball has been in contact with the pad or the bat. It mainly shows the point of contact between the ball, bat and pad. It is mandatorily used to check whether the ball has hit the pad or the bat first in case of LBW and checks whether the ball has hit the bat or not in case of caught behind. It can be said as a substitute to Snickometer.

# **INDIAN POLITY**

# (Constitution; Polity and Governance)

## \rm 🖊 NALSA

- Article 39 A of the Constitution of India provides for free legal aid to the poor and weaker sections of the society, to promote justice on the basis of equal opportunity. Article 14 and Article 22 (1), obligate the State to ensure equality before the law.
- Constituted under the Legal Services Authorities Act of 1987, the National Legal Services Authority of India was established to create a nationwide network uniform in nature that would provide competent legal services to the weaker sections of the society at no cost. The Authority came into force only in November 1995.
- o Another function of NALSA is to organize Lok Adalats for a quick resolution of the cases.
- $\circ~$  The Patron-in-chief is the Chief Justice of India.
- The Executive Chairman of the Authority is the second senior-most judge of the SC.
- At the state level, the State Legal Services Authority has been constituted to give effect to the policies of NALSA at the state level, and also to conduct Lok Adalats in the states. NALSA provides funds for the State Legal Services Authority for the implementation of the various legal aids and programmes.
- o At the district level also, the District Legal Services Authority has been established.
- Taluk Legal Services Committees are also constituted for each of the Taluk or Mandal or for a group of Taluk or Mandals to coordinate the activities of legal services in the Taluk and to organise Lok Adalats. Every Taluk Legal Services Committee is headed by a senior Civil Judge operating within the jurisdiction of the Committee who is its ex-officio Chairman.

**Objective:** The prime objective of NALSA is speedy disposal of cases and reducing the burden of the judiciary. Other objectives can be listed as follows:

- Spreading Legal Awareness;
- Organizing Lok Adalats;
- Promoting dispute settlements;
- Providing the victims of crime with compensation.

## 🔸 LOK ADALAT

- o The term 'Lok Adalat' means 'People's Court' and is based on Gandhian principles.
- As per the Supreme Court, it is an old form of adjudicating system prevailed in ancient India and its validity has not been taken away even in the modern days too.
- It is one of the components of the Alternative Dispute Resolution (ADR) system and delivers informal, cheap and expeditious justice to the common people.
- The first Lok Adalat camp was organised in Gujarat in 1982 as a voluntary and conciliatory agency without any statutory backing for its decisions.
- In view of its growing popularity over time, it was given **statutory status under the Legal Services Authorities Act, 1987.** The Act makes the provisions relating to the organisation and functioning of the Lok Adalats.

## Organisation

 The State/District Legal Services Authority or the Supreme Court/High Court/Taluk Legal Services Committee may organise Lok Adalats at such intervals and places and for exercising such jurisdiction and for such areas as it thinks fit.

- Every Lok Adalat organised for an area shall consist of such number of serving or retired judicial officers and other persons of the area as may be specified by the agency organising.
- Generally, a Lok Adalat consists of a judicial officer as the chairman and a lawyer (advocate) and a social worker as members.
- National Legal Services Authority (NALSA) along with other Legal Services Institutions conducts Lok Adalats.

### Jurisdiction

- A Lok Adalat shall have jurisdiction to determine and to arrive at a compromise or settlement between the parties to a dispute in respect of:
- Any case pending before any court, or
- Any matter which is falling within the jurisdiction of any court and is not brought before such court.
- Any case pending before the court can be referred to the Lok Adalat for settlement if:
- Parties agree to settle the dispute in the Lok Adalat or one of the parties applies for referral of the case to the Lok Adalat or court is satisfied that the matter can be solved by a Lok Adalat.
- In the case of a pre-litigation dispute, the matter can be referred to the Lok Adalat on receipt of an application from any one of the parties to the dispute.
- Matters such as matrimonial/family disputes, criminal (compoundable offences) cases, land acquisition cases, labour disputes, workmen's compensation cases, bank recovery cases, etc. are being taken up in Lok Adalats.
- However, the Lok Adalat shall have no jurisdiction in respect of any case or matter relating to an offence not compoundable under any law. In other words, the offences which are **non-compoundable under any law** fall outside the purview of the Lok Adalat.

(**Note:** Non-Compoundable offenses are classified under CrPc. Non-Compoundable offenses are those offenses which are serious in nature.)

### **Powers**

- The Lok Adalat shall have the same powers as are vested in a **Civil Court** under the Code of Civil Procedure (1908).
- Further, a Lok Adalat shall have the requisite powers to specify its own procedure for the determination of any dispute coming before it.
- All proceedings before a Lok Adalat shall be deemed to be judicial proceedings within the meaning of the Indian Penal Code (1860) and every Lok Adalat shall be deemed to be a Civil Court for the purpose of the Code of Criminal Procedure (1973).
- o An award of a Lok Adalat shall be deemed to be a decree of a Civil Court or an order of any other court.
- **Every award made by a Lok Adalat shall be final and binding on all the parties to the dispute**. No appeal shall lie to any court against the award of the Lok Adalat.

### Benefits

- There is **no court fee** and if court fee is already paid the amount will be refunded if the dispute is settled at Lok Adalat.
- There is **procedural flexibility and speedy trial** of the disputes. There is no strict application of procedural laws while assessing the claim by Lok Adalat.
- The **parties to the dispute can directly interact with the judge** through their counsel which is not possible in regular courts of law.
- The **award by the Lok Adalat is binding on the parties** and it has the status of a decree of a civil court and it is non-appealable, which does not cause the delay in the settlement of disputes finally.

## PERMANENT LOK ADALATS

 The Legal Services Authorities Act, 1987 was amended in 2002 to provide for the establishment of the Permanent Lok Adalats to deal with cases pertaining to the public utility services like transport, postal, telegraph etc.

#### Features

- o These have been set up as permanent bodies.
- It shall consist of a Chairman who is or has been a district judge or additional district judge or has held judicial office higher in rank than that of the district judge and two other persons having adequate experience in public utility services.
- o It shall not have jurisdiction in respect of any matter relating to an offence not compoundable under any law.
- The jurisdiction of the Permanent Lok Adalats is upto Rs. 1 Crore.
- Before the dispute is brought before any court, any party to the dispute may make an application to the Permanent Lok Adalat for settlement of the dispute. After an application is made to the Permanent Lok Adalat, no party to that application shall invoke jurisdiction of any court in the same dispute.
- It shall formulate the terms of a possible settlement and submit them to the parties for their observations and in case the parties reach an agreement, the Permanent Lok Adalat shall pass an award in terms thereof. In case parties to the dispute fail to reach an agreement, the Permanent Lok Adalat shall decide the dispute on merits.
- A major drawback of the Lok Adalats is that if the parties do not arrive at any compromise or settlement, the case is either returned to the court of law or the parties are advised to seek a remedy in a court of law. This causes unnecessary delay in the dispensation of justice.
- Every award made by the Permanent Lok Adalat shall be final and binding on all the parties thereto and shall be by a majority of the persons constituting the Permanent Lok Adalat.

## **4** ADMINISTRATIVE TRIBUNALS

- The enactment of **Administrative Tribunals Act in 1985** opened a new chapter in the sphere of administering justice to the aggrieved government servants.
- Administrative Tribunals Act owes its origin to Article 323-A of the Constitution which empowers Central Government to set-up by an Act of Parliament, Administrative Tribunals for adjudication of disputes and complaints with respect to recruitment and conditions of service of persons appointed to the public service and posts in connection with the affairs of the Union and the States.
- The Act provides for establishment of Central Administrative Tribunal (CAT) and the State Administrative Tribunals. The CAT was set-up on 1 November 1985. Today, it has 17 regular benches, 15 of which operate at the principal seats of High Courts and the remaining two at Jaipur and Lucknow.
- These Benches also hold circuit sittings at other seats of High Courts. In brief, the tribunal consists of a Chairman, Vice-Chairman and Members. The Members are drawn, both from judicial as well as administrative streams so as to give the Tribunal the benefit of expertise both in legal and administrative spheres.
- The Administrative Tribunals exercise jurisdiction only in relation to the service matters of the litigants covered by the Act. The procedural simplicity of the Act can be appreciated from the fact that the aggrieved person can also appear before it personally. The Government can present its case through its departmental officers or legal practitioners.
- o Thus, the objective of the Tribunal is to provide for speedy and inexpensive justice to the litigants.
- As a result of the judgement in 1997 of the Supreme Court, the appeals against the orders of an Administrative Tribunal shall lie before the **Division Bench of the concerned High Court**.

## TRIBUNALS FOR OTHER MATTERS

- Article 323B in the Constitution of India: The appropriate Legislature may, by law, provide for the adjudication or trial by tribunals of any disputes, complaints, or offences with respect to all or any of the matters specified to which such Legislature has power to make laws.
- The matters referred are the following, namely:
- (a) levy, assessment, collection and enforcement of any tax;
- (b) foreign exchange, import and export across customs frontiers;
- (c) industrial and labour disputes;
- (d) land reforms by way of acquisition by the State of any estate as defined in Article 31A or of any rights therein or the extinguishment or modification of any such rights or by way of ceiling on agricultural land or in any other way;
- (e) ceiling on urban property;
- (f) elections to either House of Parliament or the House or either House of the Legislature of a State, but excluding the matters referred to in Article 329 and Article 329A;
- (g) production, procurement, supply and distribution of foodstuffs (including edible oilseeds and oils) and such other goods as the President may, by public notification, declare to be essential goods for the purpose of this article and control of prices of such goods;
- (h) offences against laws with respect to any of the matters specified in sub clause (a) to (g) and fees in respect of any of those matters;
- (i) any matter incidental to any of the matters specified in sub clause (a) to (h).

## **4** FILM CERTIFICATE APPELLATE TRIBUNAL (FCAT)

• The government by an ordinance abolished the **Film Certificate Appellate Tribunal (FCAT)**, which heard appeals by filmmakers seeking certification for their films.

The **Tribunals Reforms (Rationalisation And Conditions Of Service) Ordinance, 2021**, which came into effect on April 4, amends the Cinematograph Act, 1952 by omitting some sections and replacing the word "Tribunal" with "High Court" in other sections.

 In effect, filmmakers will now have to approach the High Court with appeals they would have earlier filed with the NCAT.

## FCAT

- FCAT was a **statutory body** constituted set up by the Ministry of Information & Broadcasting in 1983, under **Section 5D of the Cinematograph Act, 1952**.
- Its main job was to hear appeals filed under Section 5C of the Cinematograph Act, by applicants for certification aggrieved by the decision of the Central Board of Film Certification (CBFC).
- The tribunal was headed by a **chairperson** and had four other members, including a Secretary appointed by the Government of India to handle.
- The Tribunal was headquartered in **New Delhi**.

## What it did?

- In India, all films must have a CBFC certificate if they are to be released theatrically, telecast on television, or displayed publicly in any way. The CBFC — which consists of a Chairperson and 23 members, all appointed by the Government of India — certifies films under four categories:
- U: Unrestricted public exhibition (Suitable for all age groups)
- U/A: Parental guidance for children under age 12
- A: Restricted to adults (Suitable for 18 years and above)
- S: Restricted to a specialised group of people, such as engineers, doctors or scientists.

 The CBFC can also deny certification a film. On several occasions when a filmmaker or producer has not been satisfied with the CBFC's certification, or with a denial, they have appealed to the FCAT. And in many cases, the FCAT has overturned the CBFC decision.

## Adhoc JUDGES

- With a backlog of over 57 lakh cases, and a vacancy level of 40% in High Courts, the Supreme Court's decision to invoke a "dormant provision" in the Constitution to clear the way for appointment of retired judges as ad hoc judges to clear the mounting arrears in the various High Courts is an indication of the extraordinary delay in filling up judicial vacancies.
- The Court has chosen to activate **Article 224A of the Constitution**, which provides for appointment of ad hoc judges in the High Courts based on their consent.

### Article 224A

- The Chief Justice of a High Court for any State may at any time, with the previous consent of the President, request any person who has held the office of judge of that court or of any other High Court to sit and act as a judge of the High Court for that State, and every such person so requested shall, while so sitting and acting, be entitled to such allowances as the President may by order determine and have all the jurisdiction, powers and privileges of, but shall not otherwise be deemed to be a judge of that High Court.
- Provided that nothing in this Article shall be deemed to require any such person as aforesaid to sit and act as a judge of that High Court unless **he consents so to do.**

## ORDINANCES IN INDIA

- Ordinance is a decree or law promulgated by a state or national government without the consent of the legislature.
- Article 123 of the Constitution of India grants the President certain law-making powers to promulgate ordinances when either of the two Houses of Parliament is not in session. Hence, it is not possible for the ordinances to be issued in the Parliament. The fundamental reason for bestowing the executive with the power to issue ordinance according to H.N.Kunzru (involved in framing the Indian Constitution), was "to deal with situations where an emergency in the country necessitated urgent action."
- An ordinance may be concerned with any subject that the Parliament has the power to legislate on and also has the same limitations as the Parliament to legislate according to the distribution of powers between the Union, State and Concurrent Lists. There are limitations with regard to the ordinance making power of the executive. They are:
- 1) The President can only promulgate an ordinance when either of the two Houses of Parliament is not in session.
- 2) The President cannot promulgate an ordinance unless he is satisfied that there are circumstances that require taking 'immediate action'.
- 3) Ordinances must be approved by Parliament within six weeks of reassembling or they shall cease to operate.
- 4) They will also cease to operate in case resolutions disapproving the ordinance are passed by both the Houses.
- An ordinance has to be converted into legislation within 42 days of commencement of the Parliament session, or else it will lapse.
- An ordinance can be **re-promulgated only thrice**.
- The governor of a state can also issue **ordinances under Article 213 of the Constitution of India**, when the state legislative assembly is not in session.
- There have been various important discussions on the ordinance making power of the President and Governor. Significant questions have been asked on the judicial review of the ordinance making powers of the executive; the necessity for 'immediate action' while promulgating an ordinance and the granting of ordinance making powers to the executive, given the principle of separation of powers.

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• The Government of India Act, 1935, allows the issuing of ordinances with proper safeguards. However, there has been serious misuse of the 'emergency' power by different central governments.

## WORLD PRESS FREEDOM INDEX 2021

- The 2021 World Press Freedom Index produced by Reporters Without Borders (RSF) has again placed India at 142<sup>nd</sup> rank out of 180 countries.
- India was ranked 142 in the year 2020 as well, thus showing no improvement in the environment it provides to its journalists.
- India has fared poorly amongst its neighbours with Nepal at 106, Sri Lanka at 127 and Bhutan at 65. Pakistan is a close follower at 145th spot.

