

DAILY CURRENT AFFAIRS (DCA)

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19TH EAST ASIA SUMMIT

Context

- The Prime Minister of India recently addressed the 19th East Asia Summit (EAS) in Vientiane, Lao PDR.

Key Highlights

- The PM emphasized that a **free, open, inclusive, prosperous and rule-based Indo-Pacific** is important for the peace and progress of the entire region.
- India stressed that maritime activities should be conducted under the **UN Convention on the Law of the Seas (UNCLOS)** to ensure freedom of navigation and air space.
 - ♦ Also a strong and effective **Code of Conduct** should be created.

East Asia Summit (EAS)

- **Origin:** The origins of EAS dates back to the 1990 proposal for an East Asian Economic Grouping (EAEG).
 - ♦ The project was later revived through the **ASEAN Plus Three or APT (China, Japan, and South Korea)** Summit of Heads of State and Government that first met in Kuala Lumpur in December 1997.
 - ♦ It eventually found expression through the creation of the **EAS in 2005**, with 16 members. The United States and Russia joined in **2011**.
- **Members:** There are 18 members;
 - ♦ **The 10 ASEAN** (Association of Southeast Asian Nations) members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.
 - ♦ **8 non-ASEAN members:** Australia, China, India, Japan, New Zealand, Russia, South Korea, and the United States.
- **Lead & the Chair position:** ASEAN leads the forum, and the chair position rotates between ASEAN Member States annually.

Significance of East Asian region

- **Economic Growth:** East Asia is home to some of the world's largest and fastest-growing economies, including China, Japan, and South Korea.
 - ♦ The region is known as the **factory of the world**.
- **Diplomatic Hotspot:** As a zone of interaction for major global powers like the US, China, and Russia, the region is critical for international diplomacy and geopolitical negotiations, influencing global peace and stability.

- **Great Power Rivalries:** East Asia is a focal point for great power competition, particularly between the United States and China. The region plays a key role in shaping the dynamics of global power and influence.
- **Strategic Waterways:** The region includes vital shipping lanes such as the South China Sea and the East China Sea, where disputes over territorial claims add to its geopolitical importance.

Challenges

- **Territorial Disputes:** Ongoing territorial disputes in the South China Sea and East China Sea involve multiple countries, including China, Vietnam, the Philippines, Japan, and Taiwan, leading to increased military tensions and instability.
- **Regional Alliances:** The emergence of military alliances and partnerships in the region, such as the **Quad (Quadrilateral Security Dialogue)** involving the US, Japan, Australia, and India, complicates India's relations with its neighbors and other East Asian countries.
- **Regional Trade Agreements:** India's decision to opt out of the **Regional Comprehensive Economic Partnership (RCEP)** limits its access to East Asian markets.

Way Ahead

- India's engagement with the East Asian region is characterized by a complex interplay of opportunities and challenges in the realm of international relations.
- Navigating geopolitical rivalries, economic competition, and diverse political landscapes requires a multifaceted approach, balancing national interests with the necessity of fostering cooperative and constructive relationships in this strategically vital region.

Source: TH

INDIA-CANADA DIPLOMATIC ROW

In News

- India decided to withdraw its High Commissioner and other affected diplomats and officials from Canada.

India-Canada Bilateral Relations

- **Foundation of Ties:** India-Canada relations are based on shared values of democracy, cultural diversity, economic engagement, and people-to-people connections.
- **High-Level Exchanges:** In 2015, PM Modi visited Canada, leading to multiple agreements.
 - ♦ In 2018, Trudeau visited India, signing six agreements in various sectors.

