



Biological Weapon and Chemical Weapon Conventions

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Biological Weapon & Chemical Weapon Conventions

Biological Weapon Convention (BWC) 1975

Formal Name:

- The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction.

Negotiated at:

- Conference of the Committee on Disarmament in **Geneva, Switzerland**

Prohibits:

- Development, production, acquisition, transfer, stockpiling and use of **bioweapons**

Members:

- **184 States Parties** and **4 Signatory States (India - Signatory)**

Significance:

- First multilateral disarmament treaty banning an entire category of **Weapons of Mass Destruction (WMD)**
- Supplements the **1925 Geneva Protocol**

Biological weapons use **microbiological agents (such as bacteria, viruses or fungi)** or toxins to intentionally cause death or harm to humans, animals, or plants.



Chemical Weapon Convention (CWC) 1997

Negotiations Began at:

- **UN Conference on Disarmament 1980**

Mandates:

- Destroying old and abandoned chemical weapons
- Members to declare **riot-control agents (tear gas)** in their possession

Established:

- **Organisation for the Prohibition of Chemical Weapons** in 1997 to implement + enforce the terms of the CWC

Members:

- **192 state parties** and **165 signatories (India - Signatory)**

Prohibits:

- Development, production, acquisition, stockpiling, retention, transfer and usage of chemical weapons
- **Assisting other States** to indulge in activities prohibited by the CWC
- Using riot-control devices as '**warfare methods**'

Chemical Weapon is a chemical used to cause intentional **death or harm through its toxic properties**. Also includes **munitions, devices and other equipment** specifically designed to **weaponize toxic chemicals**.



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Provisional State of Global Climate Report, 2022

For Prelims: Provisional State of Global Climate Report, World Meteorological Organization, greenhouse gases

For Mains: Issues related to increasing disaster and steps need to be taken

Why in News?

Recently, the [World Meteorological Organization \(WMO\)](#) released the provisional State of the Global Climate report, 2022.

- The full and final report is expected to be published in April, 2023.

What is the WMO State of the Global Climate report?

- The report is **produced on an annual basis**, complementing the most recent long assessment cycle provided by the [sixth IPCC Assessment Report](#).
- The report provides an authoritative voice on the current state of the climate using key climate indicators and reporting on extreme events and their impacts.

What are the Highlights of the Report?

- **Increase in Concentration of Greenhouse Gases:**
 - The concentrations of three main [greenhouse gases](#), carbon dioxide (CO₂), methane (CH₄) and Nitrous oxide (NO₂), were all at record highs in 2021.
 - The **emissions of methane, which is 25 times more potent than carbon dioxide** in causing global warming, in fact, increased at the fastest pace ever.
 - At the [climate change conference in Glasgow](#), countries had pledged to cut **global methane emissions** by at least 30% by the year 2030.
- **Temperature:**
 - The **global average temperature in 2022 is estimated to be about 1.15 °C above** the 1850-1900 average.
 - 2015 to 2022 are likely to be the **eight warmest years on record**.
 - **La Niña** (a cooling of sea-surface waters in the equatorial Pacific Ocean) conditions have dominated since late 2020 and are expected to continue until the end of 2022.
 - **Continuing La Niña** has kept **global temperatures relatively low for the past two years** - albeit higher than the last significant La Niña in 2011.
- **Glaciers and Ice:**
 - In the European Alps, **glacier melt records were shattered in 2022**. Average thickness losses of between 3 and over 4 metres were measured throughout the Alps, substantially more than in the previous record year 2003.
 - In Switzerland, **6% of the glacier ice volume was lost between 2021 and 2022**,

according to initial measurements.

- For the first time in history, **no snow outlasted the summer season even at the very highest measurement sites** and thus no accumulation of fresh ice occurred.

▪ **Sea Level Rise:**

- **Global mean sea level has risen by an estimated 3.4 ± 0.3 mm per year** over the 30 years (1993-2022) of the satellite altimeter record.
- The rate has **doubled between 1993-2002 and 2013-2022** and sea level increased by about 5 mm between January 2021 and August 2022.

▪ **Ocean Heat:**

- The **ocean stores around 90% of the accumulated heat** from human emissions of greenhouse gases.
- The **upper 2000m of the ocean continued to warm to record levels in 2021.**
- Overall, **55% of the ocean surface experienced at least one marine heatwave** in 2022.
- In contrast only 22% of the ocean surface experienced a marine cold spell. Marine heatwaves are becoming more frequent, in contrast to cold waves.

▪ **Extreme Weather:**

- In East Africa, **rainfall has been below average in four consecutive wet seasons**, the longest in 40 years, with indications that the current season could also be dry.
- Record breaking rain in July and August, 2022 led to extensive flooding in Pakistan.
 - The **flooding came hard on the heels of an extreme heatwave** in March and April in both India and Pakistan.
- **Large parts of the northern hemisphere were exceptionally hot and dry.**
 - China had the most extensive and long-lasting heatwave since national records began and the second-driest summer on record.
- Large parts of **Europe sweltered in repeated episodes of extreme heat.**
 - The United Kingdom saw a new national record on 19th July, 2022 when the temperature topped more than 40°C for the first time.

What are the Steps taken to tackle Climate change?