#### About the index

- It has been published every year since 2002 by Reporters Sans Frontieres (RSF) or Reporters Without Borders.
- Based in Paris, RSF is an independent NGO with consultative status with the United Nations, UNESCO, the Council of Europe and the International Organization of the Francophonie (OIF).
- OIF is a 54 French speaking nations collective.
- The Index ranks countries and regions according to the level of freedom available to journalists. **However, it** is not an indicator on the quality of journalism.
- The parameters include pluralism, media independence, media environment and self-censorship, legislative framework, transparency, and the quality of the infrastructure that supports the production of news and information.

#### **Global Scenario:**

- Journalism, the main vaccine against disinformation, is completely or partly blocked in 73% of the 180 countries.
- o Only 12 of the Index's 180 countries (7%) can claim to offer a favourable environment for journalism.
- o Covid-19 pandemic has been used to perfection by nations to control the spread of information.
- The Report has raised concern about the larger **Asia-Pacific region** as several nations in an attempt to curb freedom of press have in place draconian laws on 'sedition,' 'state secrets' and 'national security'.
- Norway has topped yet again for the fifth year in the row, followed by Finland and Denmark.
- Eritrea is at the bottom meanwhile China is ranked 177, and is only above North Korea at 179 and Turkmenistan at 178.

## ARTICLE 310

- Every person who is a member of a Defence service or of a civil service of the Union or of an All India Service or holds any post connected with Defence or any civil post under the Union holds office during the pleasure of the President, and every person who is a member of a civil service of a State or holds any civil post under a State holds office during the pleasure of the Governor of the State.
- Notwithstanding that a person holding a civil post under the Union or a State holds office during the pleasure
  of the President or, as the case may be of the Governor of the State, any contract under which a person, not
  being a member of a Defence service or of an All-India service or of a civil service of the Union or a State, is
  appointed under this Constitution to hold such a post may, if the President or the Governor, as the case may
  be, deems it necessary in order to secure the services of a person having special qualifications, provide for
  the payment to him of compensation, if before the expiration of an agreed period that post is abolished or
  he is, for reasons not connected with any misconduct on his part, required to vacate the post.

#### Services excluded from the purview of Article 310

- 1. Tenure of supreme court judges{Article124}
- **2.** Tenure of high court judges{Article148(2)}

- 3. The chief election commissioner{Article324}
- 4. Chairman and member of public- service commission{Article317)

## ARTICLE 311

- o Article 311 acts as a safeguard to civil servants. It reads as under;
- No person who is a member of a civil service of the Union or an all-India service or a civil service of a State or holds a civil post under the Union or a State shall be dismissed or removed by an authority subordinate to that by which he was appointed.
- 2. No such person as aforesaid shall be dismissed or removed or reduced in rank except after an inquiry in which he has been informed of the charges against him and given a reasonable opportunity of being heard in respect of those charges: Provided that where, it is proposed after such inquiry, to impose upon him any such penalty, such penalty may be imposed on the basis of the evidence adduced during such inquiry and it shall not be necessary to give such person any opportunity of making representation on the penalty proposed: Provided further that this clause shall not apply —
- a) where a person is dismissed or removed or reduced in rank on the ground of conduct which has led to his conviction on a criminal charge; or
- b) where the authority empowered to dismiss or remove a person or to reduce him in rank is satisfied that for some reason, to be recorded by that authority in writing, it is not reasonably practicable to hold such inquiry; or
- c) where the President or the Governor, as the case may be, is satisfied that in the interest of the security of the State it is not expedient to hold such inquiry.
- **3.** If, in respect of any such person as aforesaid, a question arises whether it is reasonably practicable to hold such inquiry as is referred to in clause (2), the decision thereon of the authority empowered to dismiss or remove such person or to reduce him in rank shall be final.
- The procedure laid down in Article 311 is intended to assure, first, a measure of security of tenure to Government servants, who are covered by the Article and secondly to provide certain safeguards against arbitrary dismissal or removal of a Government servant or reduction to a lower rank.
- These provisions are enforceable in a court of law. Where there is an infringement of Article 311, the orders passed by the disciplinary authority are void ab-initio and in the eye of law "no more than a piece of waste paper" and the Government servant will be deemed to have continued in service or in the case of reduction in rank, in his previous post throughout.
- Article 311 is of the nature of a proviso to Article 310. The exercise of pleasure by the President under Article 310 is thus controlled and regulated by the provisions of Article 311.

#### Exceptions to Article 311(2)

- The provision to Article 311 (2) provides for certain circumstances in which the procedure envisaged in the substantive part of the clause need not be followed. These are set out below.
- 1. Conviction on a criminal charge- One of the circumstances excepted by clause (a) of the provision is when a person is dismissed or removed or reduced in rank on the ground of conduct which has laid to his conviction on a criminal charge. The rationale behind this exception is that a formal inquiry is not necessary in a case in which a court of law has already given a verdict.

However, if a conviction is set aside or quashed by a higher court on appeal, the Government servant will be deemed not to have been convicted at all. Then the Government servant will be treated as if he had not been convicted at all and as if the order of dismissal was never in existence. In such a case the Government servant will also be entitled to claim salary for the intervening period during which the dismissal order was in force. The grounds of conduct for which action could be taken under this proviso could relate to a conviction on a criminal charge before appointment to Government service of the person concerned. If the appointing authority were aware of the conviction before he was appointed, it might well be expected to refuse to appoint such a person but if for some reason the fact of conviction did not become known till after his

appointment, the person concerned could be discharged from service on the basis of his conviction under **clause (a)** of the proviso without following the normal procedure envisaged in Article 311.

- 2. Impracticability- Clause (b) of the proviso provides that where the appropriate disciplinary authority is satisfied, for reasons to be recorded by that authority in writing that it does not consider it reasonably practicable to give to the person an opportunity of showing cause, no such opportunity need be given. The satisfaction under this clause has to be of the disciplinary authority who has the power to dismiss, remove or reduce the Government servant in rank. As a check against an arbitrary use of this exception, it has been provided that the reasons for which the competent authority decides to do away with the prescribed procedures must be recorded in writing setting out why it would not be practicable to give the accused an opportunity. The use of this exception could be made in case, where, for example a person concerned has absconded or where, for other reasons, it is impracticable to communicate with him.
- **3.** Reasons of security- Under proviso (c) to Article 311 (2), where the President is satisfied that the retention of a person in public service is prejudicial to the security of the State, his services can be terminated without recourse to the normal procedure prescribed in Article 311 (2).

The satisfaction referred to in the proviso is the subjective satisfaction of the President about the expediency of not giving an opportunity to the employee concerned in the interest of the security of the State. This clause does not require that reasons for the satisfaction should be recorded in writing. That indicates that the power given to the President is unfettered and cannot be made a justifiable issue, as that would amount to substituting the satisfaction of the court in place of the satisfaction of the President.

## COOPERATIVE FEDERALISM

- Then seeds of Cooperative federalism can be traced right from the **Regulating Act of 1773** which set up a system whereby the British Government supervised the work of the East India Company but did not take power for itself.
- The Government of India Act 1919 provided for a federal India, however superficial, by envisaging a dual form of government called 'dyarchy.' The same was sought to be achieved by the Government of India Act, 1935.
- From 1946 to 1950, the leaders of India's Freedom Movement and the founding fathers of the Constitution had the task of drafting the Constitution. The members of the Constituent Assembly aimed to build a united polity out of a highly fragmented and segmented society, which they attempted through strengthening the "Union" or federal order, by shifting residuary powers to it.
- Many politicians thought that only a strong center could effectively drive economic development and ensure equity. Hence the trend generally was toward ever more centralization under the Congress Party from independence to the 1980s. During the 1980s, however, Union-state relations became more rancorous, the Congress party began to decline, and a coalition government, the National Front, assumed power in New Delhi as a result of the 1989 elections in part because centralized federalism driven by a monopoly party for some 40 years had fallen far short to achieve objectives outlined in the Constitution. Since 1989, coalition governments at the Centre, proliferating regional and state parties across the country.
- Redistribution of responsibilities through devolution of powers from the Union to the states and from the states to the Panchayats and allocation of financial resources to the state domain is facilitating the attainment of the objectives of the Constitution: unity, social justice, and democracy. All this indicates steps in the direction of cooperative federalism.

#### Indian Constitution and Cooperative Federalism

 Cooperative federalism is the horizontal relationship between union and states and shows neither is above the other. Indian constitution has incorporated instruments to ensure co-operation between the center and states to ensure that cooperation is necessary for the proper growth of the country. Therefore, few are the listed provisions in the Indian constitution which depict the core relationship between center and state.

### 7th schedule

- It demarcates central, state, and concurrent lists based on the principle of subsidiarity. Residuary power has been kept with the center.
- Article 249[5] provides authority to the parliament to make on those subjects which are under state jurisdiction if the resolution passes in-state council with a two-thirds majority.

### **All India Services**

 An integrated judicial system has been established to enforce both states as well as central laws. All India services provide another uniting factor in cooperative federalism. This provision is enshrined in article 312 of the Indian constitution.

### **Inter-state Council**

 Under article 263 of the constitution has been established to discuss and investigate the subject of common interest between the center and the states. In Dabur India Limited v. State of Uttar Pradesh, the Supreme Court suggested the setting up of a council under Article 263 to discuss and sort out problems of central state taxation.

### **Full Faith and Credit Clause**

• Article 261 of the Constitution of India provides that full faith and credit shall be given throughout the territory of India to all the public acts, records, and judicial proceedings of the Union and every State. This is a step to promote cooperation and faith between the center and the states.

### **Zonal council**

These are statutory bodies established under the State reorganization act of 1956 to ensure coordination. It provided for 5 zonal councils, one for each north, south, east, west, central. The northeastern council has been created under a separate act.

### **NITI AYOG**

- NITI AYOG' or the National Institution for Transforming India is a Government of India policy think-tank established to replace the Planning Commission.
- The main emphasis of NITI AYOG is to bring the effect over center and state relationship.
- NITI Aayog provides relevant strategic technical advice at the center and state levels, dissemination of best practices within the country as well as from other nations, infusion of new policy ideas, it ensures that India is an active player on the global commons, etc.
- In this way, it will function in close cooperation, consultation, and coordination with the Ministries of the Central Government and State governments. It will provide critical directional and strategic input to the development process, focusing on deliverables and outcomes.

### GST

- GST is a single tax on the supply of goods and services, right from the manufacturer to the consumer. GST was passed by the 101st amendment, 2016 and it came into effect on April 1, 2017. The main agenda behind the whole concept of GST is 'ONE TAX ONE NATION'.
- The free movement of goods and services will give a fillip to employment opportunities and give consumers a wider choice and better prices. This economic integration will not only boost economic growth but also bind the nation better. It is an idea whose time has come and would not have materialized but for the spirit of co-operation displayed by the Centre and the States.

### Way Forward

 To make collaborative federalism work, more institutional reforms are required to eliminate the possibility of manipulation by ad hoc political bargaining or by welfare-reducing strategic behavior by the governments at different levels.

- In an era where the party system is fragmented along federal lines, the need is still felt to include State parties in federal coalitions, even when technically not necessary. The way alliance partners are treated thus becomes an important element in federal functioning.
- State bills should be taken on a priority list for the assent of the President as the speedy procedure of this will foster more cooperation among state and center.
- There should be proper enforceability of decisions in a matter related to water disputes to avoid long-lasting conflicts among states.

# ECONOMY

## (Global and Indian)

## **4** FOOD CORPORATION OF INDIA (FCI)

- The Food Corporation of India is a **statutory body** created and run by the Government of India.
- It is under the ownership of **Ministry of Consumer Affairs, Food and Public Distribution**, Government of India formed by the enactment of **Food Corporation Act, 1964**.
- o Its top official is designated as Chairman who is a civil servant of the IAS cadre.
- o It was set up in 1965 with its initial headquarters at Chennai. Later this was moved to New Delhi.

### Mandate:

- o Effective price support operations for safeguarding the interests of the poor farmers.
- o **Distribution of foodgrains** throughout the country for Public Distribution System (PDS).
- Maintaining a satisfactory level of operational and buffer stocks of foodgrains to ensure National Food Security.
- Regulate market price to provide foodgrains to consumers at a reliable price.

## Operations

- The Food Corporation of India procures rice and wheat from farmers through many routes like paddy purchase centres/mill levy/custom milling and stores them in depots. FCI maintains many types of depots like food storage depots and buffer storage complexes and private equity godowns and also implemented latest storage methods of silo storage facilities which are located at Hapur in Uttar Pradesh, Malur in Karnataka and Elavur in Tamil Nadu.
- The stocks are transported throughout India by means of railways, roadways and waterways and issued to the state government nominees at the rates declared by the Government of India for further distribution under the Public Distribution System (PDS) for the consumption of the ration card holders. (FCI itself does not directly distribute any stock under PDS, and its operations end at the exit of the stock from its depots).
- The difference between the purchase price and sale price, along with internal costs, are reimbursed by the Union Government in the form of food subsidy. At present the annual subsidy is around \$10 billion.
- FCI by itself is not a decision-making authority; it does not decide anything about the MSP, imports or exports. It just implements the decisions made by the Ministry of Consumer Affairs, Food and Public Distribution and Ministry of Agriculture.
- Food Corporation of India recently ventured into procurement of pulses in various regions from the crop year 2015–16, and pulses are procured at market rate, which is a sharp deviation from its traditional minimum support price-based procurement system.
- In 2014, Government of India set up a high-level committee under the chairmanship of Hon'ble Member of Parliament and former Minister of Food and Consumer Affairs and Public Distribution Shri Shanthakumar to recommend viable solutions regarding restructuring and reorienting the role of Food Corporation of India, and the committee submitted its report to the government. Many of the committee recommendations are under various stages of implementation.
- On 27 November 2019, Cabinet Committee on Economic Affairs (CCEA) approved to increase the authorized capital of Food Corporation of India (FCI) from existing Rs. 3,500 crores to Rs. 10,000 crores.

## **4** FOOD MANAGEMENT POLICY

- The main elements of the Government's food management policy are **procurement**, **storage** and **movement of foodgrains**, **public distribution** and **maintenance of buffer stocks**.
- The foodgrain management policy in India is detailed in the Targeted Public Distribution System (TPDS) (Control) Order, 2015.