- ◆ **COVID-19 Cooperation:** Leaders discussed vaccine collaboration and evacuation of stranded citizens.
- ◆ **G-7 Meeting (2022):** The two PMs met to enhance bilateral relations.
- ◆ **G20 Summit (2023):** Trudeau attended the summit in India and met Modi.
- **Bilateral Mechanisms:** Established dialogues in trade, energy, and foreign affairs, with recent consultations in 2023.
- **Security Cooperation:** Counter-terrorism efforts under a Joint Working Group established in 1997.
- **Civil Nuclear Cooperation:** An agreement signed in 2010 for peaceful nuclear energy uses, with implementation oversight by a Joint Committee.
- **Energy Cooperation:** Expanded Ministerial level Energy Dialogue since 2018 to include renewables.
- **Space Collaboration:** MoUs signed for satellite tracking and astronomy; ISRO has launched Canadian satellites.
- **Economic Relations:** Total bilateral trade in 2023 reached USD 9.36 billion, with significant service trade.
 - ◆ Canadian investments in India exceed CAD 75 billion, with over 600 Canadian companies operating in India.
 - ◆ **Exports:** Pharmaceuticals, electronic goods, jewelry, seafood, engineering goods.
 - **Imports:** Minerals, pulses, potash, and chemicals.
- **Science and Technology Cooperation:** Multiple MoUs signed for research and technological collaboration.
- **Education:** Largest foreign student demographic in Canada is Indian, with around 427,000 students.
- **People-to-People Relations:** Canada has a significant Indian diaspora (approximately 1.8 million), contributing to its economy and society.
- **Cultural Exchanges:** Co-production agreements in films and joint initiatives between Canada Post and India Post.
 - ◆ ICCR chairs established at various Canadian universities to foster cultural cooperation.

Diplomatic row

- In September 2023, Canadian PM Trudeau alleged Indian involvement in the murder of Hardeep Singh Nijjar, which India rejected.
- India advised its nationals in Canada and suspended visa services for Canadians.
 - ◆ Visa Resumption: Services resumed in specific categories in October and e-visas for certain categories in November 2023.

- The Ministry of External Affairs said the “unsubstantiated allegations” sought to shift focus away from “Khalistani terrorists and extremists who have been provided shelter in Canada”.
- Concerns were raised about the safety of Indian diplomats, stating that the Trudeau Government’s actions contribute to an atmosphere of extremism and violence

Future Outlook

- The Government of India strongly rejects preposterous imputations and ascribes them to the political agenda of the Trudeau Government that is centered around vote bank politics
- India indicated it reserves the right to take further actions in response to what it perceives as the Trudeau Government’s support for extremism and violence against India.

Source:TH

TREATMENT OF RARE DISEASES

Context

- The Delhi High Court issued directions aimed at improving the availability of orphan drugs, which are medications used to treat rare diseases.

What are Rare Diseases?

- Rare diseases, also known as **orphan diseases**, are conditions that occur infrequently within a population.
 - ◆ **They are characterized by three key markers:** Total number of people with the disease, Prevalence and Availability /Non-availability of treatment options.
- **The World Health Organization (WHO)** defines a rare disease as a condition that affects a small percentage of the population, typically fewer than 1 in 1,000 to 2,000 people.

Status of rare diseases in India

- Around **55 medical conditions**, including Gaucher’s disease, Lysosomal Storage Disorders (LSDs), and certain forms of muscular dystrophy are classified as rare diseases in India.
- **The National Registry for Rare and Other Inherited Disorders (NRROID)** started by the Indian Council of Medical Research (ICMR) has the records of 14,472 rare disease patients in the country.

Challenges in the Treatment of Rare Diseases

- **Limited Availability:** Less than 5% of rare diseases have available therapies, leaving fewer than 1 in 10 patients with access to disease-specific care.