▪ **National:**

◦ **NAPCCC:**

- To counter the emerging threats from climate change, India released its [National Action Plan to Combat Climate Change \(NAPCC\)](#). It has 8 sub missions including **National Solar Mission**, National Water Mission etc.

- **India Cooling Action Plan:** It provides an integrated approach towards cooling and related areas including reduction in the cooling demand. This would help reduce emissions thereby combating global warming.

▪ **Global:**

◦ **Paris Agreement:**

- It seeks to keep the rise in global temperatures **“well below” 2°C from pre-industrial times**, while “pursuing efforts” to limit it to 1.5°C.

◦ **UN SDGs:**

- These are 17 broad goals for achieving sustainable development in the society. Amongst them **Goal 13 exclusively focuses on tackling climate change.**

◦ **Glasgow Pact:**

- It was finally adopted by 197 parties in 2021 during the COP26 negotiations.
 - It has emphasized that stronger action in the current decade was most **critical for achieving the 1.5-degree target.**

What is the World Meteorological Organization (WMO)?

- The WMO is an **intergovernmental organization** with a membership of 192 Member States and Territories.
 - India is a member of WMO.
- It originated from the **International Meteorological Organization (IMO)**, which was established after the 1873 Vienna International Meteorological Congress.
- Established by the ratification of the WMO Convention on 23rd March 1950, WMO became the

specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.'

- WMO is **headquartered in Geneva, Switzerland.**

Way Forward

- **There is a need to focus the efforts on bold policies and solutions** that can quickly transform the way the resources are produced and consumed.
- People and partnerships have to be the **central approach**, whether it is to create new jobs, provide more access and affordability for everyone and to build a cleaner and greener living environment.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q1. "Momentum for Change: Climate Neutral Now" is an initiative launched by (2018)

- (a) The Intergovernmental Panel on Climate Change
- (b) The UNEP Secretariat
- (c) The UNFCCC Secretariat
- (d) The World Meteorological Organisation

Ans: (c)

Q2. Which one of the following is not related to the United Nations? (2010)

- (a) Multilateral Investment Guarantee Agency
- (b) International Finance Corporation
- (c) International Centre for Settlement of Investment Disputes
- (d) Bank for International Settlements

Ans: (d)

Mains

Q. Assess the impact of global warming on the coral life system with examples. (2019)

Q. Discuss global warming and mention its effects on the global climate. Explain the control measures to bring down the level of greenhouse gases which cause global warming, in the light of the Kyoto Protocol, 1997. (2022)

Source: IE

Supreme Court upholds EWS Quota

For Prelims: Reservation, Scheduled Castes, Scheduled Tribes, Other Backward Classes, affirmative

Why in News?

Recently, the [Supreme Court](#) has upheld the validity of the **103rd Constitutional Amendment** which provides 10% reservation for the [Economically Weaker Sections \(EWS\)](#) among forward castes in government jobs and colleges across India.

What is the Verdict?

▪ Majority View:

- The 103rd constitutional amendment **cannot be said to breach the [basic structure of the Constitution](#).**
- The EWS quota **does not violate equality and the basic structure** of the constitution. Reservation in addition to existing reservation does not violate provisions of the Constitution.
- The reservation is an **instrument of affirmative action by the state for the inclusion of backward classes.**
- Basic structure can't be breached by enabling the state to **make provisions for education.**
- Reservation is instrumental not just for inclusion of socially and economically backward classes into the society **but also to class so disadvantaged.**
- Reservations for EWS does not violate basic structure on **account of 50% ceiling limit fixed by Mandal Commission** because **ceiling limit is not inflexible.**
 - 50% rule formed by the Supreme Court in the *Indira Sawhney judgment in 1992* was "not inflexible". Further, it had applied only to **SC/ST/SEBC/OBC communities** and not the general category.
- The Scheduled Castes, Scheduled Tribes and the backward class for whom the special provisions have already been provided in **Article 15(4), 15(5) and 16(4) form a separate category as distinguished from the general or unreserved category.**

▪ Minority View:

- Reservations were designed as a powerful tool to enable equal access. Introduction of economic criteria and excluding [SC \(Scheduled Castes\)](#), [ST \(Scheduled Tribe\)](#), OBC (Other Backward Classes), saying they had these pre-existing benefits is injustice.
- The EWS quota may have a reparative mechanism to have a level playing field and the exclusion of SC, ST, OBC discriminates against equality code and violates basic structure.
- Permitting the breach of **50% ceiling limit would become** "a gateway for further infractions and result in compartmentalization (division into sections).

What is the Economically Weaker Section (EWS) Quota?

▪ About:

- The 10% EWS quota was introduced under the 103rd Constitution (Amendment) Act, 2019 by amending [Articles 15 and 16](#).
 - It inserted Article 15 (6) and Article 16 (6).
- It is for economic reservation in jobs and admissions in educational institutes for Economically Weaker Sections (EWS).
- It was enacted to promote the welfare of the poor not covered by the 50% reservation policy for [Scheduled Castes \(SCs\)](#), [Scheduled Tribes \(STs\)](#) and [Socially and Educationally Backward Classes \(SEBC\)](#).
- It enables both the Centre and the States to provide reservations to the EWS of society.

