

5 June, 2023

Indo-US Defence Relations

Context: US Defence Secretary Lloyd Austin arrived in India on a two-day visit to enhance bilateral defence cooperation

Evolution of Indo-US Defence Relations

- In the **1990s**, India and the US **initiated parallel tracks of dialogue** on strategic and defence issues.
- The **nuclear tests conducted by India in 1998** led to a shift in the strategic dialogue and the **imposition of US sanctions**.
- In **2008**, India and the US signed a **bilateral civil nuclear cooperation agreement**.
- The **defence dialogue** between India and the US began in **1995**, formalized as the India-US Defence Framework Agreement in 2005 and renewed in 2015 for 10 years.
- The US has become a **major supplier of defence equipment to India, alongside Israel**.
- Significant defence acquisitions from the US include **aircraft, helicopters, howitzers, artillery radars, and naval vessels**.
- The US has signed **defence contracts** worth over \$15 billion with India since 2005.
- The **Defence Technology and Trade Initiative (DTTI)** and the **India Rapid Reaction Cell** were established to facilitate technology access and overcome bureaucratic hurdles.
- India was designated as a "**Major Defence Partner**" by the US in **2016**.
- India's inclusion in the **Strategic Trade Authorization-1 (STA-1) category** has granted it technology access on par with US allies.
- The **transfer of state-of-the-art UAV technology** to India has been approved, marking progress in defence cooperation.
- India and US are also indulged in **Ministerial-level 2+2 dialogues** for Defence Cooperation.
- India is also a **member of QUAD**, which have USA, Australia and Japan as its members

Foundational Agreements:

- **General Security of Military Information Agreement (GSOMIA):**
 - GSOMIA, **signed in 2002**, set security standards for protecting shared information between the Pentagon and India's defense ministry, excluding classified exchanges with Indian private companies.
- **Logistics Exchange Memorandum of Agreement (LEMOA)**
 - LEMOA, **signed in 2016**, enables US-India military cooperation by allowing access to each other's bases, replenishment of supplies, and mutual logistical support, strengthening trust and bridging gaps in cooperation.
- **Communications Compatibility and Security Agreement (COMCASA)**
 - COMCASA, **signed in 2018**, allows the US to provide India with encrypted communications equipment for secure and real-time communication between their military forces, enhancing interoperability and potentially extending to other militaries using US-origin systems.
- **Basic Exchange and Cooperation Agreement (BECA)**
 - BECA, **signed in 2020**, grants India real-time access to American geospatial intelligence, enhancing accuracy in automated systems, weapons, and navigation. It facilitates Air Force cooperation, enables precise targeting, and aids in disaster response, aligning with the commitment made during President Trump's visit.

Military Exercises:

Army	YUDHABHAYAS & VAJRA PRAHAR
Navy	MALABAR (Multilateral)
Air Force	RED FLAG 16-1 & Exercise COPE India 23

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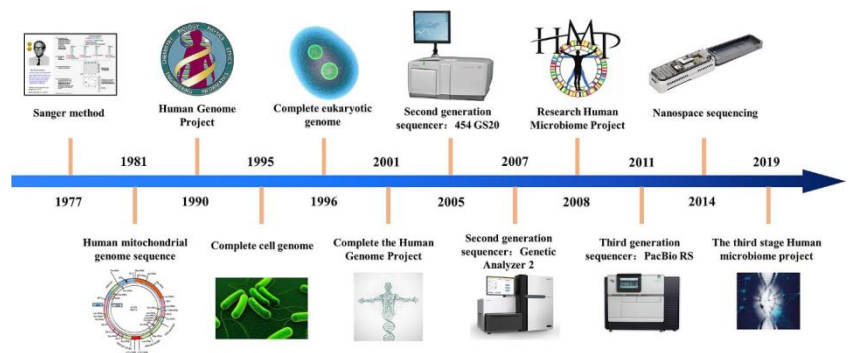
Genome Sequencing

Context: Genome sequencing technologies allow scientists to trace the trail of infectious diseases that ailed people in prehistoric times.

- Recent scientific research has traced the **evolutionary history and adaptation of major human pathogens**, providing valuable insights.
- A study published in iScience screened over 500 tooth and bone samples, **identifying genetic material corresponding to Yersinia pestis**, the pathogen responsible for the **plague**.
- The reconstructed genomes of the pathogen revealed the **absence of genes associated with its ability to bind to mammalian cells and form biofilms, but a functional gene that could make it toxic to fleas**.
- Another study published in Nature Communications sequenced genetic material from ancient human remains in the UK dating back approximately 4,000 years.
- The researchers found **genetic material for Yersinia in three individuals**, confirming the presence of **epidemics during the Late Neolithic Bell Beaker period** in Britain.
- These **findings expand the geographical understanding of Yersinia infections**, extending beyond Eurasia.

What is Genome Sequencing?