- **High Cost:** Many rare disease treatments are patented, leading to high prices due to limited market size and high development costs.
 - ♦ Pharmaceutical companies find it unprofitable to produce these drugs, further driving up costs.
- **Delays in approval processes:** the National Rare Diseases Committee discussed delays in the Drug Controller General of India (DCGI) approving Sarepta Therapeutics' medicines, leaving patients without timely access.
- **Unequal Treatment Across Groups:** While limited assistance is available for Group 1 and Group 2 diseases, Group 3 patients face significant financial and healthcare barriers.
 - ♦ The government should offer incentives such as **tax breaks and subsidies** to encourage pharmaceutical companies to invest in research and production of rare disease treatments.
- **Leveraging the Patents Act of 1970:** If treatments for rare diseases are unavailable or unaffordable, the government can use provisions under the Patents Act, 1970, to enable third-party manufacturing of patented drugs.
- **Faster approval** processes for life-saving therapies will ensure that patients get quicker access to essential treatments.
- **A sustainable, long-term funding mechanism** needs to be established, especially for Group 3 rare diseases, to cover both immediate and lifelong treatment costs.

National Policy for Rare Diseases (NPRD), 2021

- It was launched in **2021**, under which financial assistance up to Rs 50 lakh is provided to patients receiving treatment at an identified Centre of Excellence (CoE).
- In India, rare diseases are categorized into three groups based on the nature and complexity of available treatment options.
 - ♦ **Group 1** includes diseases that can be treated with a one-time curative procedure.
 - ♦ **Group 2** diseases require long-term or lifelong treatment which are relatively less costly and have shown documented benefits, but patients need regular check-ups.
 - ♦ **Group 3** diseases are those for which effective treatments are available, but they are expensive and must often continue lifelong.

Other initiatives taken in India

- The Health Ministry has opened a **Digital Portal for Crowdfunding & Voluntary Donations** with information about patients and their rare diseases.
 - ♦ Donors can choose the CoE and patient treatments they wish to support.
- Each CoE also has its own **Rare Disease Fund**, which is used with approval from its governing authority.
- The Department of Pharmaceuticals has launched the **Production Linked Incentive (PLI) Scheme** for Pharmaceuticals, offering financial incentives to selected manufacturers for **domestic production of orphan drugs**.

Way Ahead

- **Domestic Manufacturing:** Developing and manufacturing orphan drugs within India can significantly reduce costs.

Source: IE

HABER-BOSCH PROCESS

Context

- The Haber-Bosch process transformed agricultural practices and played a significant role in feeding the growing global population.

What is the Haber-Bosch process?

- **The Haber-Bosch process** is a crucial industrial method for **synthesizing ammonia** from nitrogen and hydrogen gasses.
- **The process involves** the reaction of nitrogen (N_2) from the air with hydrogen (H_2), derived from natural gas or other fossil fuels, to produce ammonia (NH_3).
 - ♦ The gases are mixed and passed over the **catalyst at high temperatures** and pressures, facilitating the formation of ammonia.
- Ammonia produced is also a **precursor for various chemicals**, including nitric acid and explosives.

Need for the process

- Nitrogen (N_2) makes up approximately **78% of the Earth's atmosphere**, existing primarily as diatomic nitrogen molecules.
- However plants cannot utilize atmospheric nitrogen directly; they need reactive forms of nitrogen, such as **ammonia (NH_3)**, **ammonium (NH_4^+)**, or **nitrates (NO_3^-)**, for their growth and development.

Natural Nitrogen Sources

- **Lightning** can break the $N\equiv N$ bond, producing nitrogen oxides, which then combine with water to form nitric acid (HNO_3) and nitrous acid (HNO_2), contributing reactive nitrogen to the soil.

- ◆ However, this natural replenishment is limited.
- **Certain bacteria, such as Azotobacter and Rhizobia**, can fix atmospheric nitrogen, but their contribution is insufficient to meet the demands of modern agriculture.

The Role of the Haber-Bosch Process

- **Increases Fertilizer Supply:** By producing ammonia on an industrial scale, it ensures the availability of nitrogen fertilizers, essential for enhancing soil fertility and increasing crop yields.
- **Global Food Security:** The ability to produce nitrogen fertilizers in large quantities has significantly contributed to food security, enabling the world to sustain its growing population.

