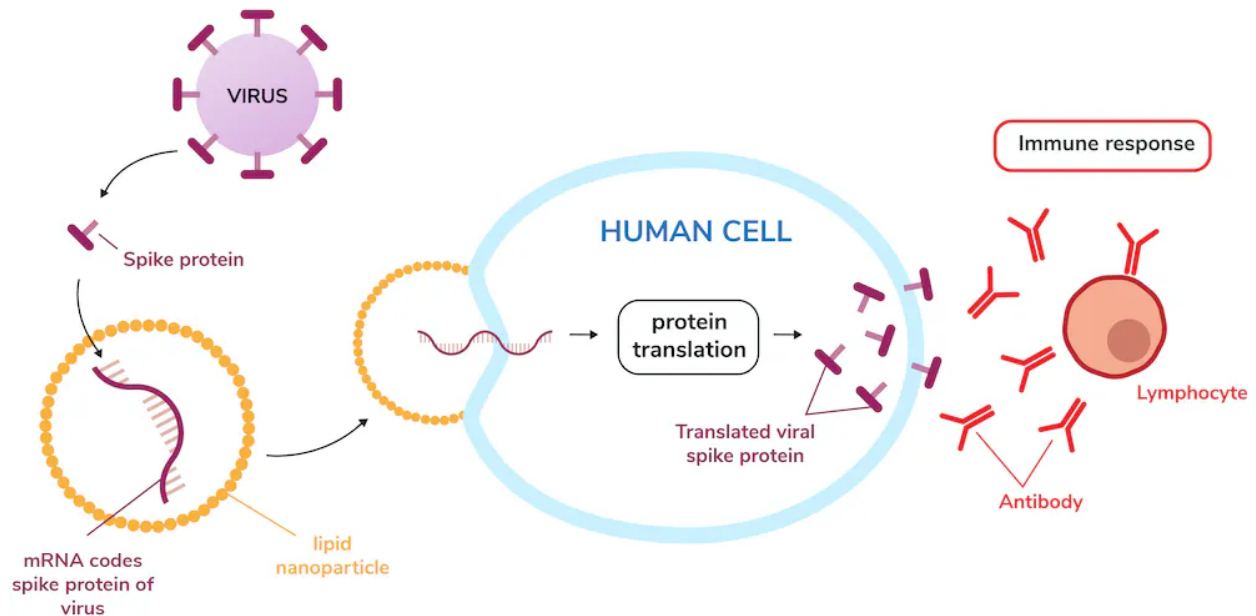


## 1. mRNA Vaccine



### Topic: Science and Technology

**In News:** India's first indigenous mRNA vaccine for the Omicron variant, GEMCOVAC-OM was approved under emergency use guidelines by the Drug Controller General of India.

#### More on the Topic:

- It was developed using the indigenous platform technology by Gennova Biopharmaceuticals Ltd. and supported under the **Mission COVID Suraksha**, implemented by Biotechnology Industry Research Assistance Council (BIRAC).
- It is a **thermo-stable vaccine**, which does not require ultra-cold chain infrastructure used for other approved mRNA-based vaccines, making it easy for deployment pan India.
- It is delivered intra-dermally using a **needle-free injection device system**.
- When administered intradermally in participants as a booster, it generated significantly higher immune responses.
- The clinical outcome demonstrates the need for variant-specific vaccines for desired immune response.

#### About Primary mRNA Vaccine:

- mRNA vaccines work by **introducing a piece of mRNA that corresponds to a viral protein**, usually a small piece of a protein found on the virus's outer membrane.
- Individuals who get an mRNA vaccine are not exposed to the virus, nor can they become infected with the virus by the vaccine.



- Messenger RNA or mRNA technology works by **teaching our cells to recognize and protect us against infectious diseases.**

#### About RNA:

- Ribonucleic acid (RNA) is a nucleic acid present in all living cells that has structural similarities to DNA.
- RNA is most often single-stranded
- An RNA molecule has a backbone made of alternating phosphate groups and the sugar ribose Attached to each sugar is one of four bases: adenine (A), uracil (U), cytosine (C) or guanine (G).
- Different types of RNA in cells are **messenger RNA (mRNA), ribosomal RNA (rRNA) and transfer RNA (tRNA).**
- It is principally involved in the synthesis of proteins, carrying the messenger instructions from DNA, which itself contains the genetic instructions required for the development and maintenance of life.