▪ Significance:

◦ Addresses Inequality:

- The 10% quota is progressive and could address the issues of educational and

income inequality in India since the economically weaker sections of citizens have remained excluded from attending higher educational institutions and public employment due to their financial incapacity.

- **Recognition of the Economic Backwards:**
 - There are many people or classes other than backward classes who are living under hunger and poverty-stricken conditions.
 - The proposed reservation through a constitutional amendment would give constitutional recognition to the poor from the upper castes.
 - **Reduction of Caste-Based Discrimination:**
 - Moreover, it will gradually remove the stigma associated with reservation because reservation has historically been related to caste and most often the upper caste looks down upon those who come through the reservation.
- **Concerns:**
- **Unavailability of Data:**
 - The Union or state governments have no such data to prove that 'upper' caste individuals, who have less than Rs 8 lakh annual income, are not adequately represented in government jobs and higher educational institutions. There is a strong possibility that they are actually over-represented in these places.
 - **Arbitrary Criteria:**
 - The criteria used by the government to decide the eligibility for this reservation is vague and is not based on any data or study.
 - Even the SC questioned the government whether they have checked the GDP per capita for every State while deciding the monetary limit for giving the EWS reservation.
 - Statistics show that the per capita income in states differs widely - Goa is the state having the highest per capita income of almost Rs. 4 lakhs whereas Bihar is at the bottom with Rs.40,000.

Way Forward

- It is high time now that the Indian political class overcame its tendency of continually expanding the scope of reservation in pursuit of electoral gains, **and realised that it is not the panacea for problems.**
- Instead of giving reservation based on different criteria, the government should focus on **quality of education and other effective social upliftment measures.** It should create a spirit of entrepreneurship and make them job-givers instead of a job seeker.

Infographic

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Consider the following statements: (2020)

1. The Constitution of India defines its 'basic structure' in terms of federalism, secularism, fundamental rights and democracy.
2. The Constitution of India provides for 'judicial review' to safeguard the citizens' liberties and to preserve the ideals on which the Constitution is based.

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

Ans: (d)

Exp:

- The Constitution of India does not define the basic structure, it is a judicial innovation.
- In Kesavananda Bharati vs State of Kerala case (1973), the Supreme Court ruled that the **Parliament could amend any part of the Constitution** so long as it did not alter or amend the basic structure or essential features of the Constitution.
- However, the court did not define the term 'basic structure', and only listed a few principles — federalism, secularism, democracy — as being its part.
- The 'basic structure' doctrine has since been interpreted to include **the supremacy of the Constitution, the rule of law, Independence of the judiciary, doctrine of separation of powers, sovereign democratic republic, the parliamentary system of government, the principle of free and fair elections, welfare state, etc.** Hence, **statement 1 is not correct.**
- There is no direct and express provision in the constitution empowering the courts to invalidate laws, but the constitution has imposed definite limitations upon each of the organs, the transgression of which would make the law void. The court is entrusted with the task of deciding whether any of the constitutional limitations has been transgressed or not. **Hence, statement 2 is not correct.**
- **Therefore, option (d) is the correct answer.**

[Source: TH](#)

Amendments in Electoral Bond Scheme

For Prelims: Electoral bonds, Criminalization of Politics, Electoral Bond Scheme, Registered Political Party, Representation of the People Act, 1951

For Mains: Electoral Bonds, Elections Funding

Why in News?

Weeks ahead of elections in certain states, the Central Government has amended the [Electoral Bond Scheme](#).

What is the Electoral Bond Scheme?

- **Electoral Bonds:**
 - [Electoral bonds](#) are money **instruments like promissory notes**, which can be bought by companies and individuals in India from the State Bank of India (SBI) and donated to a political party, which can then encash these bonds.
 - The bonds are only redeemable in the designated account of a [registered political party](#).
 - A person being an individual can buy bonds, **either singly or jointly with other individuals.**
- **Electoral Bond Scheme:**
 - Electoral Bonds Scheme was launched in 2018 to to cleanse the political funding in India.
 - The central idea behind the electoral bonds scheme is to **bring about transparency in electoral funding in India.**
 - The government had described the scheme as an “electoral reform” in a country moving towards a “cashless-digital economy”.

The lowdown on a vexed issue

What are electoral bonds?

Sold four times a year (in January, April, July and October), electoral bonds allow political parties to accept money from donors whose identities are kept anonymous. They are sold in multiples of ₹1,000, ₹10,000, ₹1 lakh, ₹10 lakh, and ₹1 crore. The scheme was first floated in 2017 and implemented in 2018

Who can sell them?

SBI is the sole authorised bank to sell and redeem the bonds. Customers of other banks can also purchase the bonds via different payment channels provided to them. However, a political party can only redeem the bond from one of the 29 authorized branches of the bank.

Which parties can receive donations via electoral bonds?

A political party must also have at least 1% vote share in most recent general elections or assembly elections to receive donations via electoral bonds.

What is the controversy around them?

The scheme has been challenged on the grounds that it lacks transparency. Those opposed to it have also asserted that a large chunk of the donations have gone to the BJP, the ruling party. In 2019-20, the BJP received over 75% of the electoral bonds, according to the Election Commission data. Critics have also argued that since the bonds are sold through a government-owned bank there is a possibility that the party in power can find out who is funding their political rivals

What are the Amendments Made to the Scheme?