Concerns

- **Excessive Nitrogen Application:** In many countries, the application of nitrogen fertilizers exceeds 50 kg per capita annually, far more than the average adult's body nitrogen content of 1-2 kg.
- **Nutrient Runoff:** Surplus nitrogen from fertilizers runs off into freshwater and coastal waters, causing eutrophication.
- **Soil Acidification:** The extra reactive nitrogen leach into the soil, leading to acidification. This alters soil chemistry, negatively affecting soil health and reducing its fertility over time.
- **Air Pollution:** Nitrogen fertilizers release **nitrous oxide (N₂O)**, a potent greenhouse gas that contributes to climate change.

Way Ahead

- The Haber-Bosch process has been a cornerstone of modern agriculture, contributing to increased food production and improved human lifespan.
- To ensure a sustainable future, it is essential to balance the benefits of synthetic fertilizers with the need for ecological health and social equity.

Source: TH

X-BAND RADAR

Context

- After devastating floods and landslides in **Kerala's Wayanad district** in July 2024, the Union Ministry of Earth Sciences approved an **X-band radar to be installed in the district**.

What is Radar?

- Radar is short for '**radio detection and ranging**'. The device uses radio waves to determine the **distance, velocity, and physical characteristics of objects** around the device.

- **Working:** A transmitter emits a signal aimed at an object whose characteristics are to be ascertained (in meteorology, this could be a cloud).
 - ◆ A part of the emitted signal is echoed by the object back to the device, where a receiver tracks and analyses it.
- **Weather radar**, also known as a Doppler radar, is a common application of this device.
 - ◆ The Doppler effect is the change in frequency of sound waves as their source moves towards and away from a listener.
- **Application:** In meteorology, Doppler radars can reveal how fast a cloud is moving and in which direction based on how the cloud's relative motion changes the frequency of the radiation striking it.
 - ◆ This way, modern Doppler radars can monitor weather conditions and anticipate new wind patterns, the formation of storms, etc.

X-band Radar

- A radar trying to 'see' **smaller particles like rain droplets or fog** will need to use radiation of lower wavelengths, like in the **X-band**.
 - ◆ An X-band radar is radar that emits radiation in the X-band of the **electromagnetic spectrum: 8-12 GHz**, corresponding to wavelengths of around 2-4 cm.
- **Significance:** The smaller wavelengths allow the radar to produce images of higher resolution.

Use of Radars in India

- The India Meteorological Department (IMD) started using radar for weather applications in the **early 1950s**.
- **The first indigenously designed** and manufactured X-band storm detection radar was installed in **1970** in New Delhi.
 - ◆ **In 1996**, IMD replaced 10 outdated X-band radars with digital X-band radars.
- India also uses **S-band radars** (2-4 GHz) for long-range detection.
 - ◆ The first S-band cyclone detection radar was installed in Visakhapatnam in 1970 and the first locally made variant was commissioned in Mumbai in 1980.
- **Mission Mausam:** The Union Cabinet cleared 'Mission Mausam' to upgrade meteorological infrastructure in the country.
 - ◆ This includes installing up to 60 meteorological radars until 2026 under the first phase.

NISAR

- It is jointly developed by NASA and ISRO named as '**NASA-ISRO Synthetic Aperture Radar**' (NISAR).

- It will use **radar imaging** to produce a **high-resolution map of the earth's landmasses**.
 - ♦ Its payload consists of an L-band and S-band radar, together they will track and record changes in the earth's various natural processes.
- It is currently expected to be launched onboard an ISRO GSLV Mk II rocket in 2025.

Source: TH

NEWS IN SHORT

CHINA HOLDS MILITARY DRILLS NEAR TAIWAN

Context

- **China** launched military exercises with ships and aircraft near Taiwan, days after the latter observed its **113th National Day**.

About Taiwan

- Earlier known as **Formosa**, Taiwan is a **tiny island in the East China Sea** off the east coast of China.
- Much of the **world's global supply chain of semiconductors** is reliant on Taiwan.
- Taiwan observes **October 10 — “double 10”** — as its national day.