Source: Indian Express

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## 1. Bonn Climate Conference



#### Topic: Environment and Ecology

**In News:** Diplomats from around the world met once again in the German city of Bonn for climate negotiations before the UNFCCC's COP28 in Dubai, UAE.

#### More on the Topic:

- The key issue of focus at Bonn conference was **Global Stocktake (GST).**

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*Go, change the world*



- Mandated by the 2015 Paris Agreement, GST is an exercise aimed at **assessing the progress in the fight against climate change, and deciding ways and means to enhance global action to bridge the adequacy gap**. The Paris Agreement says GST must be conducted every five years, starting in 2023.
- **The Bonn conference produced a short framework** on the elements to be included in the stocktake exercise.
- There was difference of opinion and arguments between the developed and developing countries on Provisions related to finance and historical responsibility of the rich countries.

#### **What is Historical responsibility regarding Climate Change?:**

- It is estimated that 92 per cent of excess historical emissions are attributable to developed countries.
- Yet the economic impact of climate change is **disproportionately borne by vulnerable developing countries**.
- **The 58 vulnerable countries (or V20) account for 5 per cent of global emissions while the costs incurred are significant**.
- UNEP estimates that efforts on climate adaptation would require \$160-340 billion by 2030. But, current financial flows are inadequate, with developing countries receiving only a third of what is required.
- This historical responsibility has been the basis for **the differentiated burden-sharing on developed and developing countries** in the climate change framework.

#### **Mitigation Work Programme (MWP):**

- Apart from GST, this is another mechanism was set up at COP26 in Glasgow in 2021 for climate action.
- **This is a temporary emergency exercise focused only on increasing emission cuts**.
- Discussions at the MWP ran into trouble after developing countries complained that developed countries were yet to offer the enabling finance and technology transfers.
- **Developed countries are under an obligation to support the implementation of climate action plans of developing countries** through money and tech transfers.
- Most developing countries, including India, have said they would be able to act more if international support in the form of money and technology transfer was made available.