- Procurement operations are seasonal -
- Kharif Marketing Season (KMS) starts from 1st October and lasts upto 30 September next year. Paddy/ Rice and coarse grains like jowar, bajra, ragi & maize are procured during the KMS.
- The Rabi Marketing Season (RMS) starts from 1 April and lasts upto 31 March next year. Mostly, wheat and sometimes barley is procured during RMS. [The kharif cropping season is from July –October during the south-west monsoon and the Rabi cropping season is from October-March (winter).]
- Before the start of every marketing season, **Department of Food and Public Distribution convenes a meeting** of State Food Secretaries to make advance arrangements for procurement of foodgrains/coarse grains.
- In this meeting, issues like procurement centres to be opened by Food Corporation of India (FCI) /State Agencies, arrangement of storage space, evacuation plan for foodgrains and arrangement of packaging material are discussed. Based on the estimates given by the State Food Secretaries, the targets of total procurement for the Central Pool are worked out in the meeting.
- Under the existing procurement policy of the Government of India (GOI), foodgrains for the Central Pool are procured by various agencies such as **FCI**, **State Government Agencies (SGAs) and private rice millers**.
- Before the start of each procurement season, Govt. of India announces **uniform specification for quality of** wheat, paddy, rice and coarse grains.
- Quality Control Division of FCI ensures procurement of foodgrains from procurement centres strictly in accordance with Govt. of India's uniform quality specifications.
- Procurement of **wheat and paddy** for the Central Pool is carried out on **open ended basis** (i.e., accepting all the grains that are sold to it by farmers) at the declared Minimum Support Price (MSP) fixed by the GOI.
- In addition, States/ Union Territories (UTs) which are presently under Decentralised Procurement (DCP) scheme also procure foodgrains for the Central Pool, but directly store and distribute them under Targeted Public Distribution System [TPDS] and Other Welfare Schemes (OWS) based on the allocation made by the GOI. Any surplus stock over their requirement is taken over by FCI and in case of any shortfall in procurement against allocation made by the GOI, FCI meets the deficit out of the Central Pool.
- In order to give relief to the farmers affected by the unprecedented rains & hailstorms, Central Government may (This was done, for instance, in 2015 for wheat procurement) relax quality norms for the procurement and also reimburse the amount of value cut on such relaxation to the States so that farmers get full Minimum Support Price (MSP).
- The procured food grains are taken over from State Government Agencies (SGAs) and private rice millers into the Central Pool by FCI and are moved from the procuring states to the consuming states for distribution to the consumers and for creation of buffer stock in various states. Food grains of the Central Pool are stored by FCI in both its own godowns and at hired godowns in different parts of the country. FCI, if so required, may use warehouse receipts as collateral for financing its operations.

### Allocation, Off-take of Foodgrains and Central Issue Prices

- The function of distribution of foodgrains to the consumers is carried out by the State Governments through Targeted Public Distribution Scheme [TPDS] and Other Welfare Schemes (OWS).
- The foodgrains are also disposed off by FCI and State Governments, based on allocation of the GOI through sale under **Open Market Sales Scheme (OMSS)** [i.e., selling foodgrains at predetermined prices in the open market from time to time to enhance the supply of grains especially during the lean season and thereby to moderate the open market prices especially in the deficit regions. Wheat and Rice are also allocated to State Governments for retail sale through non-PDS Channels under OMSS.].
- Based on the allocation made by the GOI, State Governments lift (off-take) the food grains from the Central Pool for distribution to the consumers through TPDS and OWS. Distribution of food grains for BPL, AAY and APL is carried out by the State Governments through TPDS, with a network of many Fair Price Shops (FPS) spread throughout the country. The State Governments are responsible for identification of beneficiaries and issue of ration cards.
- Food grains from the Central Pool are issued to States at Central Issue Price (CIP) for distribution under TPDS to serve families of BPL, APL and AAY at rates fixed by the GOI. Ministry of Consumer Affairs, Food &Public

Distribution Government of India, fixes the Central Issue Prices (CIP) of wheat and rice which is uniform throughout the country.

#### **Movement of Food Grains**

- In order to ensure availability of foodgrains for TPDS and OWS, and to maintain reasonable levels of buffer stocks at various strategic locations throughout the country, FCI undertakes transportation of foodgrain (wheat and rice) from surplus States to the deficit States and also within the States by rail, road and riverine modes. About 90% of all India movement is undertaken by railways and rest by road and waterways.
- On an average of 25 lakh bags (each one is 50 KG) of foodgrains are transported every day from the procuring areas to the consuming areas, covering an average distance of 1500 Kilometre.
- All India Movement Plan is prepared on monthly basis at FCI headquarters keeping in view the quantity available in surplus States, quantity required by consuming States, likely procurement in procuring States, vacant storage capacity both in consuming and procuring States, and monthly allocation/off-take.
- An online tracking system for movement of foodgrains and depot management was launched in March 2016. The system would provide various types of data regarding stock position, movement, quality and quantity on line. It would also generate SMS alerts to depot officials, area manager and other decision making authorities. All the data are available on dashboard also for top management to monitor centrally so as to help in automatic reconciliation and generation of MIS reports about foodgrain management.

#### **Buffer Stock Policy of the GOI**

- The concept of buffer stock was first introduced during the IV Five Year Plan (1969-74).
- Buffer stock of food grains in the Central Pool is maintained by the GOI for
- 1. meeting the prescribed minimum buffer stock norms for food security,
- 2. monthly release of food grains for supply through TPDS and Other Welfare Schemes,
- 3. meeting emergency situations arising out of unexpected crop failure, natural disasters, etc. and
- 4. price stabilisation or market intervention to augment supply so as to help moderate the open market prices.
- While four months requirement of food grains for issue under TPDS and OWS are earmarked as operational stocks, the surplus over that is treated as buffer stock and physically both buffer and operational stocks are merged into one and are not distinguishable.
- According to the present practice, the GOI treats the food stock over and above the minimum norms as excess stock and liquidates them from time to time through exports, open market sales or additional allocations to states. The buffer stock figures are normally reviewed after every five years.
- The total annual stock of foodgrains in the Central Pool is distributed over different quarters of the year depending upon offtake and procurement patterns. The seasonality of production and procurement is thus a decisive factor in determining the minimum norm of food grains stocks required in a particular quarter of the year.

#### **Open Market Sale Scheme (Domestic)**

- In addition to maintaining buffer stocks and making a provision for meeting the requirement of the Targeted Public Distribution Scheme and Other Welfare Schemes (OWS), FCI on the instructions from the Government, sells wheat and rice in the open market from time to time to enhance the supply of wheat and rice especially during the lean season and to moderate the open market prices especially in the deficit regions.
- For transparency in operations, the Corporation has switched over to e- auction for sale under Open Market Sale Scheme (Domestic). The FCI conducts a weekly auction to conduct this scheme in the open market using the platform of commodity bourse NCDEX (National Commodity and Derivatives Exchange Limited). The State Governments/ Union Territory Administrations are also allowed to participate in the e-auction, if they require wheat and rice outside TPDS & OWS.
- The present form of OMSS comprises 3 schemes as under:
- **1.** Sale of wheat to bulk consumers/private traders through e-auction.
- 2. Sale of wheat to bulk consumers/private traders through e-auction by dedicated movement.

**3.** Sale of Raw Rice Grade 'A' to bulk consumers/private traders through e-auction.

## A NCDEX

- National Commodity & Derivatives Exchange Limited (NCDEX) (NCDEX/the Exchange) is a leading agricultural commodity exchange in India, with a market share of 78.0% in the agricultural commodity segments, based on average daily turnover (by value).
- The Exchange has maintained its leadership position since 2005, in the agricultural commodity derivatives market. Further, the Exchange is a professionally managed company, which is driven by technology.

## **Current Shareholders**

- Life Insurance Corporation of India (LIC), National Bank for Agriculture and Rural Development (NABARD), National Stock Exchange of India Limited (NSE), Canara Bank, Punjab National Bank (PNB), CRISIL Limited, Indian Farmers Fertiliser Cooperative Limited (IFFCO), Shree Renuka Sugars Limited, Jaypee Capital Services Limited, Build India Capital Advisors LLP, Oman India Joint Investment Fund, Investcorp Private Equity Fund I (formerly known as IDFC Private Equity Fund III), Star Agriwarehousing and Collateral Management Limited and shareholding by individuals.
- The Exchange has a broad based bouquet of permitted commodities aggregating to a total of 23 (which is also the highest), and includes commodities such as pulses, spices and guar, which are not traded on any platforms in the global scenario, and are economically relevant to India, forming an important component of India's global trade.
- The Exchange was incorporated as a **public limited company on April 23, 2003**, pursuant to a certificate of incorporation and commenced its business pursuant to a certificate for commencement of business dated May 9, 2003, each granted by the Registrar of Companies, Maharashtra at Mumbai.
- The Exchange was registered with the Forward Markets Commission as a recognised association under The Forward Contracts (Regulation) Act, 1952.
- With effect from **September 28, 2015, the Exchange became a deemed recognized stock exchange** under the Securities Contracts (Regulation) Act, 1956.
- NCDEX is regulated by Securities and Exchange Board of India (SEBI). NCDEX is subjected to various laws of the land like the Securities Contracts (Regulation) Act, 1956, Companies Act, Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, SEBI (Listing Obligations and Disclosure Requirements) Regulations, Stamp Act, Contract Act and various other legislations.
- NCDEX headquarters are located in Mumbai and offers facilities to its members from the centres located throughout India.
- As of March 31, 2021, NCDEX offered future contracts for 23 agricultural commodities and 1 non-agricultural commodity, 1 Indices contract and options contracts for 7 agricultural commodities, on the Exchange platform.

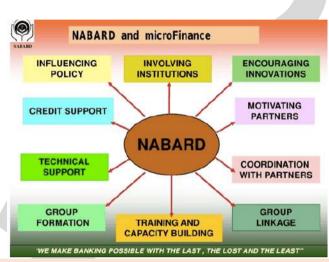
## **4** NABARD

- National Bank for Agriculture and Rural Development (NABARD) is an **apex regulatory body for overall regulation and licensing of regional rural banks and apex cooperative banks** in India.
- It is under the jurisdiction of **Ministry of Finance**.
- The bank has been entrusted with "matters concerning policy, planning, and operations in the field of credit for agriculture and other economic activities in rural areas in India".
- NABARD is active in **developing & implementing Financial Inclusion**.
- NABARD was established on the recommendations of B. Sivaramman Committee (by Act 61, 1981 of Parliament) on 12 July 1982 to implement the National Bank for Agriculture and Rural Development Act 1981.

- It replaced the Agricultural Credit Department (ACD) and Rural Planning and Credit Cell (RPCC) of Reserve Bank of India, and Agricultural Refinance and Development Corporation (ARDC). It is one of the premier agencies providing developmental credit in rural areas.
- o NABARD is India's specialised bank for Agriculture and Rural Development in India.
- International associates of NABARD include World Bank-affiliated organisations and global developmental agencies working in the field of agriculture and rural development. These organisations help NABARD by advising and giving monetary aid for the upliftment of the people in the rural areas and optimising the agricultural process.

#### Roles

- Serves as an apex financing agency for the institutions providing investment and production credit for promoting the various developmental activities in rural areas
- Takes measures towards institution building for improving absorptive capacity of the credit delivery system, including monitoring, formulation of rehabilitation schemes, restructuring of credit institutions, training of personnel, etc.
- Co-ordinates the rural financing activities of all institutions engaged in developmental work at the field level and maintains liaison with



Government of India, state governments, Reserve Bank of India (RBI) and other national level institutions concerned with policy formulation.

- o Undertakes monitoring and evaluation of projects refinanced by it.
- o NABARD refinances the financial institutions which finances the rural sector.
- o NABARD partakes in development of institutions which help the rural economy.
- NABARD also keeps a check on its client institutes.
- o It regulates the institutions which provide financial help to the rural economy.
- o It provides training facilities to the institutions working in the field of rural upliftment.
- o It regulates and supervise the cooperative banks and the RRB's, through out entire India.
- NABARD supervises State Cooperative Banks (StCBs), District Cooperative Central Banks (DCCBs), and Regional Rural Banks (RRBs) and conducts statutory inspections of these banks.
- NABARD's refinance fund from World Bank and Asian Development Bank to state co-operative agriculture and rural development banks (SCARDBs), state co-operative banks (SCBs), regional rural banks (RRBs), commercial banks (CBs) and other financial institutions approved by RBI. While the ultimate beneficiaries of investment credit can be individuals, partnership concerns, companies, State-owned corporations or cooperative societies, production credit is generally given to individuals.
- Through assistance of Swiss Agency for Development and Cooperation, NABARD set up the Rural Innovation Fund.
- Rural Innovation Fund is a fund designed to support innovative, risk friendly, unconventional experiments in these sectors that would have the potential to promote livelihood opportunities and employment in rural areas. The assistance is extended to Individuals, NGOs, Cooperatives, Self Help Group, and Panchayati Raj Institutions who have the expertise and willingness to implement innovative ideas for improving the quality of life in rural areas.
- NABARD also started direct lending facility under 'Umbrella Programme for Natural Resource Management' (UPNRM). Under this facility financial support for natural resource management activities can be provided as a loan at reasonable rate of interest.

## GREEN CONTRACTS

The increasing concerns about climate change once again point to the need for enhanced efforts towards achieving sustainable growth goals in India. While the massive levels of production, consumption and disposal of goods and services have their own set of benefits in a post-industrial society, they have also slowed down the replenishment cycle of limited resources.

- As both consumers and corporations reap the benefits of large-scale manufacturing and services, they must equally share the responsibilities relating to the loss of resources and reduce greenhouse gas emissions.
- Some corporations contribute a fair share to building a clean and sustainable future. But they can contribute in cutting down emissions through the process of green contracting.

#### **Green contracts:**

- 'Green contracts' refer to commercial contracts which mandate that contracting parties cut down greenhouse gas emissions at different stages of delivery of goods/services, including design, manufacturing, transportation, operations and waste disposal, as applicable to the industry.
- The process of implementing a green contract may **commence at the bidding stage itself**, when various interested companies participate in the tender process.
- In such a scenario, a 'green tender' may prescribe necessary 'green qualifications', which can be considered when awarding the contract to a bidder. These green qualifications can range from using a pre-defined percentage of 'green energy' in service delivery to adequate on-site waste management, reducing carbon emissions by a certain level over period of time, etc.
- Once such a bidder is chosen, the contracting agreement between the parties can prescribe the 'green obligations' in detail, thus making the obligations binding and enforceable in the eyes of the law. It is this obligatory nature of green contracts which sets the tone for the parties to cut down emissions.
- This can be achieved by contractual clauses providing for the use of good quality and energy-efficient infrastructure for production of goods/services, efforts in day-to-day operations such as reducing noise, air and water pollution and ensuring eco-friendly means of transportation like bicycles on site, establishing and maintaining a sustainable waste management system, and so on.
- One effective way to make sure that the service providers adhere to these contractual obligations would be to provide for measurement criteria and audit of the performance of the contractor with regard to these obligations. An organisation may also choose to contractually highlight non-performance of such obligations as a ground of contractual breach, with penalty prescriptions.
- Another way to make sure that these obligations under the green contracts resonate far is to make sure that they flow down to all levels of the supply chain engaged in the delivery of goods and services.
- Lastly, the economic cost of executing green contracts may be greater than a normal brown contract, but global entities operating in a changing environment need to take into consideration the greater environment costs at stake.