▪ Additional Period of 15 Days:

- Introduced a new para, stating that an additional period of **fifteen days** shall be specified by the Central Government in the year of general elections to the Legislative Assembly of States and Union territories with Legislature.
- In 2018, when the Electoral Bond Scheme was introduced, these bonds were made available for a period of 10 days each in January, April, July and October, as may be specified by the central government.
 - An additional period of 30 days was to be specified by the Central Government in the year of the General election to the House of People.

▪ Validity:

- The Electoral Bonds **shall be valid for fifteen calendar days from the date of issue**

and no payment shall be made to any payee Political Party if the Electoral Bond is deposited after expiry of the validity period.

- The Electoral Bond deposited by an eligible Political Party in its account shall be credited on the same day.

▪ **Eligibility:**

- Only the political parties registered under **Section 29A of the [Representation of the People Act, 1951](#)** which secured at least **1% of votes polled in the last General Election** to the Lok Sabha or the State Legislative Assembly are **eligible to receive Electoral Bonds**.

What are the Concerns Regarding Electoral Bonds?

▪ **Contradicting its Basic Idea:**

- The central criticism of the electoral bonds scheme is that it does the exact opposite of what **it was meant to do: bring transparency to election funding**.
- For example, critics argue that the anonymity of electoral bonds is only for the broader public and opposition parties.

▪ **Possibility of Extortion:**

- The fact that such bonds are sold via a government-owned bank (SBI) leaves **the door open for the government to know exactly who is funding its opponents**.
- This, in turn, allows the possibility for the **government of the day to either extort money, especially from the big companies**, or victimise them for not funding the ruling party — either way providing an unfair advantage to the party in power.

▪ **A Blow to Democracy:**

- Through an amendment to the [Finance Act 2017](#), the Union government has exempted political parties from disclosing donations received through electoral bonds.
- This means the voters will not know which individual, company, or organization has funded which party, and to what extent.
- However, in a representative democracy, citizens cast their votes for the people who will represent them in Parliament.

▪ **Compromising Right to Know:**

- The [Supreme Court of India](#) has long held that the “right to know”, especially in the context of elections, is an integral part of the [right to freedom of expression \(Article 19\)](#) under the Indian Constitution.

▪ **Against Free & Fair Elections:**

- The bonds provide no details to the citizens but said anonymity does not apply to the government, which can **always access the donor details by demanding the data from the State Bank of India (SBI)**.
- This implies that the government in power can leverage this information and disrupt free and fair elections.

▪ **Crony Capitalism:**

- The electoral bonds scheme **removes all pre-existing limits on political donations** and effectively allows well-resourced corporations to fund elections, subsequently paving the way for crony capitalism.
 - Crony Capitalism is an economic system characterized by close, **mutually advantageous relationships between business leaders and government officials**.

Way Forward

- There is a **need for effective regulation of political financing** along with bold reforms to break the vicious cycle of corruption and erosion of quality of democratic polity.
- It is crucial to **plug the loopholes in the current laws** to make the entire governance machinery more accountable and transparent.
- Voters can also help bring in substantial changes by demanding awareness campaigns. If voters reject candidates and parties that overspend or bribe them, democracy would move a step higher.

[Source: TH](#)

National Population Register (NPR)

For Prelims: National Population Register, National Register of Citizens, Census, Citizenship Act 1955, CAA.

For Mains: Population and Associated Issues, Need for Updating the NPR and its Importance.

Why in News?

The Ministry of Home Affairs (MHA) has recently highlighted the need to update the [National Population Register \(NPR\)](#) database across the country.

- This is to incorporate the changes due to birth, death, and migration for which demographic and other particulars of each family and individual are to be collected.

What is NPR?

▪ About:

- NPR is a **database** containing a list of all **usual residents** of the country.
 - A usual resident for the purposes of NPR is **a person who has resided in a place for six months or more** and intends to reside there for another six months or more.
- Its **objective** is to have a comprehensive identity database of people residing in the country.
 - It is **generated through house-to-house enumeration** during the “house-listing” phase of the [Census](#).
 - The NPR was **first collected in 2010** and then **updated in 2015**.

▪ Legal Backing:

- The NPR is prepared under the provisions of the [Citizenship Act 1955](#) and the **Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003**.
- It is **mandatory for every “usual resident of India”** to register in the NPR.

▪ Significance:

- It will **streamline data of residents** across various platforms.
 - For instance, it is common to find a different date of birth of a person on different government documents. NPR will help eliminate that.
- It will help the government formulate its **policies better** and also aid national security.
- It will help **to target government beneficiaries in a better way** and also further cut down **paperwork and red tape** in a similar manner that Aadhaar has done.
- It will help in implementing the idea of **‘One Identity Card’** that has been recently floated by the government.
 - ‘One Identity Card’ seeks to replace duplicate and siloed documentations of Aadhaar card, voter ID card, banking card, passport, and more.

▪ NPR and NRC:

- According to Citizenship Rules 2003, **NPR is the first step towards compilation of a [National Register of Citizens \(NRC\)](#)**. After a list of residents is created (i.e., NPR), a nationwide NRC **could go about verifying the citizens from that list**.
- However, unlike the NRC, the **NPR is not a [citizenship enumeration drive](#)** as it records even a foreigner staying in a locality for more than six months.