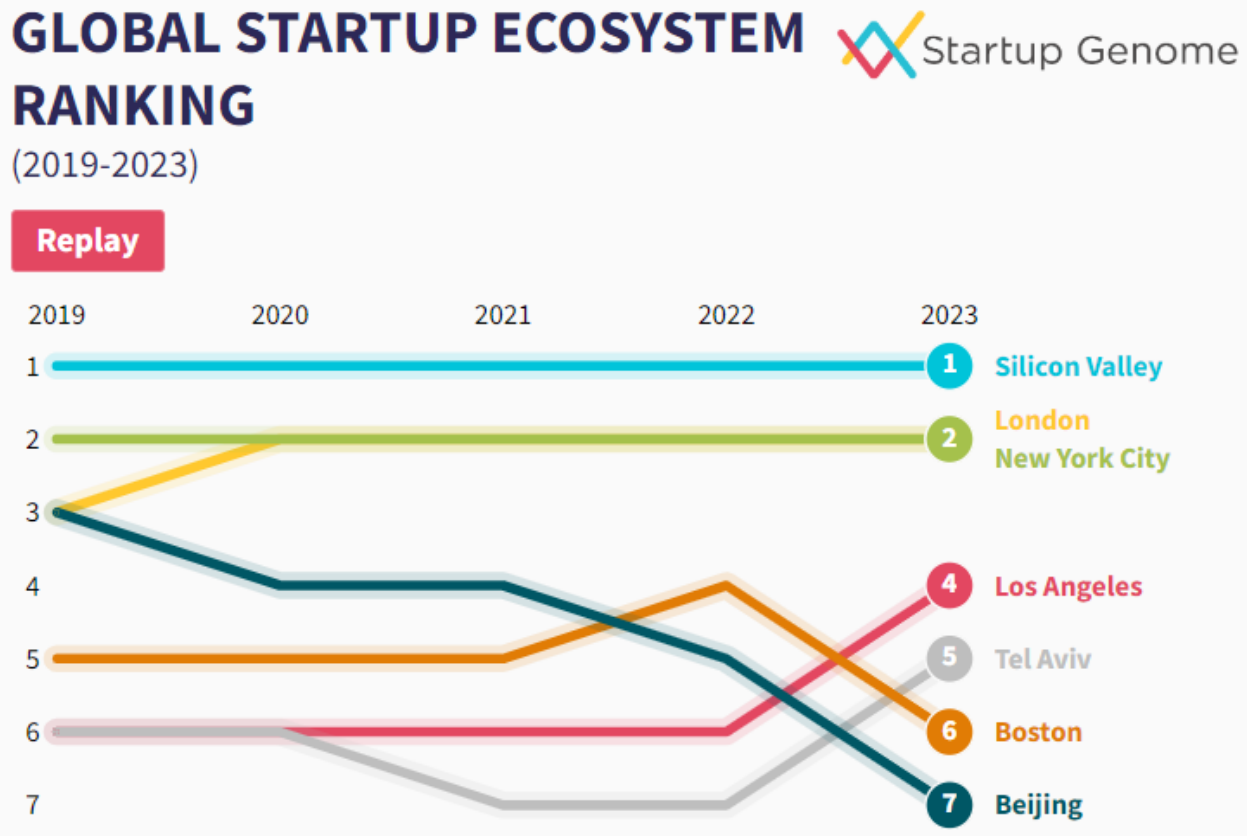
#### **Conclusion:**

- **The Summit for a New Global Financial Pact** is an attempt at redirecting global financial flows and raising new money to fight climate change, and dealing with associated problems like biodiversity loss and poverty.
- Global emissions have to come down by **43% from 2019 levels by 2030 to keep alive hopes of meeting the 1.5-degree target (IPCC)**.
- The international community's responses are currently fragmented, partial and insufficient.
- There is a need to **fundamental overhaul of all discussions on climate change and related actions and finance**.

**Source: Hindu**



### 3. The Global Startup Ecosystem Report 2023 (GSER 2023)



**Topic: Reports and Indices**

**In News:** The Global Startup Ecosystem Report 2023 (GSER 2023) is a comprehensive analysis of the current state of startup ecosystems worldwide.

**More on the Topic:**

- The report has been released by Startup Genome, a policy advisory and research organization.
- India has become the 3rd largest start-up ecosystem in the world after the US and China.
- Mumbai move 5 places up while Bengaluru was ranked 20th in terms of Startups.

**Global Scenario:**

- Silicon Valley, New York City, and London maintain their top positions in the global startup ecosystem rankings.
- Chinese ecosystems have experienced a decline in rankings, with Shenzhen, Beijing, and Shanghai dropping in the overall standings.



- Indian ecosystems, particularly Mumbai, Bengaluru-Karnataka, and Delhi, have shown positive growth in the rankings.

#### **India Start Up Statistics:**

- India is home to as many as 75,000 Startups
- **Global Innovation Index:** India has moved up from 81st (2015) to 46th in 2021 among 130 economies of the world.
- In terms of publications India is Globally ranked 3rd (2021) from 6th in 2013 based on the National Science Foundation database.
- India is ranked Globally 9th (2021) in terms of resident patent filing.

#### **Government's Initiatives for Startups in India:**

- National Initiative for Developing and Harnessing Innovations (NIDHI)
- Startup India Action Plan (SIAP); Ranking of States on Support to Startup Ecosystems (RSSSE)
- Startup India Seed Fund Scheme (SISFS)
- National Startup Awards
- SCO Startup Forum
- The Prarambh-Startup International summit