## PURCHASING MANAGERS INDEX (PMI)

- Started in 1948 by the US-based Institute of Supply Management, the Purchasing Managers' Index, or PMI, has now become one of the most closely watched indicators of business activity across the world.
- PMI or a Purchasing Managers' Index (PMI) is an indicator of business activity -- both in the manufacturing and services sectors.
- It is a survey-based measures that asks the respondents about changes in their perception of some key business variables from the month before. It is calculated separately for the manufacturing and services sectors and then a composite index is constructed.
- The PMI is derived from a series of qualitative questions. Executives from a reasonably big sample, running into hundreds of firms, are asked whether key indicators such as output, new orders, business expectations and employment were stronger than the month before and are asked to rate them.

#### How does one read the PMI?

- A figure above 50 denotes expansion in business activity.
- Anything below 50 denotes contraction.
- Higher the difference from this mid-point greater the expansion or contraction. The rate of expansion can also be judged by comparing the PMI with that of the previous month data. If the figure is higher than the previous month's then the economy is expanding at a faster rate. If it is lower than the previous month then it is growing at a lower rate.

#### What are its implications for the economy?

- The PMI is usually released at the start of the month, much before most of the official data on industrial output, manufacturing and GDP growth becomes available. It is, therefore, considered a good leading indicator of economic activity.
- Economists consider the manufacturing growth measured by the PMI as a good indicator of industrial output, for which official statistics are released later. Central banks of many countries also use the index to help make decisions on interest rates.
- The PMI also gives an indication of corporate earnings and is closely watched by investors as well as the bond markets. A good reading enhances the attractiveness of an economy vis-a- vis another competing economy.

## DIRECT TAX

Direct taxes are type taxes that are paid straight or directly to the government, such as income tax, poll tax, land tax, and personal property tax. Such direct taxes are computed based on the ability of the taxpayer to pay, which means that the higher their capability of paying is, the higher their taxes are.

#### Types of Direct Taxes in India

- Income Tax: Depending on an individual's age and earnings, income tax must be paid. Various tax slabs are determined by the Government of India which determines the amount of Income Tax that must be paid. The taxpayer must file Income Tax Returns (ITR) on a yearly basis. Individuals may receive a refund or might have to pay a tax depending on their ITR. Huge penalties are levied in case individuals do not file ITR.
- Wealth Tax: The tax must be paid on a yearly basis and depends on the ownership of properties and the market value of the property. In case an individual owns a property, wealth tax must be paid and does not depend on whether the property generates an income or not. Corporate taxpayers, Hindu Undivided Families (HUFs), and individuals must pay wealth tax depending on their residential status. Payment of wealth tax is exempt for assets like gold deposit bonds, stock holdings, house property, commercial property that have been rented for more than 300 days, and if the house property is owned for business and professional use.
- Estate Tax: It is also called as Inheritance Tax and is paid based on the value of the estate or the money that an individual has left after his/her death.
- Corporate Tax: Domestic companies, apart from shareholders, will have to pay corporate tax. Foreign corporations who make an income in India will also have to pay corporate tax. Income earned via selling assets, technical service fees, dividends, royalties, or interest that is based in India are taxable. The below-mentioned taxes are also included under Corporate Tax:
- Securities Transaction Tax (STT): The tax must be paid for any income that is earned via security transactions that are taxable.
- Dividend Distribution Tax (DDT): The Dividend Distribution Tax is a tax levied on dividends that a company pays to its shareholders out of its profits. The Dividend Distribution Tax, or DDT, is taxable at source, and is deducted at the time of the company distributing dividends. The dividend is the part of profits that the company shares with its shareholders. The law provides for the Dividend Distribution Tax to be levied at the hands of the company, and not at the hands of the receiving shareholder. However, an additional tax is imposed on the shareholder, who receives over Rs. 10 lakhs in dividend income in a financial year.

- Fringe Benefits Tax: Companies that provide fringe benefits for maids, drivers, etc., Fringe Benefits Tax is levied on them.
- Minimum Alternate Tax (MAT): For zero tax companies that have accounts prepared according to the Companies Act, MAT is levied on them.
- **Capital Gains Tax:** It is a form of direct tax that is paid due to the income that is earned from the sale of assets or investments. Investments in farms, bonds, shares, businesses, art, and home come under capital assets. Based on its holding period, tax can be classified into long-term and short-term.

Any assets, apart from securities, that are sold within 36 months from the time they were acquired come under short-term gains. Long-term assets are levied if any income is generated from the sale of properties that have been held for a duration of more than 36 months.

#### **Advantages of Direct Taxes**

- Economic and Social balance: The Government of India has launched well-balanced tax slabs depending on an individual's earnings and age. The tax slabs are also determined based on the economic situation of the country. Exemptions are also put in place so that all income inequalities are balanced out.
- **Productivity**: As there is a growth in the number of people who work, the returns from direct taxes also increases. Therefore, direct taxes are considered to be very productive.
- Inflation is curbed: Tax is increased by the government during inflation. The increase in taxes reduces the necessity for goods and services, which leads to inflation to compress.
- **Certainty**: Due to the presence of direct taxes, there is a sense of certainty from the government and the taxpayer. The amount that must be paid and the amount that must be collected is known by the taxpayer and the government, respectively.
- **Distribution of wealth is equal**: Higher taxes are charged by the government to the individuals or organisations that can afford them. This extra money is used to help the poor in India.

### **Direct Taxes vs. Indirect Taxes**

- Direct taxes refer to taxes that are filed and paid by an individual directly to the government. Indirect taxes, on the other hand, are taxes that can be transferred to another entity. Therefore, the burden of paying them can be put on another person's shoulders.
- Direct taxes can be evaded in the absence of proper collection administration. **Indirect taxes cannot be escaped** from because these are charged automatically on goods and services.
- o Direct taxes can help address inflation while indirect taxes can lead to inflation.
- Direct taxes lessen the savings of earners, but indirect taxes encourage the opposite because they make products and services more expensive and unaffordable.
- Direct taxes are imposed only on people that belong to various income brackets. Indirect taxes, on the other, can be felt by everyone who buys goods and avails services.

## FOREX RESERVE

India's forex reserves reach \$588.02 billion.

- Regarded as the health meter of a country, Foreign Exchange reserves or Forex reserves are assets such as foreign currencies, gold reserves, treasury bills, etc. retained by a central bank or other monetary authority that checks the balance payments and influences the foreign exchange rate of its currency and maintains stability in financial markets.
- RBI is the custodian of the Foreign exchange reserves in India. In 2020, India's forex reserves crossed the \$500-billion mark for the first time in history due to higher foreign direct investment, foreign institutional investment. Low oil prices also helped reduce outflows. This gave India an adequate cushion to combat external shocks.

• The biggest contributor to this reserve is **foreign currency assets followed by the gold, SDR, and reserve** with the International Monetary Fund.

### Purpose of the Foreign Exchange Reserve:

- **1.** The most significant objective behind this is to ensure that RBI has backup funds if their national currency rapidly devalues or becomes altogether insolvent.
- 2. If the value of the Rupee decreases due to an increase in demand of the foreign currency, then RBI sells the dollar in the Indian money market so that depreciation of the Indian currency can be checked.
- **3.** A country with a good stock of forex has a good image at the international level because the trading countries can be sure about their payments.
- 4. A good forex reserve helps in attracting foreign trade and earns a good reputation in trading partners.

## PRODUCTION-LINKED INCENTIVE (PLI) SCHEME

- In order to boost domestic manufacturing and cut down on import bills, the central government introduced a scheme that aims to give companies incentives on incremental sales from products manufactured in domestic units.
- Apart from inviting foreign companies to set shop in India, the scheme also aims to encourage local companies to set up or expand existing manufacturing units.
- So far, the scheme has been rolled out for mobile and allied equipment as well as pharmaceutical ingredients and medical devices manufacturing. These sectors are labour intensive and are likely, and the hope is that they would create new jobs for the ballooning employable workforce of India.
- The objective is really to make India more compliant with our WTO (World Trade Organisation) commitments and also make it non-discriminatory and neutral with respect to domestic sales and exports.
- The PLI scheme is designed with four objectives:
- 1. Target specific product areas;
- 2. Introduce non-tariff measures in order to compete more effectively with cheap imports;
- 3. Blend domestic and export sales to make manufacturing competitive and sustainable; and
- 4. Promote manufacturing at home while encouraging investment from within and outside India.
- The reason it has caught on is that the application process is not complicated, and the incentive offered is very simple and tied to conditions that are specific and easy to calculate. The incentive is 4-6% of incremental sales with a defined base year.

#### Need

 According to experts, the idea of PLI is important as the government cannot continue making investments in these capital intensive sectors as they need longer times for start giving the returns. Instead, what it can do is to invite global companies with adequate capital to set up capacities in India.

### Sectors currently have the PLI scheme

- The central government introduced the PLI scheme for mobile manufacturing as well as pharmaceutical ingredients and medical devices.
- As a part of the PLI scheme for mobile and electronic equipment manufacturing, an incentive of 4-6 per cent is planned for electronics companies which manufacture mobile phones and other electronic components such as transistors, diodes, thyristors, resistors, capacitors and nano-electronic components such as micro electromechanical systems.
- Similarly, the PLI scheme for pharmaceutical ingredients and medical devices seeks that applicants will commit a certain amount prescribed by the government as investment to build capacities in these areas.

## **4** CAPITAL EXPENDITURE

- Capital expenditure is the **money spent by the government on the development** of machinery, equipment, building, health facilities, education, etc.
- It also includes **the expenditure incurred on acquiring fixed assets** like land and investment by the government that gives profits or dividend in future.
- The Budget estimate of the government's capital expenditure for the year 2020-21 was Rs 1,084,748 crore.
- Capital spending is associated with investment or development spending, where expenditure has benefits extending years into the future. Capital expenditure includes money spent on the following:
- Acquiring fixed and intangible assets
- Upgrading an existing asset
- Repairing an existing asset
- Repayment of loan

### Why is capital expenditure important?

- Capital expenditure, which leads to the creation of assets are long-term in nature and allow the economy to generate revenue for many years by adding or improving production facilities and boosting operational efficiency. It also increases labour participation, takes stock of the economy and raises its capacity to produce more in future.
- o Along with the creation of assets, repayment of loan is also capital expenditure, as it reduces liability.
- However, the government has to be cautious with the expenditure. In the financial year 2019-20, capital expenditure was 14.2 per cent of Budget Estimates. The government had to cut public spending sharply towards the end of the financial year in order that the deficit target could be met. Total expenditure fell by 0.3 percentage points in 2018-19 over 2017-18. This includes a 0.4 percentage point slash in revenue expenditure and 0.1 percentage point hike in capital expenditure.

### How is capital expenditure different from revenue expenditure?

- Unlike capital expenditure, which creates assets for the future, revenue expenditure is one that neither creates assets nor reduces any liability of the government.
- Salaries of employees, interest payment on past debt, subsidies, pension, etc. fall under the category of revenue expenditure. It is recurring in nature.

## **4** FOREIGN PORTFOLIO INVESTMENT (FPI)

- FPI is a form of investment wherein investors hold assets and securities outside their country. These investments could include **stocks**, **bonds**, **exchange traded funds** (ETFs) or mutual funds. It is one way in which an investor can partake in a foreign economy.
- The reason FPI is watched carefully by experts is that it is an **indicator of the stock market's performance**.
- FPI also enhances stock market efficiency and ensures that there is a balance between value and the price of a stock.
- Emerging economies which show a potential for growth that is higher than the investor's country tend to see a high level of participation by foreign investors. Another factor that influences FPIs is an attractive growth rate.
- o In India, foreign portfolio investment is regulated by the Securities and Exchange Board of India (SEBI).
- FPI in India refers to investment groups or FIIs (foreign institutional investors) and QFIs (qualified foreign investors).

## **Difference between FPI and FDI**

• FDI refers to a scenario when a direct business interest is established overseas. This business interest could be a warehouse or manufacturing entity for example.

- An FDI could lead to transfer of resources, knowledge and funds and involves a joint venture or setting up a subsidiary.
- o Foreign direct investment is more long-term than foreign portfolio investment and also bulkier.
- Foreign direct investments are **taken up by institutions or venture capital companies**. Foreign portfolio investment is merely investing in the securities or assets of another country.
- Talking about the stock market, FPI involves buying shares or bonds that are made available on the foreign country's exchange. FPI is liquid and can be bought and sold easily.
- While FPI involves investors who are passive, FDI is all about active investors. FPI is not a direct investment and is a short term form of investment when compared to FDI.

**Categories of FPI (for investments into India):** Earlier, FPI was divided into three categories, on the basis of their risk profile.

- Category I or low-risk: This kind of FPI includes government/government-related establishments like central banks and international agencies among others. An example could be a sovereign wealth fund or an SWF which is a fund owned by the state or its divisions.
- Category II or moderate-risk: This includes mutual funds, insurance firms, banks, and pension funds among others.
- Category III or high-risk: This type of foreign portfolio investment includes all other FPIs that don't fall into the first two categories. They could include charitable organisations such as trusts or societies, endowments or trusts among others.
- However, as per a new notification in the second half of 2019, SEBI has sought to reclassify the categories and simplify norms. Accordingly, FPIs would come under two categories. All those entities or funds that were earlier registered as Category III are now Category II, accordingly, and the Category I is a mix of the earlier Category I and II.

#### **Benefits of FPI**

- Foreign portfolio investments **boost demand for stock of companies** and help them when it comes to raising capital at low costs.
- The presence of FPI would mean a significant rise in the depth of the secondary market.
- From the investor's perspective, it helps an **investor add more diversity to their investments** and benefit from such a diversification.
- Investors can also gain the **benefit of exchange rate changes**.
- Overseas markets provide **investors a chance to a bigger market** that may also sometimes not be as competitive as their home market. This means they benefit from the lower competition in a foreign country.
- A huge **advantage of FPI is that it is liquid**, ensuring that the investor is empowered and can move fast when there are good opportunities.

#### Disadvantages

- To the country receiving FPI, i.e. the host, the unpredictability of such investments would mean a constant shift between markets over short periods. This gives rise to some amount of volatility.
- A sudden withdrawal of FPI could make an impact on the exchange rate. FPI may be risky at certain occasions, i.e. when there is political instability in a country.