What is the National Register of Citizens?

- **National Register of Citizens (NRC)** is a register prepared after the conduct of the Census of 1951 in respect of each village, showing the houses or holdings in a serial order and indicating against each house or holding the number and names of persons staying therein.
- The **NRC was published only once in 1951** and since then, it has not been updated for the nation until recently.
 - It has been **updated in Assam only** for now and the **government plans to update it nationally** as well.

What is the Difference between NPR and Census?

- **Objective:**
 - The census involves a **detailed questionnaire** - there were 29 items to be filled up in the 2011 census - aimed at **eliciting the particulars of every person**, including age, sex, marital status, children, occupation, birthplace, mother tongue, religion, disability and whether they belonged to any Scheduled Caste or Scheduled Tribe.
 - On the other hand, the **NPR collects basic demographic data and biometric particulars.**
- **Legal Basis:**
 - The census is legally backed by the **Census Act, 1948.**
 - The NPR is a mechanism **outlined in a set of rules** framed under the **Citizenship Act, 1955.**

What is the Citizenship Act, 1955?

- **About:**
 - **The Citizenship Act, 1955 provides various ways in which citizenship may be acquired.**
 - It provides for **citizenship by birth, descent, registration, naturalisation and by incorporation of the territory into India.**
 - In addition, it regulates the registration of **Overseas Citizen of India Cardholders (OCIs)** and their rights.
 - An OCI is entitled to some benefits such as a multiple-entry, multipurpose lifelong visa to visit India.
- **CAA 2019: The Citizenship (Amendment) Act (CAA) was introduced in 2019 to amend the Citizenship Act, 1955.**
 - It provides citizenship on the basis of religion to six undocumented non-Muslim communities (**Hindus, Sikhs, Buddhists, Jains, Parsis and Christians**) from Pakistan, Afghanistan and Bangladesh who entered India on or before 31st December, 2014.
 - It exempts the members of the six communities from any criminal case under the **Foreigners Act, 1946 and the Passport Act, 1920.**
 - The two Acts specify punishment for entering the country illegally and staying here on expired visas and permits.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Prelims

Q. Consider the following statements: (2009)

1. Between Census 1951 and Census 2001, the density of the population of India has increased more than three times.
2. Between Census 1951 and Census 2001, the annual growth rate (exponential) of the population of

India has doubled.

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

Ans: (d)

Exp:

- One of the important indices of population concentration is the density of population. It is defined as the number of persons per square kilometre.
- The population density of India in 2001 was 324 persons per square kilometre and in 1951 it was 117. Thus, the density increased more than twice, but not thrice. **Hence, statement 1 is not correct.**
- At the beginning of the twentieth century, i.e., in 1901 the density of India was as low as 77 and this steadily increased from one decade to another to reach 324 in 2001.
- The average Annual Growth Rate in 2001 was 1.93 whereas in 1951 it was 1.25. Thus, it increased, but not doubled. **Hence, statement 2 is not correct.**
- **Therefore, option D is the correct answer.**

Mains

Q. Two parallel run schemes of the Government, viz the Adhaar Card and NPR, one as voluntary and the other as compulsory, have led to debates at national levels and also litigations. On merits, discuss whether or not both schemes need run concurrently. Analyse the potential of the schemes to achieve developmental benefits and equitable growth. **(2014)**

Source: [TH](#)

Guru Nanak Dev Jayanti

For Prelims: Guru Nanak Dev, Sikhism,

For Mains: Teachings of Guru Nanak Dev, Important Personalities

Why in News?

Recently, the 553rd birth anniversary of [Guru Nanak Dev](#) was celebrated.



Who was Guru Nanak Dev?

▪ Birth:

- In 1459 at Talwandi Rai Bhoi village near Lahore, which was later renamed as Nankana Sahib.
- He was the **first of the 10 Sikh gurus and the founder of [Sikhism](#)**.

▪ Contributions:

- Initiated inter-faith dialogue way back in the 16th century and had conversations with most of the religious denominations of his times.
- Wrote compositions which were included in the **Adi Granth**, compiled by **Guru Arjan (1563-1606)**, the fifth Sikh guru.
 - This came to be known as **Guru Granth Sahib** after the additions made by the **10th Sikh guru - Guru Gobind Singh (1666-1708)**.
- Advocated the '**Nirguna**' (**devotion to and worship of formless divine**) **form of bhakti**.
- **Rejected sacrifices**, ritual baths, image worship, austerities.
- Set up rules for **congregational worship (Sangat)** involving collective recitation.
- Gave the basic mantra of '**Ek Onkar**' to his followers and **insisted on treating all human beings equally**, without discriminating on the basis of caste, creed and gender.

▪ Death:

- In 1539 at Kartarpur, Punjab.

What is the Relevance of Guru Nanak Dev for Modern India?