- All organisms have a **unique genetic code called a genome**, composed of **nucleotide bases: A, T, C, and G**.
- The sequence of these bases determines the DNA fingerprint of an organism.
- Sequencing is the process of **determining the order of bases in DNA**.
- Whole genome sequencing is a laboratory procedure that determines the complete sequence of bases in an organism's genome in a single process.



Methodology

- **DNA Shearing:**
 - Molecular scissors are used to cut the DNA into smaller pieces.
 - Enables sequencing machine to read the DNA.
- **DNA Barcoding:**
 - Small DNA tags or bar codes are added to identify each piece of DNA.
 - Similar to bar codes used in grocery stores to identify products.
- **DNA Sequencing:**
 - Bar-coded DNA from multiple bacteria is combined and placed in a DNA sequencer.
 - The sequencer identifies the bases (A's, C's, T's, and G's) that make up each bacterial sequence.
 - Bar codes help track which bases belong to which bacteria.
- **Data Analysis:**
 - Computer analysis tools are used to compare sequences from multiple bacteria.
 - Differences in sequences indicate the relatedness and likelihood of belonging to the same outbreak.
 - Number of differences can provide insights into the bacteria's relationships.

Genome India Project

- India's diverse population of 1.3 billion consists of over 4,600 endogamous groups with unique genetic variations and disease-causing mutations.
- The Genome India Project (GIP), inspired by the Human Genome Project, aims to **create a database of Indian genomes**.

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- **Launched in 2020**, the project focuses on understanding genetic variations and disease-causing mutations specific to the Indian population.
- Researchers aim to uncover **genetic causes of diseases** and **develop personalized therapies** through sequencing and analyzing Indian genomes.
- The GIP involves collaboration among 20 institutions, led by the **Centre for Brain Research at the Indian Institute of Science in Bangalore**.

World Environment Day (WED) and India Net-Zero Target

World Environment Day is celebrated every year on the **5th of June**. The theme of 2023 is **“Solution to Plastic Pollution”**.

About WED

- World Environment Day was **established by the United Nations Assembly in 1972** during the **Stockholm Conference**.
- Each year, it is celebrated with a specific theme and slogan focusing on major environmental concerns.
- The celebration is **hosted by a different country** annually.
- **India hosted the 45th World Environment Day with the theme 'Beat Plastic Pollution'**.
- The celebration of 2021 also marked the beginning of the **UN Decade on Ecosystem Restoration (2021-2030)**.
- The initiative aims to **revive billions of hectares of ecosystems** worldwide, from forests to farmlands and mountains to seas.

India's Goal for Net Zero

- A Net Zero State refers to a country's emissions **being compensated by the removal of greenhouse gases** from the atmosphere.
- This state is also **known as carbon-neutrality**.
- It involves natural processes and advanced technologies like carbon capture and storage.
- Hon. PM Narendra Modi's **Panchamrit strategy** was announced at **COP 26**.
 - India aims to increase its **non-fossil fuel energy capacity to 500 GW** by 2030.
 - The goal is to **meet 50% of energy requirements from renewable sources** by 2030.
 - India plans to **reduce projected carbon emissions by 1 billion tonnes** from now until 2030.
 - The target is to bring down the **carbon intensity of the economy to less than 45%**.
 - India aims to achieve **net zero emissions by 2070**.
- India has updated its Nationally Determined Contribution (NDC) in alignment with this strategy.

LiFE Movement

At **UNFCCC COP26**, **PM Modi** announced Mission LiFE, aiming to **shift from a destructive 'use-and-dispose' economy to a mindful circular economy**.

Approach:

- **Make Life a Mass Movement (Jan Andolan)**: Emphasize individual and community behaviors and attitudes to drive widespread climate action.
- **Co-create Globally**: Source innovative ideas from top universities, think tanks, and international organizations worldwide to address climate challenges.
- **Leverage Local Cultures**: Utilize climate-friendly social norms, beliefs, and daily practices of diverse cultures to promote sustainable behaviors.

Other initiatives:

- **Glasgow Climate Meet (COP26)**: Strengthened the Paris Agreement by enhancing the Pledges mechanism for countries to increase their climate commitments over time.
- **International Solar Alliance (ISA)**: Joint effort by India and France to promote solar energy solutions and combat climate change.
- **National Schemes**: Implementation of various national initiatives such as the **National Action Plan on Climate Change**, **National Clean Air Programme (NCAP)**, and **National Biofuel Policy**.

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NEWS IN BETWEEN THE LINES

Himachal and Punjab Locked in Faceoff Over Shanan Power Project

Context: Himachal Pradesh and Punjab are on the verge of a confrontation as the lease on the Shanan hydropower project, a 110 MW British-era project located in Mandi district, Himachal Pradesh.