- **China and Taiwan:** Taiwan, officially the Republic of China (RoC), is **self-administered** and views itself as a **sovereign state**, while the People's Republic of China (PRC) sees Taiwan as a breakaway province to be “reunified” with the mainland as part of its **One China policy**.
 - ♦ Only 11 countries recognise Taiwan, most are very small, remote island nations.
 - ♦ The rest of the world follows the One China policy, diplomatically acknowledging the Chinese position that there is only one Chinese government.
 - ♦ India does not have formal diplomatic ties with Taiwan yet, as it follows the One-China policy.

Source: IE

INDIA, COLOMBIA SIGNED AUDIOVISUAL CO-PRODUCTION AGREEMENT

Context

- India & Colombia have signed the **Audiovisual Co-Production Agreement**.

About

- **A co-production** is a joint venture between two or more different production companies for the purpose of producing a feature film, television/web show or series and so on.
 - ♦ In the case of an international co-production, production companies from different countries (typically two to three) work together for producing content across different media platforms.
- The agreement is expected to **benefit producers from both the countries** in pooling their creative, artistic, technical, financial and marketing resources for the co-production.
 - ♦ It will also lead to **exchange of art and culture** among the two countries.
- Currently, India has co-production treaties with **16 countries**, resulting in 29 projects over the last five years.
 - ♦ Colombia is the **17th country** with which India is signing a Co-Production Agreement.

Source: PIB

PMECRG & MAHA-EV INITIATIVES

Context

- The Anusandhan National Research Foundation announced the launch of the Prime Minister Early Career Research Grant (PMECRG) and the Mission for Advancement in High-Impact Areas -Electric Vehicle (MAHA- EV) Mission.

About

- **The PMECRG** invites early career researchers to join the country's transformative journey and contribute to the advancement of India's scientific excellence and innovation.
- **The MAHA- EV Mission** is designed to build a robust research and development ecosystem for Electric Vehicle (EV) components, particularly Battery Cells, Power Electronics, Machines, and Drives (PEMD) and Charging Infrastructure.
- **Significance:** Both initiatives aim to play a transformative role in bridging the gap between academic research and industrial application.

Anusandhan National Research Foundation (ANRF)

- **Background:** ANRF has been established with the Anusandhan National Research Foundation (ANRF) 2023 Act.
- **The ANRF aims** to seed, grow and promote research and development (R&D) and foster a culture of research and innovation throughout India's universities, colleges, research institutions, and R&D laboratories.
- **ANRF will act as an apex body** to provide high-level strategic direction of scientific research in the country as per recommendations of the **National Education Policy (NEP)**.
 - ◆ **The Science and Engineering Research Board (SERB)** established by an act of Parliament in 2008 has been subsumed into ANRF.
- **The Department of Science and Technology (DST)** is the administrative Department of NRF.
- **Governance:** NRF is governed by a Governing Board consisting of eminent researchers and professionals across disciplines.
 - ◆ **Ex-officio President of the Board:** Prime Minister
 - ◆ **Ex-officio Vice-Presidents:** Union Minister of Science & Technology & Union Minister of Education.

Source: AIR

NOBEL ECONOMICS PRIZE 2024

Context

- The 2024 Economics Nobel prize was awarded to Daron Acemoglu, Simon Johnson and James A Robinson **“for studies of how institutions are formed and affect prosperity.”**

About

- The model for explaining the circumstances under which political institutions are formed and changed has three components.
 - ◆ **The first** is a conflict over how resources are allocated and who holds decision-making power in a society (the elite or the masses),
 - ◆ **The second** is that the masses sometimes have the opportunity to exercise power by mobilizing and threatening the ruling elite; power in a society is thus more than the power to make decisions,
 - ◆ **The third** is the commitment problem, which means that the only alternative is for the elite

to hand over decision-making power to the populace.