- **Building an Egalitarian Society:** His idea of equality can be deduced by the following innovative social institutions, as given by him:
 - **Langar:** Collective cooking and sharing of food.
 - **Pangat:** Partaking food without distinctions of high and low caste.
 - **Sangat:** Collective decision making.
- **Social Harmony:**
 - According to him, the **whole world is God's creation, and all are born equal**. There is only one universal creator i.e. "**Ek Onkar Satnam**".
 - Apart from it, forgiveness, patience, forbearance, and kindness are the core of his teachings.
- **Creating a Just Society:**
 - He placed the motto of "**kirat karo, naam japo and vand chhako**" (work, worship and share) before his disciples.
 - He stood for karma as the basis of dharma, and he transformed the idea of spiritualism into the ideology of social responsibility and social change.
 - He **advocated the concept of "dasvandh" or donating one-tenth of one's earnings among needy persons**.

- **Gender Equality:**
 - According to him, "**Women as well as men share the grace of God and are equally responsible for their actions to him.**"
 - Respect for women and gender equality is perhaps the most important lesson to be learnt from his life.
- **Bringing Peace:**
 - According to Indian philosophy, **a Guru is the one who provides illumination, dispels doubt and shows the right path.**
 - In this context, **the ideas of Guru Nanak Dev can help promote peace, equality and prosperity across the globe.**

[Source: PIB](#)

Mathura-Vrindavan Carbon Neutral Target 2041

Why in News?

Recently, the Government of Uttar Pradesh has announced that Mathura-Vrindavan is aiming to become a "[net zero carbon emission](#)" tourist destination by 2041.

- This will be **the first such carbon neutral master plan** for a tourist destination in India.

What are the Major Announcements regarding the Target?

- **About Announcement:**
 - **Tourist vehicles will be banned** from the entire Braj region, which includes famous pilgrim centres such as Vrindavan and Krishna Janmabhoomi.
 - Only [electric vehicles](#) used as public transport will be allowed into the area.
 - All **252 water bodies and 24 forests** in the area will also be **revived**.
 - The plan divides the entire region into four clusters, each containing two of the eight key cities.
 - "The idea is to form small circuits called '**Parikrama Paths**' which the pilgrim can undertake either on foot or using electric vehicles.
 - In case they want to travel from one destination to another they can avail **electric mini-buses**.
- **Mathura-Vrindavan's Cultural Significance:**
 - Mathura, situated **on the bank of river [Yamuna](#)**, is the **abode of Lord Krishna** and it has a great religious sanctity among the Hindus.
 - It also has **one of the oldest historical records**.
 - It is mentioned in **the epic Ramayan**. It is on record that Mathura was one of the **capitals of Kushan King Kanishka(130AD)**.
 - Some of the **famous temples** are Bankey Bihari Temple, Govind Dev Temple, Rangaji Temple, Dwarikadhish Temple and the ISKCON Temple.

What is Net Zero Carbon Emission?

- It is referred to as **carbon neutrality**, which **does not mean that a country/state would bring down its emissions to zero**.
 - Rather, it is a state in which a country's/state's emissions are **compensated by the absorption and removal of [greenhouse gases](#) from the atmosphere**.
- Further, absorption of the emissions can be increased by **creating more carbon sinks** such as forests.

- While the removal of gases from the atmosphere requires futuristic technologies such as carbon capture and storage.
- More than 70 countries have promised to become **Net Zero** by the middle of the century **i.e., by 2050**.
- India has promised to cut its emissions to net zero by 2070 at the [conference of parties-26\(COP\) summit](#).

PM MAKES FIVE PLEDGES

- 1 India will increase its non-fossil energy capacity to 500GW by 2030
- 2 India will meet 50% of its energy requirements from renewable energy by 2030
- 3 India will reduce the total projected carbon emissions by one billion tonnes from now to 2030
- 4 By 2030, India will reduce the carbon intensity of its economy by 45% (from a previous target of 35%)
- 5 By 2070, India will achieve the target of net zero

WHAT IS NET ZERO?

Net zero refers to a balance where emissions of greenhouse gases are offset by the absorption of an equivalent amount from the atmosphere. Experts see net zero targets as a critical measure to successfully tackle climate change and its devastating consequences

PLEDGES BY TOP THREE EMITTERS

-  **CHINA:** Beijing announced no new pledges on Monday. It previously pledged net zero by 2060.
-  **UNITED STATES:** The US touted domestic legislation to spend \$555bn to boost renewable power and electric vehicles. It has pledged net zero by 2050.
-  **INDIA:** The country's economy will become carbon neutral by the year 2070

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. The term 'Intended Nationally Determined Contributions' is sometimes seen in the news in the context of (2016)

- (a) pledges made by the European countries to rehabilitate refugees from the war-affected Middle East
- (b) plan of action outlined by the countries of the world to combat climate change
- (c) capital contributed by the member countries in the establishment of the Asian Infrastructure Investment Bank
- (d) plan of action outlined by the countries of the world regarding Sustainable Development Goals

Ans: (b)

Exp:

- Intended Nationally Determined Contributions is the term used under the UNFCCC for reductions in greenhouse gas emissions in all countries that signed the Paris Agreement.
- At COP 21 countries across the globe publicly outlined the actions they intended to take under the international agreement. The contributions are in the direction to achieve the long-term goal of the Paris Agreement; "to hold the increase in global average temperature to well below 2°C to pursue efforts to limit the increase to 1.5°C, and to achieve net zero emissions in the second half of this century."
- Therefore, option (b) is the correct answer.