Key Highlights:

- The 99-year lease on the Shanan power project, granted to Punjab by the ruler of Mandi, is set to end in March 2024.
- Himachal Pradesh is unwilling to renew or extend the lease and intends to take over the project after its expiration.
- Himachal Pradesh seeks the intervention of the central government to ensure the handover of the project from Punjab before the lease period expires.
- Punjab is determined to retain control of the Shanan power project and may resort to legal action if necessary.
- The Shanan power project, with a capacity of 110 MW, was conceived in 1922 and commissioned in stages, starting from 1932, following the execution of the lease agreement in 1925.



NATO Chief Urges Turkey to Withdraw Veto on Sweden's Bid

Context: NATO Secretary-General Jens Stoltenberg has called on Turkey to abandon its opposition to Sweden's bid to join the U.S.-led defense alliance.

Key Highlight:

- NATO Secretary-General Jens Stoltenberg has urged Turkey to remove its veto on Sweden's bid to join the alliance.
- Stoltenberg emphasized that Sweden's NATO membership would enhance the security of both Sweden and the alliance as a whole.
- The NATO chief expressed his eagerness to finalize Sweden's accession without delay.
- Turkish President Erdogan has accused Sweden of harboring "terrorists," particularly members of the Kurdistan Workers' Party (PKK), a group that Turkey and its Western allies have designated as a terrorist organization.
- Stoltenberg acknowledged that Sweden has taken significant steps to address Turkey's concerns and fulfill its obligations.
- The pressure is mounting on Turkish President Recep Tayyip Erdogan to approve Sweden's NATO membership ahead of an upcoming summit in Vilnius, Lithuania.



Saudi Arabia Announces 1 Million Barrels per Day Cut in Oil Output

Context: Saudi Arabia has declared its intention to reduce the supply of oil to the global economy as a unilateral move to support declining crude oil prices. This decision comes after previous supply cuts by major oil-producing countries in the OPEC+ alliance failed to achieve the desired price increase.

Key Highlight:

- Saudi Arabia has decided to reduce its oil output by 1 million barrels per day starting in July to help stabilize crude oil prices.
- The OPEC+ alliance, during a meeting in Vienna, agreed to extend previous production cuts until the end of 2024.



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	➤ Saudi Energy Minister Abdulaziz bin Salman hailed the agreement as unprecedented and expressed confidence in bringing stability to the oil market. ➤ The reduction in oil prices has benefited consumers globally by offering relief from inflation and lower gasoline costs. ➤ There is a possibility that the latest production cut may lead to an increase in oil prices and subsequently raise gasoline costs.
The Annual Flight of the Amur Falcon: A Grand Event Tainted by Hunting	Context: Every year, the arrival of the Amur falcon in northeastern India, specifically in states like Manipur, Nagaland, and Assam, marks a remarkable spectacle. Key Highlights: ➤ The Amur falcon is known for its long migratory journey and breeds in Siberia and northern China before heading to southern Africa. ➤ During their migration, the Amur falcons pass through northeastern India, particularly in states like Manipur, Nagaland, and Assam. ➤ The arrival of these birds in villages such as Pangti in Nagaland and Nuisa in Arunachal Pradesh is a spectacular sight that attracts birdwatchers. Concern: ➤ Unfortunately, the Amur falcons are also hunted using shotguns and catapults, and in the past, roasted falcons have been observed on sale in local markets. ➤ Some Amur falcons are captured and tagged with satellite trackers to gather valuable data on their migratory patterns. Conservation: ➤ Local authorities and conservationists conduct awareness programs to discourage hunting and safeguard the roosting areas of these magnificent birds. 
The Places of Worship Act, 1991	Context: The Places of Worship Act, 1991, arises from a recent case filed by five women seeking permission to worship Hindu deities at the Gyanvapi Mosque in Varanasi. Key highlights: ➤ The Places of Worship Act aims to maintain the religious character of places of worship as it existed on August 15, 1947, and prevent their conversion to different religious denominations. ➤ It is applicable to all religious denominations in India. ➤ The Act provides exemptions for certain cases, including the disputed site at Ayodhya. ➤ Other exemptions include ancient and historical monuments or archaeological sites, settled disputes and conversions that occurred by acquiescence before the Act came into effect. ➤ The Act has faced criticism for potentially barring judicial review, which is considered a fundamental aspect of the Indian Constitution. Provisions: ➤ The Act's key provisions include: ➤ Section 3: It prohibits the conversion of a place of worship into a different religious denomination or segment. ➤ Section 4: It declares that the religious character of a place of worship shall remain the same as it existed on August 15, 1947. It also addresses pending legal proceedings related to religious conversions. ➤ Section 5: The Act explicitly excludes the Ram Janma Bhumi-Babri Masjid dispute in Ayodhya from its purview. ➤ Section 6: It specifies the punishments for contravening the provisions of the Act, attempting to commit an offense, or abetting such offenses. ➤ Section 7: The Act's provisions take precedence over any inconsistent laws or instruments.

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