## COTTON PRODUCTION

- Kapas is raw cotton or seed cotton
- What is lint? Cotton fibre separated from seed cotton is called lint.
- o What is FP bales? FP bales are full pressed bales with standard weight of 170 kgs.
- What is meant by ginning? Ginning is process, which separates cotton fibres from cottonseed.

- What is pressing? Lint cotton separated from cottonseed is pressed in the form of full pressed bales with standard weight of 170 kgs.
- What is meant by out-turn? Out-turn is percentage of lint obtained out of one quintal of kapas (seed cotton), after processing.
- What is cowdy? Cowdy is immature/damaged/infected bolls of kapas, which is separated at the time of cleaning of seed cotton either through kapas cleaner or by way of hand grading.
- What is candy? One candy is 3.56 quintals of lint cotton. It is unit for sale of cotton in India in most of the States.

### Which are the cotton growing States in India?

- In India, cotton is grown in 9 major cotton growing States viz. Punjab, Haryana and Rajasthan in Northern zone, Gujarat, Maharashtra and MP in Central zone and Andhra Pradesh, Karnataka and Tamil Nadu in Southern zone. Besides, cotton is also grown in Orissa.
- Gujarat is the leading cotton growing State followed by Maharashtra.

### Which State has the largest area under cotton?

• Maharashtra has the largest area under cotton cultivation followed by Gujarat.

### What is the average productivity of cotton in the country vis-à-vis world average?

• The average productivity of cotton in the country is 526 kgs per hectare vis-à-vis world average of 764 kgs per hectare.

### What are the reasons for low productivity in India?

• In India, nearly 60 per cent area under cotton cultivation is rainfed.

### Which State has higher productivity?

• Cotton productivity has been highest in Karnataka at 670 kgs, in Gujarat at 633 kgs per hectare in 2008-09.

## When the cotton is planted in India?

- o In irrigated areas of Northern zone cotton plantings is from mid-April till last week of May.
- In Central zone and Southern zones planting is taken up in June-July depending on onset of monsoon and continue till August.
- o In Tamil Nadu (Southern zone) planting for summer crop is taken up in Jan/Feb and for winter in June-July.

## When Indian cotton harvested?

- Harvesting period is mainly from October to February. However, zone-wise harvesting period is as per details given below:
- Northern zone: September-December,
- Central zone: October to February,
- Southern zone: October to February
- Summer crop in Tamil Nadu & Karnataka: May to July

## What type of cotton is grown in India?

India has the advantage of growing all species of cotton i.e. from short staple 20mm & below, medium staple (20.5 to 24.5mm), medium long (25.0 to 27.0mm), long (27.5 to 32.0mm) and extra long staple cottons (32.5mm and above).

### What is Bt cotton?

 Bt cotton is one such insect resistant cotton with gene derived from a soil bacterium known Bacillus thuringiensis through genetic engineering. Bt confers high level of tolerance to the American bollworm Heliothis Armigera infestations.

### Who is releasing Bt varieties for cultivation?

• Genetic Engineering Approval Committee (GEAC) under the Ministry of Environment & Forest, Government of India is releasing the Bt varieties for commercial cultivation.

#### Who is estimating cotton production in the country?

• **Cotton Advisory Board**, the apex body under the Chairmanship of Textile Commissioner is estimating cotton production every year in the country.

#### Where Cotton Corporation of India (CCI) makes purchases of kapas?

- CCI makes purchases in all major cotton growing States through a network of about 315 procurement centres.
- o CCI procure cotton in the regulated APMCs in all the cotton growing States in the presence of APMC officials.

#### What is FLD?

• FLD means **Front Line Demonstrations** which ensure transfer of improved production and protection technology from research to farm level under Mini Mission II of the TMC.

#### What is ICAC?

o International Cotton Advisory Committee is the intergovernmental forum for matters related to cotton.

### What is international price mechanism?

 International price mechanism available in the world today is the Dual Index system published by Cotlook on daily basis applies for reflecting nearby and distant offering rates, which are devised on average price for long staple type of cotton and for short staple type of cotton in the form of Index A and Index B.



# SOCIETY

# (Social Issues and Social Justice)

## **4** NATIONAL HUMAN RIGHTS COMMISSION

- National Human Rights Commission (NHRC) of India is a **statutory public body** constituted on 12 October 1993 under the **Protection of Human Rights Ordinance of 28 September 1993**.
- o It was given a statutory basis by the Protection of Human Rights Act, 1993 (PHRA).
- The NHRC is responsible for the protection and promotion of human rights, defined by the Act as "Rights Relating to Life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India."

## **Functions of NHRC**

- **Proactively or reactively inquire into violations of human rights** by government of India or negligence of such violation by a public servant;
- o the protection of human rights and recommend measures for their effective implementation;
- **review the factors, including acts of terrorism** that inhibit the enjoyment of human rights and recommend appropriate remedial measures;
- to **study treaties and other international instruments** on human rights and make recommendations for their effective implementation;
- o undertake and promote research in the field of human rights;
- to visit jails and study the condition of inmates;
- engage in human rights education among various sections of society and promote awareness of the safeguards available for the protection of these rights through publications, the media, seminars and other available means;
- o encourage the efforts of NGOs and institutions congress to working in the field of human rights;
- requisitioning any public record or copy thereof from any court or office.

## Composition

- o The NHRC consists of: The Chairman and Five members (excluding the ex-officio members)
- A Chairperson, who has been a Chief Justice of India or a Judge of the Supreme Court.
- One member who is, or has been, a Judge of the Supreme Court of India, or, One member who is, or has been, the Chief Justice of a High Court.
- Three Members, out of which at least one shall be a woman to be appointed from amongst persons having knowledge of, or practical experience in, matters relating to human rights.
- In addition, the Chairpersons of National Commissions viz., National Commission for Scheduled Castes, National Commission for Scheduled Tribes, National Commission for Women, National Commission for Minorities, National Commission for Backward Classes, National Commission for Protection of Child Rights; and the Chief Commissioner for Persons with Disabilities serve as ex officio members.
- The sitting Judge of the Supreme Court or sitting Chief Justice of any High Court can be appointed only after the consultation with the Chief Justice of Supreme Court.

## **4** NATIONAL COMMISSION FOR SCHEDULED CASTES

- NCSC is a constitutional body that works to safeguard the interests of the scheduled castes (SC) in India.
- Article 338 of the constitution of India deals with this commission:
- It provides for a National Commission for the Scheduled Castes and Scheduled Tribes with duties to investigate and monitor all matters relating to safeguards provided for them, to inquire into specific complaints and to participate and advise on the planning process of their socio-economic development etc.

 89th Amendment, 2003: By this amendment, the erstwhile National Commission for SC and ST was replaced by two separate Commissions from the year 2004 which were: National Commission for Scheduled Castes (NCSC) and National Commission for Scheduled Tribes (NCST)- under Article 338-A.

#### Structure:

- $\circ$   $\;$  It consists of: Chairperson, Vice-chairperson and three other members.
- They are appointed by the President by warrant under his hand and seal.

#### **Functions**

- To investigate and monitor all matters relating to the safeguards provided for the Scheduled Castes under this Constitution or under any other law for the time being in force or under any order of the Government and to evaluate the working of such safeguards
- To inquire into specific complaints with respect to the deprivation of rights and safeguards of the Scheduled Castes
- To **participate and advise on the planning process** of socio-economic development of the Scheduled Castes and to evaluate the progress of their development under the Union and any State
- To present to the President, annually and at such other times as the Commission may deem fit, reports upon the working of those safeguards
- To make in such reports recommendations as to the measures that should be taken by the Union or any State for the effective implementation of those safeguards and other measures for the protection, welfare and socio-economic development of the Scheduled Castes
- To discharge such other functions in relation to the protection, welfare and development and advancement of the Scheduled Castes as the President may, subject to the provisions of any law made by Parliament, by rule specify.

## NATIONAL COMMISSION FOR SCHEDULED TRIBES

• The National Commission for Scheduled Tribes (NCST) was established by **amending Article 338** and inserting a new **Article 338A** in the Constitution through the **Constitution (89th Amendment) Act, 2003**.

#### **Composition:**

- It consists of a Chairperson, a Vice-Chairperson and 3 other Members who are appointed by the President by warrant under his hand and seal.
- At least one member should be a woman.
- o The Chairperson, the Vice-Chairperson and the other Members hold office for a term of 3 years.
- The members are not eligible for appointment for more than two terms.

#### **Duties and Functions**

- To **investigate and monitor** all matters relating to the safeguards provided for the STs under the Constitution or under any other law for the time being in force or under any order of the Government.
- o To inquire into specific complaints with respect to the deprivation of rights and safeguards of the STs.
- To participate and advise in the planning process of socio-economic development of the STs and to evaluate the progress of their development.
- To present to the President, annually and at such other times as the Commission may deem fit, **reports** upon the working of those safeguards.
- To make in such reports, recommendations as to the measures that should be taken by the Union or any State for effective implementation of those safeguards and other measures for the protection, welfare and socio-economic development of the Scheduled Tribes.
- To discharge such other functions in relation to the protection, welfare and development and advancement of the Scheduled Tribes as the President may subject to the provisions of any law made by Parliament by rule specify.

## NATIONAL COMMISSION FOR MINORITIES

- o The National Commission for Minorities is a **statutory body** that was originally titled **Minorities Commission**.
- With the enactment of National Commission for Minorities Act 1992, the Minorities Commission (a nonstatutory body) was renamed as National Commission for Minorities. The commission works for the development of the recognized minorities in India.
- The commission is mandated to have one chairperson, a vice-chairperson and 5 members. Each member of the commission holds the office for three years from the date of assumption of the office.
- The six religious communities notified as minority communities in India: Muslims, Christians, Sikhs, Buddhists, Zoroastrians/Parsis and Jains.
- Out of six minority communities, Muslim is the largest one representing 14.2 percent of the population with 17.22 crores citizens belonging to the Muslim religion. (As per Census 2011.)
- The population figures of the remaining communities in descending order is given below:
- Christians 2.3 percent population (2.78 crores people)
- Sikhs 1.7 percent population (2.08 crores people)
- Buddhists 0.7 percent of the population (8.4 million people)
- Jains 0.4 percent of the population (4.5 million people)
- Parsis Around 57000 people (Not included in the census 2011)
- Together they constitute **20.22 per cent** of India's population.

#### **Functions**

- o It evaluates the progress of the development of minorities under both central and state governments.
- It monitors the working of the constitutional laws enacted for the welfare of minorities, both by central and state governments.
- o It makes recommendations for the implementation of protective safeguards for the minorities.
- It is the authorized body to look into complaints regarding deprivation of the rights and safeguards of the minority communities.
- o It initiates studies concerning minorities' issues arising from discrimination.
- It conducts studies, research and analysis concerning issues related to the socio-economic and educational development of minorities.
- o It presents periodic or special reports concerning minorities and their issues to the central government.
- o It governs matters which the central government refers to.

## A NATIONAL COMMISSION FOR BACKWARD CLASSES

- Article 340 deals with the need to, inter alia, identify those "socially and educationally backward classes", understand the conditions of their backwardness, and make recommendations to remove the difficulties they face.
- o 102<sup>nd</sup> Constitution Amendment Act inserted new Articles 338 B and 342 A.
- The amendment also brings about changes in Article 366.
- Article 338B provides authority to NCBC to examine complaints and welfare measures regarding socially and educationally backward classes.
- Article 342 A empowers President to specify socially and educationally backward classes in various states and union territories. He can do this in consultation with Governor of concerned State. However, law enacted by Parliament will be required if list of backward classes is to be amended.
- 102nd Constitution Amendment Act, 2018 provides constitutional status to the National Commission for Backward Classes (NCBC).
- It has the authority to examine complaints and welfare measures regarding socially and educationally backward classes.

## Background

- Two Backward Class Commissions were appointed in 1950s and 1970s under Kaka Kalelkar and B.P. Mandal respectively.
- In Indra Sawhney case of 1992, Supreme Court had directed the government to create a permanent body to entertain, examine and recommend the inclusion and exclusion of various Backward Classes for the purpose of benefits and protection.
- In pursuant to these directions parliament passed National Commission for Backward Classes Act in 1993 and constituted the NCBC.
- 123rd Constitution Amendment bill of 2017 was introduced in Parliament to safeguard the interests of backward classes more effectively.
- Parliament has also passed a separate bill to repeal the National Commission for Backward Classes Act, 1993, thus 1993 act became irrelevant after passing the bill.
- The bill got the President assent in August 2018 and provided the constitutional status to NCBC.

## **Composition:**

- The Commission consists of five members including a Chairperson, Vice-Chairperson and three other Members appointed by the President by warrant under his hand and seal.
- The conditions of service and tenure of office of the Chairperson, Vice-Chairperson and other Members is determined by President.

## **Powers and Functions**

- The commission investigates and monitors all matters relating to the safeguards provided for the socially and educationally backward classes under the Constitution or under any other law to evaluate the working of such safeguards.
- It **participates and advises on the socio-economic development** of the socially and educationally backward classes and to evaluate the progress of their development under the Union and any State.
- It presents to the President, annually and at such other times as the Commission may deem fit, reports upon the working of those safeguards. The President laid such reports before each House of Parliament.
- Where any such report or any part thereof, relates to any matter with which any State Government is concerned, a copy of such report shall be forwarded to the State Government.
- NCBC has to discharge such other functions in relation to the protection, welfare and development and advancement of the socially and educationally backward classes as the President may, subject to the provisions of any law made by Parliament, by rule specify.
- It has all the **powers of a civil court** while trying a suit.

## **4** NATIONAL COMMISSION FOR WOMEN

- The National Commission for Women was set up as **statutory body in January 1992** under the National Commission for Women Act, 1990 (Act No. 20 of 1990 of Govt.of India) to:
- review the Constitutional and Legal safeguards for women;
- recommend remedial legislative measures;
- facilitate redressal of grievances and
- advise the Government on all policy matters affecting women.

### Composition

- $\circ$  The commission consists of a chairperson, a member secretary and five other members. T
- $\circ~$  he chairperson of the NCW is nominated by the Central Government.
- The Central Government also nominates the member secretary. The member secretary should be an expert in the field of management. He or she is an officer or organisation who is a member.

- The five members nominated by the Central Government should be individuals with ability, standing and integrity.
- They should have experience in law, legislation, management, women voluntary organisation, economic social development and so on.