Mains

Q. Describe the major outcomes of the 26th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India

in this conference? (2021)

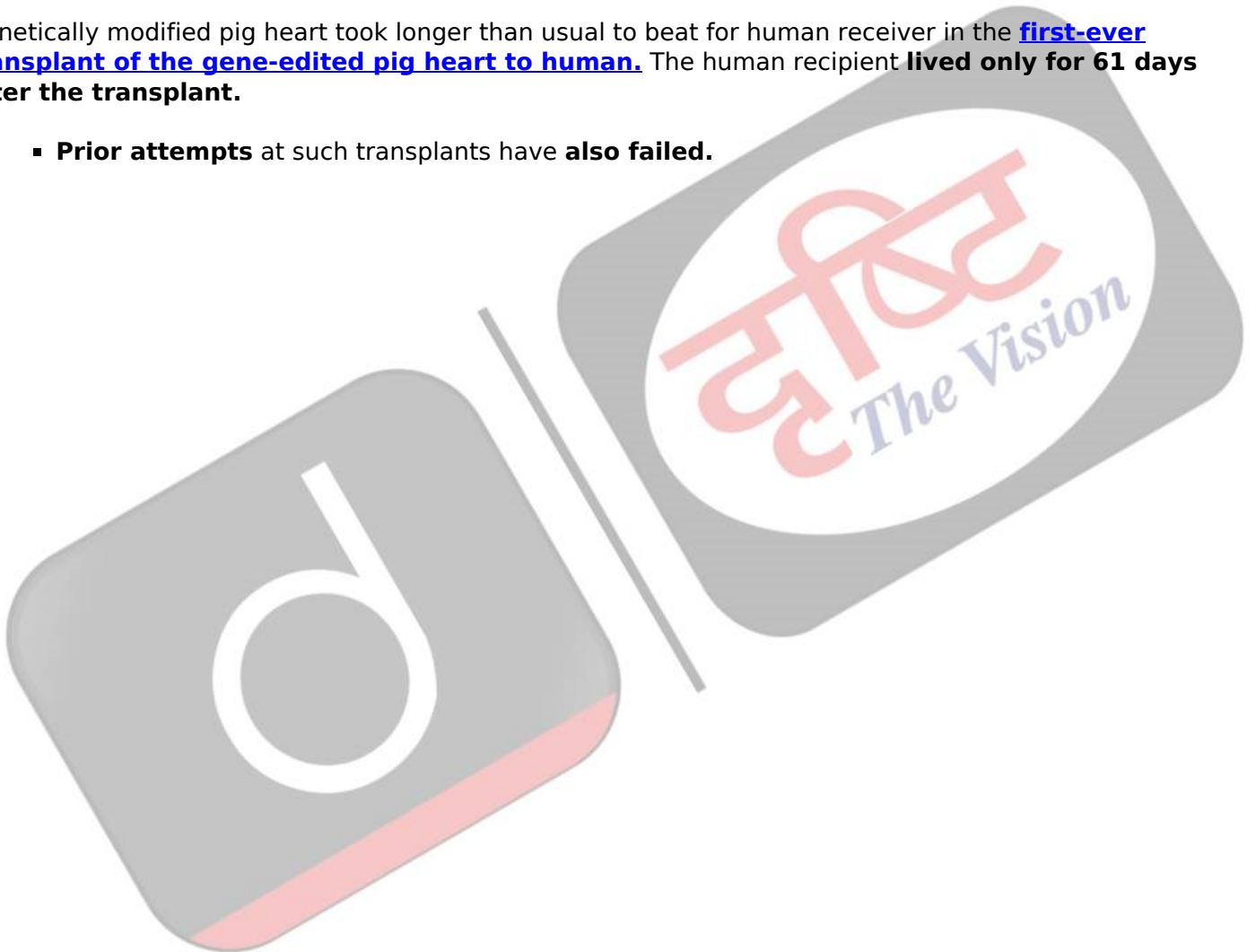
[Source: TH](#)

Xenotransplantation

Why in News?

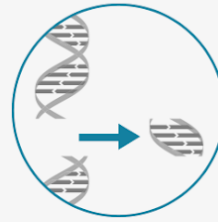
Genetically modified pig heart took longer than usual to beat for human receiver in the [first-ever transplant of the gene-edited pig heart to human](#). The human recipient **lived only for 61 days after the transplant**.

- **Prior attempts** at such transplants have **also failed**.

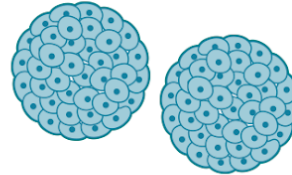


Genetically engineering pigs as organ donors

- ① Adding and removing genes with gene-editing technology creates genetically-altered pig cells



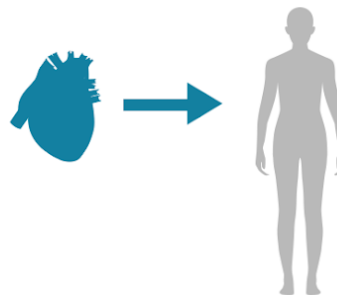
- ② These are used to make pig embryos



- ③ The genetically-engineered pigs are raised in a controlled, bio-sealed environment



- ④ The organ is removed from adult pig and transplanted into patient



- ⑤ Patient must still take immunosuppressant drugs, to prevent their body rejecting the new organ



What is Xenotransplantation?