Source: Hindu

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## **4. Lake Victoria**



**Topic: Environment and Ecology**

**In News:** According to a new study, robust measures needed to minimise disaster impact in Lake Victoria Basin.

**More on the Topic:**

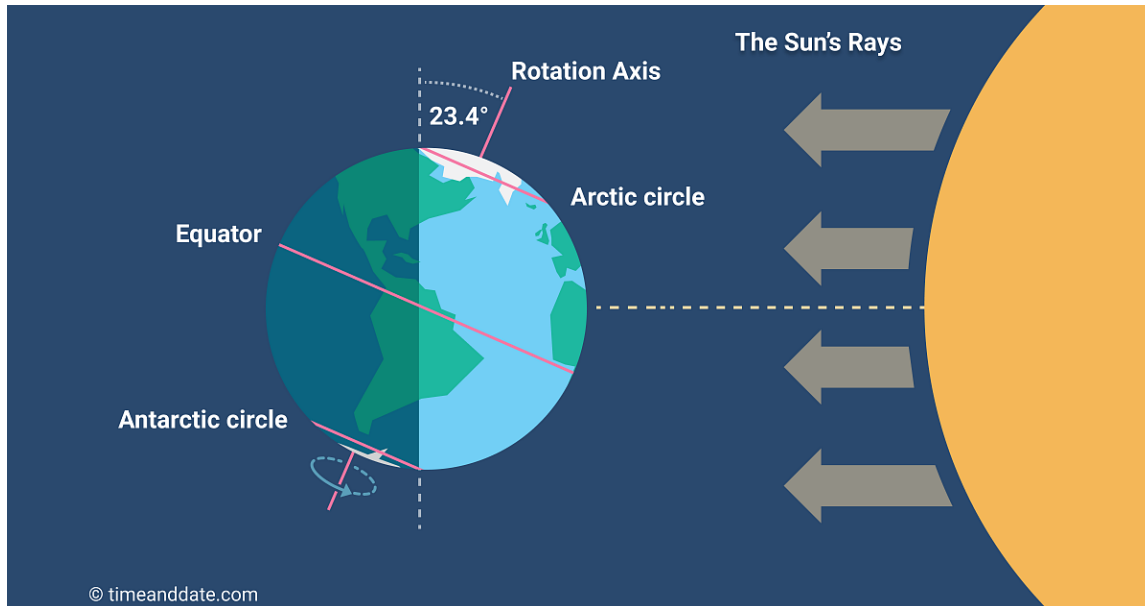
- One of the largest freshwater lakes and fisheries in the world, LVB’s 40 million inhabitants are strongly affected by extreme weather events such as regular flooding.
- In late 2019 and early 2020, Lake Victoria’s water levels were observed at an unprecedented high.

**About Lake Victoria:**

- While the US, Russia and China are in advanced stages of hypersonic missile programmes, **India, France, Germany, Japan and Australia too are developing hypersonic weapons.**
- It is the world’s second-largest freshwater lake.
- **Location:** It is located in East Africa, bordered by **Tanzania, Uganda, and Kenya.**
- It is also called **Victoria Nyanza in Kenya**, Nalubaale in Uganda, and Ukerewe in Tanzania.
- It is a **source of the White Nile River** which flows northward and eventually joins the Blue Nile in Sudan to form the Nile River.

Source: HT

## 5. Summer solstice



**Topic: Geography**

**In News:** Every year, June 21 is marked as the day of the summer solstice in the northern hemisphere of the world, where summer is in the middle of the year, as opposed to the southern hemisphere where summer lies in December.

**More on the Topic:**

- June 21 is the longest day of the year with the shortest night. After this day, the days start getting shorter, slowly and steadily.
- June 21st is the longest day because the pole of the Earth that is tilting to a degree of 23.5 more than its usual tilt. **This tilt makes the Earth receive more direct sunlight onto its surface.**
- On the day of the solstice, the Sun reaches its northernmost position at the Tropic of Cancer, after which it stands still before reversing its direction and moving south again.

**Source:** Hindu

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## 6. BWF Super 1000 title



**Topic: Sports**

**In News:** Satwiksairaj Rankireddy and Chirag Shetty made history by winning India's first-ever BWF Super 1000 title at the Indonesia Open.

**More on the Topic:**

- The BWF Super 1000 title is a prestigious badminton championship organized by the **Badminton World Federation (BWF)**.
- It is one of the highest-level tournaments in the BWF World Tour, featuring top-ranked players from around the world. Super 1000 consists of four tournaments:





- All England Open Badminton Championship
- China Open
- Indonesia Open
- Malaysia Open

Source: Hindu

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## 7. Duck-billed dinosaur



### Topic: Science and Technology

**In News:** Remains of a species of herbivorous dinosaur - Duck billed dinosaur, previously unknown in the southern hemisphere have been discovered in Chile.

#### More on the Topic:

- Measuring up to four meters (13 feet) in length and weighing a ton, **Gonkoken nanoi** lived 72 million years ago in the extreme south of what is now Chilean Patagonia.
- These were slender-looking dinosaurs, which could easily adopt a bipedal and quadrupedal posture to reach the vegetation at height and at ground level.
- The finding suggests that **Chilean Patagonia served as a haven for ancient species of hadrosaurs**, a type of duck-billed dinosaur that was prevalent in North America, Asia, and Europe during the Cretaceous period.
- This discovery expands our understanding of the distribution and evolution of these dinosaurs in the southern hemisphere.
- **Gonkoken nanoi, the fifth species of dinosaur discovered in Chile**, was actually found in 2013, kicking off a decade-long investigation.

Source: Hindu

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