The **functions** of the National Commission for women are as follows:

- **Presentation of reports**: Table reports should be submitted to the Central Government every year. When the commission feels it's appropriate. The reports upon the functioning and working of the safeguards.
- **Investigation and Examination**: There should be proper investigation and examination made under the Constitution and other laws. This is related to the protection of the rights of women.
- Review: Constantly all laws are reviewed and scrutinised. And necessary amendments and alterations are made to meet the needs of the current world. This is to meet any break, incapacity or any inadequacies in the legislation.
- Cases of Violation: Ensure there is no violation against women and taking due care of such cases.
- Suo Motu Notice: It takes care of complaints and also suo motu matters about the deprivation of rights of women. Implementation of laws favouring the welfare of women.
- **Evaluation**: Assessing the development and the progress of the women community under the Center and State level.
- **Recommendation**: To suggest the wellbeing of women and their rights.
- **Special studies and investigation**: To understand the limitations in the system and curb it with strategic plans and mechanisms.
- **Research**: To make research and study to understand the needs of women, healthcare and such related components. This is to make a proper support system to help the women in need.
- **Participation in all spheres particularly in planning**: Take measure to facilitate economic and social development and improvement of women by recognising their rights.
- Inspection: Inspect the jail, remand home to ensure that the women staying here are not exploited as they are vulnerable.
- **Funding and Reporting**: Ensure there is a fund for litigation of matters relating to women rights. There should be periodical reports made under the difficulties faced by women daily.

## **4** NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR)

- The National Commission for Protection of Child Rights (NCPCR) emphasises the principle of universality and inviolability of child rights and recognises the tone of urgency in all the child related policies of the country.
- For the Commission, protection of all children in the 0 to 18 years age group is of equal importance. Thus, policies define priority actions for the most vulnerable children.
- For the Commission, every right the child enjoys is seen as mutually-reinforcing and interdependent. Therefore, the issue of gradation of rights does not arise. A child enjoying all her rights at her 18th year is dependent on the access to all her entitlements from the time she is born. Thus policies interventions assume significance at all stages. For the Commission, all the rights of children are of equal importance.

Functions and Powers: The Commission shall perform all or any of the following functions, namely:

- **Examine and review the safeguards** provided by or under any law for the time being in force for the protection of child rights and recommend measures for their effective implementation.
- Present to be central government, annually and at such other intervals, as the commission may deem fit, reports upon working of those safeguards;
- o Inquire into violation of child rights and recommend initiation of proceedings in such cases;
- **Examine all factors that inhibit the enjoyment of rights of children** affected by terrorism, communal violence, riots, natural disaster, domestic violence, HIV/AIDS, trafficking, maltreatment, torture and exploitation, pornography and prostitution and recommend appropriate remedial measures;

- Look into matters relating to children in need of special care and protection, including children in distress, marginalised and disadvantaged children, children in conflict with law, juveniles, children without family and children of prisoners and recommend appropriate remedial measures.
- Study treaties and other international instruments and undertake periodic review of existing policies, programmes, and other activities on child rights and make recommendations for their effective implementation in the best interest of children.
- $\circ~$  Undertake and promote research in the field of child rights.
- $\circ$  Spread child rights literacy among various sections of society.
- Inspect or cause to be inspected any juvenile custodial home or any other place of residence or institution meant for children, under the control of the Central Government or any State Government or any other authority including any institution run by a social organization, where children are detained or lodged for the purpose of treatment, reformation or protection and take up with these authorities for remedial action, if found necessary.
- o Inquire into complaints and take suo moto notice of matters related to:
- Deprivation and violation of child rights.
- Non implementation of laws providing for protection and development of children.
- Non-compliance of policy decisions, guidelines or instructions aimed at mitigating hardships to and ensuring welfare of the children and to provide relief to such children or take up the issues arising out of such matters with appropriate authorities
- Such other functions as it may consider necessary for the promotion of child rights and any other matter incidental to the above functions.

## **4** CHIEF COMMISSIONER FOR PERSONS WITH DISABILITIES

- The Office of the Chief Commissioner for Persons with Disabilities was set up under Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act 1995 and continues to function under Section 74 of the Right of Persons with Disabilities Act, 2016.
- The Chief Commissioner is mandated to coordinate the work of the State Commissioners for Persons with Disabilities, monitor utilization of funds disbursed by the Central Government and take steps to safeguard the rights and facilities made available to the persons with disabilities.
- The Chief Commissioners may also, on his own motion, or on the application of any aggrieved persons or otherwise looks into complaints relating to deprivation of rights of persons with disabilities or nonimplementation of rules, bye-laws, regulations, executive orders, guidelines, or instructions etc. made or issued for the welfare and protection of rights of persons with disabilities and take up the matter with the concerned authorities.
- The Chief Commissioner for Persons with Disabilities has been assigned certain powers of a Civil Court for effective discharge of the functions.
- Commissioner's office has been an accessible and expeditious site of dispute resolution for PwDs. Most proceeding before the Chief Commissioner relates to matters of employment, promotion or service.
- Relief, granted to petitioners before the Chief Commissioner, includes directions for reinstatement and advisories to establishments to ensure that PwDs are not discriminated against.

## UNITED NATIONS POPULATION FUND (UNFPA)

- UNFPA, the United Nations Population Fund, is the lead UN agency for delivering a world where every pregnancy is wanted, every birth is safe, and every young person's potential is fulfilled.
- o UNFPA expands the possibilities for women and young people to lead healthy and productive lives.

- Since UNFPA started working in **1969**, the number and rate of women dying from complications of pregnancy or childbirth has been halved. Families are smaller and healthier. Young people are more connected and empowered than ever before.
- UNFPA supports healthy families by:
- Training health workers to deliver quality family planning services
- Supplying contraceptives in emergency situations
- Ensuring youth-friendly reproductive health care
- Providing counselling and choices to women who want to avoid or delay pregnancy
- Educating men on the benefits of birth spacing

#### • UNFPA supports maternal health by:

- Training midwives and health workers
- Preventing and treating obstetric fistula
- Supplying clean birthing kits following disasters
- Strengthening emergency obstetric care
- Ensuring reliable supplies of essential medicines and equipment
- Enabling birth spacing

#### • UNFPA advocates for the welfare of young people by:

- Promoting the human rights of adolescents
- Preventing HIV infection
- Engaging young people in decisions that affect them
- Supporting age-appropriate comprehensive sexuality education
- Creating safe spaces for adolescent girls
- Encouraging abandonment of harmful practices
- Encouraging leadership

## POCSO Act

- The **POCSO Act was enacted in 2012** and is gender neutral it recognises that boys can be victims of sexual violence as well. The Indian Penal Code does not recognise that sexual assault can be committed on boys.
- It defines a child as someone under the age of 18.
- The Act also increased the scope of reporting sexual crimes against children. It expanded the definition of sexual assault to include non-penetrative sexual assault as well as aggravated penetrative sexual assault and also included punishment for persons in positions of trust of authority like public servants, staff of educational institutions, police etc.
- Notably, this law recognises sexual harassment of a child which involves touch, and also that which doesn't such as stalking, making a child expose themselves or exposing themselves to a child, and so on.
- The POCSO Act also specifically lays down stringent punishment for exposing children to, or using them to create child sexual abuse material (CSAM, also referred to as child pornography).
- While POCSO does not explicitly recognise grooming, experts say that section 11 of the Act can be interpreted to recognise and criminalise it wherein, it.
- Grooming involved acts of establishing, building a relationship with a child either in person or online so as to facilitate either online or offline sexual contact with the child, section 67(b) of the Information Technology Act does criminalise it.
- The law lays down the procedures for reporting sexual crimes against children. Under section 19 of the Act, it is mandatory to report sexual crimes against children, including when there is an apprehension that an offence under the Act has been committed.

- This child protection law is also unique because it **places the burden of proof on the accused**, following 'guilty until proven innocent' unlike the IPC.
- Another hallmark of the POCSO Act was that it set up procedures to make the **criminal justice system childfriendly and prevent re-traumatisation**. This includes everything from how the statement of the child should be recorded, to the medical examination, to designation of special child friendly courts.
- $\circ$   $\;$  Under provisions of the POCSO Act, a child is entitled to the following:
- Getting their statement recorded at their residence or a place of their choice, and preferably by a woman
  police official or an official not below the sub-inspector rank, in civilian clothes.
- The police official should ensure that during the investigation, the child shouldn't come in contact with the accused.
- The child cannot be detained at the police station at night, and his/her identity should be protected from the public and media unless directed otherwise by a Special Court.
- If the survivor is a girl, the medical examination should be done by a woman doctor, and the examination can only be done in the presence of a parent, or a person the child trusts. If neither of the two are there, then the examination should be done in the presence of a woman nominated by the head of the medical institution.
- The special courts stipulated under the POCSO Act are also to be child friendly. There are provisions such as making a child-friendly atmosphere in the court premises by allowing a family member, a guardian, a friend or a relative, in whom the child has trust or confidence, to be present; allowing frequent breaks for the child during the trial; and ensuring that the child does not have to face the accused during evidence collection as well as cross examination.
- It is important to remember that POCSO is not just applicable in cases of physical sexual crimes, but also ones that happen over the internet. This would include offences such as possessing CSAM, using children for the purposes of creating CSAM, or exposing children to pornography or CSAM. In such cases, POCSO may be used along with provisions of the Information Technology Act.

# SECURITY

## (Internal and External)

## \rm \rm GSOMIA

- General security of Military Information Agreement (GSOMIA) is an agreement signed to safeguard the information that is shared during a technology transfer.
- o India signed this agreement in 2002, this covered only Indian government and PSUs.
- o GSOMIA did not cover the exchange of classified information with Indian private companies.

## \rm LEMOA

- o LEMOA was signed in 2016 between India and US.
- LEMOA allows the militaries of the US and India to replenish from each other's bases, and access supplies, spare parts and services from each other's land facilities, air bases, and ports, which can then be reimbursed.
- LEMOA is extremely useful for India-US Navy-to-Navy cooperation, since the two countries are cooperating closely in the Indo-Pacific.
- To put the usefulness of this agreement in simple terms, it is like being able to stop at a friend's garage or workshop to refuel your car or get it repaired when you are far away from your own home or workshop.
- The critical element that **underpins LEMOA is mutual trust**.
- The signing of LEMOA was in itself an affirmation of the mutual trust between the two militaries, and its application will enhance the trust. It took almost a decade to negotiate LEMOA, and the exercise in a sense bridged the trust deficit between India and the US, and paved the way for the other foundational pacts.
- While India had indeed provided ad hoc logistics support to the US in the past such as allowing the refueling of American aircraft in Bombay during the first Gulf War in 1991, and letting US warships visit Indian ports during the war on terror after 9/11— the signing of LEMOA has institutionalised this process and made it smoother.

## **4** COMCASA

- o Communications Compatibility and Security Agreement (COMCASA) was signed in 2018.
- The pact **allows the US to provide India with its encrypted communications equipment and systems** so that Indian and US military commanders, and the aircraft and ships of the two countries, can communicate through secure networks during times of both peace and war.
- Again, to take a simple example, it's like being able to exchange messages or communicate with a friend on WhatsApp, Signal, or Telegram in real time and in a secure manner.
- The signing of COMCASA paved the way for the transfer of communication security equipment from the US to India to facilitate "interoperability" between their forces and potentially with other militaries that use US-origin systems for secure data links.

## **BECA**

 India and the United States signed the Basic Exchange and Cooperation Agreement (BECA), the last of four so-called foundational agreements for sharing sensitive information, sales of advanced military hardware and geospatial cooperation, during the 2+2 ministerial dialogue.

## What is the Basic Exchange and Cooperation Agreement (BECA)?

• BECA will help India get real-time access to American geospatial intelligence that will enhance the accuracy of automated systems and weapons like missiles and armed drones. Through the sharing of information on

maps and satellite images, it will help India access topographical and aeronautical data, and advanced products that will aid in navigation and targeting.

- $\circ~$  This could be key to Air Force-to-Air Force cooperation between India and the US. J
- ust as your radio cab (or the GPS in your smartphone) helps you zero in on the path to your destination and helps you reach it quickly and efficiently, BECA will provide Indian military systems with a high-quality GPS to navigate missiles with real-time intelligence to precisely target the adversary.
- Besides the sailing of ships, flying of aircraft, fighting of wars, and location of targets, geospatial intelligence is also critical to the response to natural disasters.

#### CAATSA

- The Countering America's Adversaries Through Sanctions Act (CAATSA) is a United States Federal Law that has imposed sanctions against Iran, Russia and North Korea. This act prevents trade partners of the United States in entering into bilateral contracts with these three nations.
- $\circ~$  The bill was passed on **27 July 2017**.

### **Background of CAATSA**

- The **Countering America's Adversaries Through Sanctions Act** came against the backdrop of three events that would have serious implications regarding geopolitics. They are as follows:
- Iran's Nuclear Missiles Program: The United States Government believed that any progress in Iran's nuclear missile program would further destabilize the Middle-East as Iran has repeatedly made threats against Israel, a key NATO and United States ally. The CAATSA gives authority to the President of the United States to impose sanctions against any party involved in the sale and transfer of military technology to Iran.
- Curbing Russian influence: The Russian annexation of Crimea in 2014 and allegations of interventions in the US polls of 2016 was the catalyst for the CAATSA against Russia. Under the act sanctions can be imposed on Russia should the state or private individuals be found involved in activities such as cybersecurity, crude oil projects, financial institutions, corruption, human rights abuses etc.
- North Korea and weapons of mass destruction: North Korea has a nuclear weapons military program and as of 2020 it's estimated missile arsenal includes 30-40 warheads with enough fissile materials to produce 6-7 missiles per year. North Korea has made repeated threats against its South Korea repeatedly and also against the United States.
- Previous administrations before had put sanctions against the North Korean dictatorship. But what makes the CAATSA different is that the bill modifies and increases the President's authority to impose sanctions on persons in violation of certain United Nations Security Council resolutions regarding North Korea along with a wide range of other economic sanctions that can cripple the already fledgling North Korean economy.

### Implications for India regarding CAATSA

- The India-United States relations, especially when it comes to the defence aspect, has grown exponentially since 2008. At least by 2019, about \$15 billion worth of weapons has been purchased by India. Historically, India also purchased its weapons from Russia since the days of the Cold War. Keeping this in mind United States lawmakers had specifically told the senate that the sanctions should not affect major defence partners such as India.
- A waiver of such CAATSA for India has been under consideration since the law had come into force but little headway has been made in that regard. In fact, India was threatened with sanctions when it decided to buy the S-400 missile launchers from Russia and buy crude oil from Iran. What is also worrying for India is the example of Turkey who, despite being a key NATO ally, was expelled from the US F-35 fighter jet programme when it purchased S-400 missile systems from Russia.
- Yet India went ahead with the S-400 deal in 2018 with no negative reaction from the United States government. The delivery of the S-400s is expected to finish by 2025. Lately, the United States Government

has stated that although a waiver is not possible at this time, a blanket application of sanctions against India for its defence contracts with Russia is also not being considered.