▪ About:

- Xenotransplantation involves the **transplantation of nonhuman tissues** or organs **into human recipients**.
 - In the recent heart transplant from pig to human, **gene-editing** was adopted to remove a sugar in its cells that's responsible for that hyper-fast organ rejection.
 - Genome editing (also called **gene editing**) is a group of technologies that give scientists the ability to change an organism's **Deoxy-Ribonucleic Acid (DNA)**.

- One of the **biggest obstacles** to transplantation is **organ rejection**.
- **Significance:**
 - This development could bring us one step closer to solving the global organ shortage.
 - In India, patients need 25,000-30,000 liver transplants annually. But only about 1,500 end up receiving them.
 - Pigs are increasingly becoming popular candidates for organ transplantation.
 - Pigs offer **advantages over primates for organ procurements**, because they are easier to raise and achieve adult human size in six months.
 - The pig's anatomical and physiological parameters are similar to that of humans, and the breeding of pigs in farms is widespread and cost-effective.

[Source: DTE](#)

Black Sea Grain Initiative

Why in News?

Recently, Russia re-joined the **Black Sea Grain Initiative**.

What is the Black Sea Grain Initiative?

- **About:**
 - The Black Sea Grain initiative **endeavours to tackle escalating food prices emanating from supply chain disruptions** because of Russian actions in the world's 'breadbasket'.
 - The deal brokered by the [United Nations \(UN\)](#) and Turkey, was signed in Istanbul in July, 2022.
- **Objective:**
 - **Initially stipulated for a period of 120 days, the deal was to provide for a safe maritime humanitarian corridor for Ukrainian exports (particularly for food grains).**
 - The **central idea was to calm markets** by ensuring an adequate supply of grains, thereby limiting food price inflation.
- **Role of Joint Coordination Centre (JCC):**
 - The deal put in place a **Joint Coordination Centre (JCC)**, comprising senior representatives from Russia, Turkey, Ukraine and the UN for oversight and coordination.
 - **All commercial ships are required to register directly with the JCC** to ensure appropriate monitoring, inspection and safe passage. Inbound and outbound ships (to the designated corridor) transit as per a schedule accorded by the JCC post-inspection.
 - This is done so as to **ensure there is no unauthorised cargo or personnel onboard.**
 - Following this, **they are allowed to sail onwards to Ukrainian ports** for loading through the designated corridor.

Why is the Black Sea Grain Initiative Important?

- **Ukraine is among the largest exporters of wheat, maize, rapeseed**, sunflower seeds and sunflower oil, globally.
 - Its **access to the deep-sea ports in the Black Sea enables it to directly approach Russia and Europe** along with grain importers from the Middle East and North Africa.
- The **initiative has also been credited for having made a huge difference** to the global cost of living crisis.
 - **Approximately 9.8 million tonnes of grains have been shipped** since the initiative

commenced.

- **People hoarding the grain in the hope of selling it for a sizable profit** owing to the supply crunch were now obligated to sell.
- Although the initiative alone cannot address global hunger, it can **avert the chances of the global food crisis spiralling further**, especially when the region is yet to scale prior year levels.

[Source: TH](#)

Falcon Heavy Rocket

Why in News?

Recently, **SpaceX launched the Falcon Heavy rocket into a [geosynchronous Earth orbit](#)** from Launch Complex 39A at the Kennedy Space Center in Florida, US.

- This is the **fourth launch of the giant rocket system**, and the first one in nearly three years since its last launch in 2019.

What is the Current Mission?

- The rocket is carrying satellites to space for the U.S. military in a mission named as US **Space Force (USSF)-44**.
 - The mission deployed **two spacecraft payloads**, one of which is the **TETRA 1 microsatellite** created for various prototype missions in and around the geosynchronous earth orbit. **The other payload is for national defence purposes.**
 - It will place the satellites for the **Space Systems Command's Innovation and Prototyping.**

What is the Falcon Heavy Rocket?

- SpaceX claims Falcon Heavy to be the **most powerful rocket in the world** by a factor of two.
- The rocket has a **height of 70 m, a width of 12.2 m** and a **mass of 1,420,788 kg**.
- Falcon Heavy has **27 Merlin engines** which together generate more than **five million pounds of thrust at lift-off**, equaling around eighteen 747 aircraft at full power which makes it the most capable rocket flying.
 - Merlin is a **family of rocket engines developed by SpaceX** for use on its Falcon 1, **Falcon 9 and Falcon Heavy launch vehicles.**
 - Merlin engines use **RP-1 and liquid oxygen as rocket propellants** in a gas-generator power cycle.
 - These engines were **designed for recovery and reuse.**
- The rocket has a **lifting capacity of around 64 metric tonnes** into orbit.
- The Falcon Heavy **uses three boosters for added thrust and lift capacity.**
- SpaceX last **[launched its Falcon Heavy rocket in June 2019](#)** from NASA's Kennedy Space Center.
 - It carried **24 satellites** as part of the Department of Defense's Space Test Program-2.

[Source: TH](#)