## P-8I PATROL AIRCRAFT

- The US State Department has approved the sale of six P-8I patrol aircraft and related equipment to India.
- The six aircraft will come fitted with encrypted systems, as India has signed the Communications Compatibility and Security Agreement (COMCASA) with the US.
- The Defence Acquisition Council approved the procurement of the aircraft in 2019.



### P-8I Aircraft

- o It is a long-range maritime reconnaissance and Anti-Submarine Warfare Aircraft.
- It is a variant of the P-8A Poseidon aircraft that Boeing company developed as a replacement for the US Navy's ageing P-3 fleet.
- With a maximum speed of 907 kmph and an operating range of over 1,200 nautical miles, the P-8Is detect threats and neutralize them if required, far before they come anywhere near Indian shores.
- o Indian Navy became the first international customer for the P-8 aircraft in 2009.

#### Indo-US Defence Ties:

- o This proposed sale will help to strengthen the US-Indian strategic relationship.
- For the US, India continues to be an important force for political stability, peace, and economic progress in the Indo-Pacific and South Asia region.

## **4** DEFENCE ACQUISITION COUNCIL

- Consequent upon the Group of Ministers recommendations on "Reforming the National Security System," the Ministry of Defence vide its order dated 11 Oct. 2001 had set up broad structures and systems to deal with acquisitions on the Capital Account.
- An overarching structure, the **Defence Acquisition Council (DAC)**, under the **Defence Minister** was constituted for overall guidance of the defence procurement planning process.
- The composition of the DAC is as follows:
- a) Defence Minister: Chairman
- b) Minister of State for Defence: Member
- c) Chief of Army Staff: Member
- d) Chief of Naval Staff: Member
- e) Chief of Air Staff: Member
- f) Defence Secretary: Member
- g) Secretary Defence Research & Development: Member
- h) Secretary Defence Production: Member
- i) Chief of Integrated Staff Committees HQ IDS: Member
- j) Director General (Acquisition): Member
- k) Dy. Chief of Integrated Defence: Staff Member Secretary
- The objective of the Defence Acquisition Council is to ensure expeditious procurement of the approved requirements of the Armed Forces in terms of capabilities sought, and time frame prescribed, by optimally utilizing the allocated budgetary resources.

- $\circ$   $\;$  The functions of the DAC include:
- 1. in-principle approval of 15 Year Long-Term Integrated Perspective Plan for Defence Forces;
- 2. accord of Acceptance of Necessity to acquisition proposals;
- 3. categorization of the acquisition proposals relating to 'Buy', 'Buy & Make' and 'Make';
- 4. issues relating to Single vendor clearance;
- 5. decision regarding 'offset' provisions in respect of acquisition proposals above Rs. 300 crores;
- 6. decisions regarding Transfer of Technology under 'Buy & Make' category of acquisition proposals; and
- 7. Field Trial evaluation.

# HISTORY AND CULTURE

### (Ancient; Medieval and Modern)

### **4** SANGAM AGE

- The period between the 1st century B.C. to the end of 2nd century A.D. in Southern India is known as Sangam Period.
- It has been named after the Sangam academies during that period.
- According to the Tamil legends, there were three Sangams (Academy of Tamil poets) held in the ancient South India popularly called Muchchangam. These Sangams flourished under the royal patronage of the Pandya kings of Madurai.
- The First Sangam, is believed to be held at Madurai, attended by gods and legendary sages. No literary work of this Sangam is available.



- o The Second Sangam was held at Kapadapuram, only Tolkappiyam survives from this.
- The **Third Sangam at Madurai** was founded by **Mudathirumaran**. A few of these Tamil literary works have survived and are a useful sources to reconstruct the history of the Sangam period.

#### Sangam Literature:

- The Sangam literature includes Tolkappiyam, Ettutogai, Pattuppattu, Pathinenkilkanakku, and two epics named Silappathigaram and Manimegalai.
- Tolkappiyam was authored by Tolkappiyar, it is considered the earliest of Tamil literary work. Though it is a work on Tamil grammar but it also provides insights on the political and socio-economic conditions of the time.
- Ettutogai (Eight Anthologies) consist of eight works Aingurunooru, Narrinai, Aganaooru, Purananooru, Kuruntogai, Kalittogai, Paripadal and Padirruppattu.
- The Pattuppattu (Ten Idylls) consist of ten works Thirumurugarruppadai, Porunararruppadai, Sirupanarruppadai, Perumpanarruppadai, Mullaippattu, Nedunalvadai, Maduraikkanji, Kurinjippatttu, Pattinappalai and Malaipadukadam.
- **Pathinenkilkanakku contains eighteen works about ethics and morals**. The most important among these works is Tirukkural authored by Thiruvalluvar, the tamil great poet and philosopher.
- The two epics **Silappathigaram is written by Elango Adigal and Manimegalai by Sittalai Sattanar**. They also provide valuable details about the Sangam society and polity.

#### Other Sources that give details about the Sangam Period are -

- 1. the Greek authors like Megasthenes, Strabo, Pliny and Ptolemy mentioning about commercial trade contacts between the West and South India.
- 2. Also, the Ashokan inscriptions mention about the Chera, Chola and Pandya rulers to the south of Mauryan empire.

#### 3. Another inscription, Hathikumbha inscription of Kharavela of Kalinga also has mention of Tamil kingdoms.

#### Sangam Polity and administration:

- During the Sangam period hereditary monarchy was the form of government. Each of the dynasties of Sangam age had a royal emblem tiger for the Cholas, carp for the Pandyas, and bow for the Cheras.
- $\circ$  The king was assisted by a wide body of officials who were categorised into five councils.
- They were ministers (amaichar), priests (anthanar), envoys (thuthar), military commanders (senapathi), and spies (orrar).
- o The military administration was efficiently organized with each ruler a regular army was associated.
- o The chief source of state's income was Land revenue while a custom duty was also imposed on foreign trade.
- $\circ$   $\,$  Major source of fulfilling the royal treasury was the booty captured in wars.
- o The roads and highways were maintained and guarded to prevent robbery and smuggling.

#### Position of Women during Sangam Age:

- A lot of information is available in the Sangam literature to understand the position of women during the Sangam age.
- There were **women poets like Avvaiyar, Nachchellaiyar, and Kakkaipadiniyar** who flourished and contributed to Tamil literature.
- Love marriage was a common practice and women were allowed to choose their life partners.
- But, life of widows was miserable.
- There is also a mention about the **practice of Sati being prevalent** in the higher strata of society.

#### Economy of the Sangam Age:

- Agriculture was the chief occupation where rice was the most common crop.
- The **handicraft** included weaving, metal works and carpentry, ship building and making of ornaments using beads, stones and ivory.
- These were in great demand of all above products in the internal and external trade as this was at its peak during the Sangam period.
- A high expertise was attained in spinning and weaving of cotton and silk clothes. Various poems mention of cotton clothes as thin as a cloud of steam or like a slough of snake. These were in great demand in the western world especially for the cotton clothes woven at Uraiyur.
- The **port city of Puhar** became an important place of foreign trade, as big ships entered this port containing precious goods.
- o Other significant ports of commercial activity were Tondi, Musiri, Korkai, Arikkamedu and Marakkanam.
- Many gold and silver coins that were issued by the Roman Emperors like Augustus, Tiberius and Nero have been found in all parts of Tamil Nadu indicating flourishing trade.
- **Major exports of the Sangam age were cotton fabrics and spices** like pepper, ginger, cardamom, cinnamon and turmeric along with **ivory products, pearls and precious stones**.
- Major imports for the traders were horses, gold, and sweet wine.

## **4** CHOLA DYNASTY

- The reign of the Cholas began in the **9th century when they defeated the Pallavas to come into power**. This rule stretched over for over five long centuries until the 13th century.
- However, around the **2nd century, the state Andhra has a Chola kingdom that flourished far and wide**. The Early **periods of the Chola rule saw the onset of the Sangam literature**. Kantaman was one of the prominent rulers of this era.
- The **medieval period** was the era of absolute power and development for the Cholas. This is when kings like Aditya I and Parantaka I.

- From here Rajaraj Chola and Rajendra Chola further expanded the kingdom into the Tamil region. Later Kulothunga Chola took over Kalinga to establish a strong rule. This magnificence lasted until the arrival of the Pandyas in the early 13th century.
- $\circ$   $\;$  Some prominent pillars of the Chola Empire  $\;$

#### Vijayalaya

 The Chola Empire was founded by Vijayalaya. He took over the Tanjore kingdom in the 8th century and led to the rise of the mighty Cholas by defeating the Pallavas. Tanjore was hence made the first capital of the eminent Chola Empire.

#### Aditya I

Aditya I succeeded
 Vijayalaya to become the
 ruler of the empire. He
 defeated king Aparajita
 and the empire gained



massive power under his reign. He **conquered the Pandya Kings** along with the Vadumbas and establishes control over the Pallavas power in the region.

#### **Rajendra Chola**

- He succeeded the mighty Rajaraja Chola. Rajendra I was the first to venture to the banks of Ganges. He was popularly called the Victor of the Ganges.
- His new empire capital was called the Gangaikondacholapuram where he received the title of 'Gangaikonda'.
- This period is referred to as the golden age of the Cholas. After his rule, the kingdom witnessed a widespread downfall.

#### **Culture and Roots**

- The society and its culture saw massive developments in the reign of the Cholas. In this era, the temple was
  the main centre for all social and religious meetings. The surroundings of this region became a school for
  the folks where Holy Scriptures and the ancient Vedas were taught to students. This also was a secure place
  in times of warfare and political uproar.
- The societal structure at this time was divided amongst Brahmins and Non-Brahmins. Several gods and goddesses were worshipped with Shiva being a popular source of strength for the faithful.
- There are links of the relevance of the Chola Empire with the Trimula deity at Sri Venkateshwara temple.
   The religious roots of the Chola Empire go far back to this time. The Srirangam temple stands to be a highlight from this era. It was submerged in water for centuries and was renovated later to its former glory.
- Art, religion and literature benefited greatly during this period. Several Shiva temples were built across the banks of the Kaveri river. **Thanjavur s**till stands to be the biggest and tallest amongst all the temples in India of its time.
- The Tajore Brihadeeswara temple is adorned with natural colour paintings that are a feast for the eyes even today. Several of these sites have been classified as World Heritage Sites by UNESCO. These include the Brihadisvara temple, the Gangaikondacholisvaram and the Airavatesvara temples. Sculpting and art were also at an all-time high in this reign.

- Sculptures of gods and goddesses like Shiva, Vishnu and Lakshmi have been carved out of bronze and serve as a golden reminder of this period.
- Literature was another crucial highlight of this period. Not only did devotional literature take shape but Jain and Buddhist writings also got appreciation and recognition during this phase.
- The popular **Nalayira Divya Prabandham** from this period is a compilation of 4000 Tamil verses and is widely savoured by literary scholars even to this day.

#### Administration and Governance

- During the governance by the Cholas, the entire southern region was brought under the umbrella of a single governing force. The Cholas ruled in a sustained Monarchy.
- The Chola Empire consisted of the current day territories of Tiruchirapalli, Tiruvarur, Perambalur, Ariyalur, Nagapattinam, Pudukkottai, Vridhachalam, Pichvaram and Thanjavur districts of Tamil Nadu.
- Here the massive kingdom was divided into provinces which were known as mandalams. Separate governors were held in charge for each mandalam. These were further divided into districts called nadus which consisted of tehsils.
- The system of rule was such that **each village acted as a self-governing unit** during the era of the Cholas.
- o The king remained the central authority who would make the major decisions and carry out the governance.
- Thus, the Cholas and their reign mark a remarkable period of medieval history that saw a massive cultural spurt along with a growth in civilization and its meaning. It symbolizes not only a period of rapid advancement but also a magnificent time to look back at and learn from.

### CHERA DYNASTY

- The Cheras were also known as **'Keralaputras'** in the history.
- The Chera kingdom occupied the region of a narrow strip between the sea and the mountains of Konkan range.
- The Chera rulers also occupied high position in the history of south India. **Nedunjeral Adan** was a famous Chera king.
- o He conquered Kadambas with his capital at Vanavasi (near Goa). He also defeated the Yavanas.
- Nedunjeral Adan had a **good relation with the Greeks and Romans** who came in large numbers as traders and set up large colonies in south India.
- Nedunjeral Adan fought a battle with the father of the Chola king Karikala. In this battle, both the kings were killed.
- o Nedunjeral Adan was called as Imayavaramban. The literary meaning of the term Imayavaramban is "one who had the Himalaya Mountains as the boundary of his kingdom." However, it seems to be mere exaggeration.



 Sengutturan was the greatest king of the
 Chora dynasty as montioned i

Chera dynasty as mentioned in the Chera tradition. He had defeated the Chola and the Pandya kings.

- The Chera power declined at the end of the 3rd century A.D. They again acquired power in the 8th century A.D.
- $\circ$   $\,$  The important facts about the three early kingdoms of south India are –

- They constantly fought with each other;
- They made new alliances against the ones who became powerful; and
- They also fought regularly with Sri Lanka and ruled there at some point of time.

### PANDYA DYNASTY

- o The capital of Pandya kingdom was Madurai. The Pandyan kingdom was very wealthy and prosperous.
- $\circ$   $\,$  The Sangam literature gives information and names of a few kings.
- Nedunjeliyan was a great Pandya king. He defeated the combined forces of Chera, Chola, and five other minor states in a war against him at Madurai.
- The Pandyan kings assembled literary assemblies called as 'Sangam'.
- Nedunjeliyan had performed several Vedic sacrifices. He may be taken to have ruled around A. D. 210.
- The capital Madurai and the port city Korkai were the great centres of trade and commerce during the Pandyas' reign.
- The traders profited from trade with the **Roman Empire**.
- Pandya kings even sent embassies to the Roman emperor Augustus and Trojan.



- The Roman emperor Julian received an embassy from a Pandya about 361 CE. The dynasty revived under Kadungon in the early 7th century CE and ruled from Madura (now Madurai) or farther south until the 16th century. The small but important (9th–13th century) dynasty of Pandya of Ucchangi, a hill fort south of the Tungabhadra River, may have originated from the Madura family.
- The Pandya kings were called either Jatavarman or Maravarman. From being Jains they became Shaivas (worshipers of the Hindu deity Shiva) and are celebrated in the earliest Tamil poetry.
- They ruled extensive territories, at times including the Chera (Kerala) country, the Chola country, and Ceylon (now Sri Lanka) through collateral branches subject to Madura. The "Five Pandyas" flourished from the 12th to the 14th century and eventually assumed control of all the plains of the extreme south as far north as Nellore (1257).
- Family quarrels, however, and Muslim invasions, from 1311, culminating in the foundation of the Madura sultanate, weakened Pandya influence. By 1312 control over Kerala was lost, and by the mid-16th century all their territories had passed into other hands.

### \rm HOYSALA DYNASTY

- Hoysala dynasty, family that ruled in India from about 1006 to about 1346 CE in the southern Deccan and for a time in the Kaveri (Cauvery) River valley. The first kings came from the hills northwest of Dorasamudra (present-day Halebid), which became their capital about 1060.
- With their hardy hill-dwelling, Kannada-speaking followers, they gradually absorbed Gangavadi (Mysore state) and the rich lands beyond the Tungabhadra toward Dharwar and Raichur. The imperialistic programs

of the Chalukyas of Kalyani helped them, for under the **Hoysala rulers Vinayaditya (reigned c. 1047–98) and** his grandson Vishnuvardhana (reigned c. 1110–41) they gained wide experience as feudatory generals.

- Vishnuvardhana won much territory from the tough Kadambas of Hangal, but his weak son Narasimha I lost much of it. Yet Vishnuvardhana's expulsion of the Cholas from the plateau succeeded.
- His grandson Ballala II (reigned 1173– 1220) was invited into the plains to help the Cholas. He agreed because his northern gains in 1189–1211 from the Chalukya dynasty beyond the Malprabha and Krishna rivers proper had diminished



under pressure from the Yadava dynasty of Devagiri. He extended his dominions to the north of Mysore and defeated the Yadavas, making the Hoysala dynasty the dominant power in southern India.

- Ballala II's grandson Someshvara (reigned c. 1235–54) resided in the principality on the Kaveri given by the Cholas, and his son Ramanatha (reigned 1254–95) was allowed to remain there by the Pandya emperor. On his eviction, however, his attempt to take the plateau kingdom from his brother Narasimha III weakened Hoysala resources.
- **Ballala III (reigned c. 1292–1342),** who helped the sultan of Delhi against the Pandyas, brought about the dynasty's downfall by his futile ambitions. The Vijayanagar dynasty succeeded the Hoysalas.
- Hoysala architecture and sculpture, especially ornate and intricate, are best seen at Halebid, Belur, and Somnathpur. The family liberally patronized Kannada and Sanskrit literary artists.

# **MULTIPLE CHOICE QUESTIONS**

## (50 MCQs)

- Q1. Which of the following countries has opened visa schemes for migrants from Hong Kong?
  - (a) United Kingdom (b) France
  - (c) USA (d) Japan
- Q2. Which of the following countries does not border Gulf of Thailand?
  - (a) Thailand (b) Cambodia
  - (c) Vietnam (d) Myanmar
- Q3. Which of the following countries does not border Myanmar?
  - (a) Thailand (b) Cambodia
  - (c) China (d) Laos
- Q4. Which of the following states does not border Myanmar?
  - (a) Mizoram (b) Manipur
  - (c) Nagaland (d) Assam
- Q5. Proposed East Container Terminal in Sri Lanka is a joint project of India, Sri Lanka and
  - (a) South Korea (b) Japan
  - (c) Malaysia (d) China
- Q6. Which of following statements is/are correct?
  - START I (Strategic Arms Reduction Treaty) was a bilateral treaty between the United States of America and the Union of Soviet Socialist Republics (USSR).
  - START I was replaced by New START treaty which came into force in January 2011.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q7. Which of the following countries does not border Lake Victoria?
  - (a) Rwanda (b) Uganda
  - (c) Tanzania (d) Kenya

- Q8. Which of following statements is/are correct?
  - The International Criminal Court (ICC) is an intergovernmental organization and international tribunal to prosecute individuals for crime against humanity.
  - 2. The ICC has universal territorial jurisdiction.
  - Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2
- Q9. Sanaa is the capital of
  - (a) Oman (b) Qatar
  - (c) Djibouti (d) Yemen
- Q10. Which of following statements is/are correct?
  - 1. The first population census of India was held in 1872.
  - 2. 2011 census was the 15th census of India.
  - Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2

# Q11. Article 239AA has special provisions with respect to

- (a) Pondicherry
- (b) Delhi
- (c) Daman and Diu
- (d) Andaman and Nicobar
- Q12. Which of following statements is/are correct?
  - 1. G-Secs with maturities less than 1 year are called T-bills.
  - 2. G-Secs with maturities of more than one year are called bonds.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

#### Q13. 10 degree channels separates

(a) Little Andaman and Car Nicobar

- (b) Car Nicobar and Great Nicobar
- (c) Little Nicobar and Great Nicobar
- (d) South Andaman and Little Andaman

#### Q14. Duncan Pass separates

- (a) Little Andaman and Car Nicobar
- (b) Car Nicobar and Great Nicobar
- (c) Little Nicobar and Great Nicobar
- (d) South Andaman and Little Andaman

#### Q15. Coco channel separates

- (a) North Andaman and Myanmar
- (b) Car Nicobar and Great Nicobar
- (c) Little Nicobar and Great Nicobar
- (d) South Andaman and Little Andaman
- Q16. Which of following statements is/are correct?
  - 1. Trans fats are a form of unsaturated fat.
  - Trans fats come in both natural and artificial forms.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q17. Which of following statements is/are correct?
  - FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.
  - FSSAI is an autonomous body established under the Ministry of Science and Technology.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q18. Which of following statements is/are correct?
  - 1. Serosurveys estimate the share of the population that test positive for antibodies using serology tests.
  - The presence of a specific antibody in a sufficiently high concentration will suggest that the tested person was previously infected.

Choose the correct code:

(a) 1 only (b) 2 only

- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q19. Which of following statements is/are correct?
  - 1. Lingaraja Temple represents the Chola architecture.
  - 2. Lingaraja Temple represents harmony between Shaivism and Vaishnavism.
  - Choose the correct code: (a) 1 only (b) 2 only
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2
- Q20. Which of the following is true regarding supermoon?
  - (a) A moon is termed as supermoon when a new or full moon is farthest to the earth on its elliptical orbit.
  - (b) A moon is termed as supermoon when only a full moon is farthest to the earth on its elliptical orbit.
  - (c) A moon is termed as supermoon when only a new moon is farthest to the earth on its elliptical orbit.
  - (d) A moon is termed as supermoon when a new or full moon is closest to the earth on its elliptical orbit.
- Q21. Central Statistical Office (CSO) under the Ministry of Statistics and Programme Implementation is under which of the following Administrative Wing?
  - (a) Programme Implementation Wing
  - (b) Infrastructure Monitoring and Project Monitoring Wing
  - (c) Statistics Wing
  - (d) None of the Above
- Q22. Which of the following shall be deemed members of National Human Rights Commission (NHRC)?
  - 1. Chairperson of the National Commission for Minorities
  - 2. Chairperson of National Commission for the Scheduled Castes
  - 3. Chairperson of National Commission for the Scheduled Tribes
  - 4. Chairperson of National Commission for Women

Choose the correct code:

- (a) 1, 2 and 3 (b) 2, 3 and 4
- (c) 1, 3 and 4 (d) All of the above

# Q23. Rekha Deula, Pidha Deula and Khakhara Deula are the styles of

- (a) Kalinga Architecture
- (b) Chola Architecture
- (c) Hoysala Architecture
- (d) Chalukyan Architecture

#### Q24. Socotra is an island of

(a) Oman (b) Saudi Arabia

- (c) Bahrain (d) Yemen
- Q25. Which of the following pairs of countries share land borders with Yemen?
  - (a) Saudi Arabia and Oman
  - (b) Saudi Arabia and Bahrain
  - (c) Saudi Arabia and Qatar
  - (d) Saudi Arabia and UAE

#### Q26. Pangong Tso lake is situated in

- (a) Lahaul and Spiti (b) Ladakh
- (c) Eastern Sikkim (d) Tawang
- Q27. Which of following statements is/are correct?
  - 1. The Indo-Pacific comprises the tropical waters of the Indian Ocean, the western and central Pacific Ocean.
  - The Indo-Pacific has "symbiotic link" with the Quadrilateral Security Dialogue.
  - Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2

#### Q28. The Lombardy plains is situated in

- (a) Australia (b) South Africa
- (c) France (d) Italy

Q29. Which of the following countries does not have land border with Italy?

- (a) Slovenia (b) Croatia
- (c) Austria (d) France
- Q30. Which of the following seas does not lie in Mediterranean?
  - (a) Ionian Sea (b) Tyrrhenian Sea

- (c) Adriatic Sea (d) White Sea
- Q31. Which of following statements is/are correct?
  - The Universal Declaration of Human Rights (UDHR) is an international document adopted by the United Nations General Assembly in 1948.
  - 2. UDHR is legally binding on the nations. Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2

#### Q32. Consider the following statements:

- The Rajya Sabha is an institutional mechanism to provide representation to the states. Its purpose is to protect the powers of the states.
- 2. Rajya Sabha cannot initiate, reject or amend money bills.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

# Q33. The members of the Rajya Sabha are not associated with:

- 1. Public Accounts Committee
- 2. Estimates Committee
- 3. Committee on Public Undertakings
- Choose the correct code:
- (a) 1 and 2 (b) 2 only
- (c) 3 only (d) 1 only
- Q34. Which of following statements is/are correct?
  - The Index of Industrial Production (IIP) is an index which shows the growth rates in different industry groups of the economy in a stipulated period of time.
  - he IIP index is computed and published by the Central Statistical Organisation (CSO) on a quarterly basis.
  - Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2
- Q35. Under IIP, the growth rate of industry groups is classified as:

- 1. Broad sectors, namely, Mining, Manufacturing and Electricity.
- Use-based sectors, namely Basic Goods, Capital Goods and Intermediate Goods.
   Choose the correct code:
- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q36. Which of following statements is/are correct?
  - The Special Marriage Act, 1954 has provision for civil marriage (or "registered marriage") for people of India and all Indian nationals in foreign countries, irrespective of the religion or faith followed by either party.
  - Marriages solemnized under Special Marriage Act are not governed by personal laws.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q37. Which of following statements is/are correct?
  - Tapovan Vishnugad power plant is a 520MW run-of-river project being constructed on Dhauliganga River.
  - Tapovan Vishnugad power plant is constructed by NHPC.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q38. Which of following statements is/are correct?
  - Titanium is a lustrous transition metal with a silver color, low density, and high strength.
  - Titanium is resistant to corrosion in sea water, aqua regia, and chlorine.
     Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2
- Q39. Which of following statements is/are correct?
  - 1. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations

body for assessing the science related to climate change.

- 2. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).
- Choose the correct code:
- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q40. Which of following statements is/are correct?
  - 1. Conjugated linoleic acid (CLA) is a Transfat.
  - 2. CLA is artificially produced.
  - Choose the correct code:
  - (a) 1 only (b) 2 only
  - (c) Both 1 and 2 (d) Neither 1 nor 2
- Q41. Which of following statements is/are correct?
  - 1. Consuming trans fats increases High Density Cholesterol (HDL).
  - 2. Trans fats come in both natural and artificial forms.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q42. Which of following statements is/are correct?
  - 1. A genome is an organism's complete set of genetic instructions.
  - The genome includes both the genes (the coding regions) and the noncoding DNA, as well as mitochondrial DNA and chloroplast DNA.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q43. Which of following statements is/are correct?
  - Nano-optics is a part of nanotechnology that investigates the behavior of light on nanometer scales.

- The term "nano-optics" usually refers to situations involving ultraviolet, visible, and near-infrared light.
- Choose the correct code:
- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2

#### Q44. River Kaladan flows from

- (a) Manipur to Myanmar
- (b) Mizoram to Myanmar
- (c) Nagaland to Myanmar
- (d) Bangladesh to Myanmar
- Q45. Which of following statements is/are correct?
  - 1. The Kaladan River is called the Chhimtuipui River in India.
  - The Kaladan River forms the international border between India and Myanmar.

Choose the correct code:

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q46. Consider the following statements with respect to inflation:
  - Inflation is good for those who lend money than for those who borrow money.
  - 2. Inflation is good for those who make the products than for those who buy it.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
- Q47. Which of the following statements is/are correct?

- Stagflation is characterised by slow economic growth and high unemployment.
- 2. Skewflation is price rise of a small group of commodities over a sustained period of time.
- Hyperinflation is a large and accelerating inflation that takes place over a very short period of time.

Select the correct answer using the code given below:

- (a) 2 only (b) 2 and 3 only
- (c) 1 and 2 only (d) 1, 2 and 3
- Q48. Which of the following is false about quantum technology?
  - (a) It explains the nature of energy and matter.
  - (b) It is used for making computers much faster than super computers.
  - (c) The technology can be used for communications, chemistry, cryptography etc.
  - (d) Quantum field has been commercially exploited completely.

# Q49. Which of the following seas are connected by Strait of Bab-el –Mandeb?

- (a) Red Sea and Gulf of Aden
- (b) Red Sea and Mediterranean Sea
- (c) Gulf of Aden and Arabian Sea
- (d) Persian Gulf and Arabian Sea

#### Q50. Apennines mountains range is located in -

- (a) France (b) Spain
- (c) Germany (d) Italy

# \rm ANSWERS

1	2	3	4	5	6	7	8	9	10
а	d	b	d	b	с	а	а	d	с
11	12	13	14	15	16	17	18	19	20
b	с	а	d	а	с	а	с	b	d
21	22	23	24	25	26	27	28	29	30
с	d	а	d	а	а	с	d	b	d
31	32	33	34	35	36	37	38	39	40
а	с	b	а	с	с	а	с	с	а
41	42	43	44	45	46	47	48	49	50
b	С	С	b	с	d	d	d	а	d

# SHIELD IAS UPSC PRELIMS-2021 (TEST RELEASE SCHEDULE)

#### **RAPID PRACTICE TEST (RPT)**

#### January - Polity

10th January- Polity RPT 1 17th January- Polity RPT 2 24rd January- Polity RPT 3 31th January- Polity RPT 4

#### February - Economy

7th February- Economy RPT 1 14th February- Economy RPT 2 21st February- Economy RPT 3 28th February- Economy RPT 4

## FULL LENGTH TEST (FLT)

May - Current Affairs (FLT)

2nd May- Current Affairs FLT 1 9th May- Current Affairs FLT 2 16th May- Current Affairs FLT 3 23rd May- Current Affairs FLT 4

#### March - Geography and Environment

7th March- G&E RPT 1 14th March- G&E RPT 2 21st March- G&E RPT 3 28th March- G&E RPT 4

#### April - History and Culture

4th April- History & Culture RPT 1 11th April- History & Culture RPT 2 18th April- History & Culture RPT 3 25th April- History & Culture RPT 4

#### May & June- General Studies FLT

30th May- General Studies FLT 1 6th June- General Studies FLT 2 13th June- General Studies FLT 3 20th June- General Studies FLT 4