Nobel Economics Prize

- The award is officially known as the **Bank of Sweden Prize in Economic Sciences** in Memory of Alfred Nobel.
- This prize was established in **1968** by the central bank of Sweden as a memorial to Alfred Nobel.
 - ◆ He is a **19th-century** Swedish businessman and chemist, is known for inventing dynamite and establishing the five original Nobel Prizes.
- The first winners of the economics prize, in **1969**, were **Ragnar Frisch and Jan Tinbergen**.

Source: HT

ALGERIA

In News

- President Droupadi Murmu is scheduled to attend various programmes in Algeria

About Algeria

- Algeria, officially The People's Democratic Republic of Algeria
- It is a country in the Maghreb region of North Africa on the Mediterranean coast.
- It is bordered in the northeast by Tunisia, in the east by Libya and in the west by Morocco, in the southwest by Western Sahara, Mauritania, and Mali, in the southeast by Niger



- Its Arabic name, Al Jazair means the islands.
- **Political independence:** The country achieved political independence in 1962 after more than a century of colonial period.
- **Economy:** The oil and gas sector is the backbone of the economy. The country's other natural resources include iron ore, phosphates, uranium and lead.
 - ◆ Algeria joined OPEC in 1969.

- **History:** Formerly known as the Kingdom of Numidia, notable kings include Syphax, Massinissa, and Jugurta (2nd-3rd century BC).
 - ♦ First commercial oil discovery: Edjelleh in 1956, followed by the Hassi Messaoud oil field in the same year, with production starting in 1958.

Source: Air

NATIONAL WATER AWARDS

In News

- The Hon'ble Union Minister of Jal Shakti, Shri C.R. Paatil, announced the winners of the 5th National Water Awards.

Winners:

- A total of 38 winners were announced across 9 categories:
 - ♦ Best State: Odisha (1st), Uttar Pradesh (2nd), Gujarat and Puducherry (joint 3rd).

National Water Awards

- The National Water Awards were first launched in 2018, with subsequent awards given in 2019, 2020, and 2022.
 - ♦ No awards were given in 2021 due to the COVID-19 pandemic.
- For 2023, the awards were launched on the Rashtriya Puraskar Portal, receiving 686 applications, which were evaluated by a Jury Committee and verified through ground truthing by the Central Water Commission and Central Ground Water Board.
- **Significance:** The awards aim to recognize efforts in water management and conservation, promoting public awareness of the importance of water usage practices.
 - ♦ The initiative supports the government's vision of a 'Jal Samridh Bharat' (Water Prosperous India).

Source: PIB

11TH INDIA SWEDEN INNOVATION DAY

In News

- Union Minister Dr. Jitendra Singh emphasized the need for enhanced collaboration between India

and Sweden in research and innovation during the 11th India-Sweden Innovation Day.

About Day

- The theme for 2024 is "Accelerating Green Growth for Inclusive Transition."
- Research and innovation are central to the India-Sweden partnership, with ongoing collaborations between universities and private sectors.
 - ♦ Sweden ranks 2nd among 39 European economies and 2nd globally in the Global Innovation Index (GII) 2024.
 - ♦ India ranked 1st among Central and Southern Asian economies and 39th globally in the Global Innovation Index.
- The partnership focuses on green technology through initiatives like LeadIT 2.0, targeting low-carbon transitions and sustainable energy.
 - ♦ This collaboration aims for **net-zero emissions by 2050**, particularly in sectors like steel and aviation.
- **Venus Mission Collaboration:** Sweden has joined ISRO's Venus Orbiter Mission, providing a key component for the mission.
- **International Cooperation:** India is actively participating in international mega-science projects, showcasing its capabilities in innovation and R&D.

Source: PIB

COLUMBUS DAY

Context

- The second Monday of October is observed in the United States as Columbus Day.

About

- The day is celebrated to commemorate the landing of Christopher Columbus in the Americas on **October 12, 1492**.
- **Legacy:** Columbus' voyages symbolize the Age of Exploration, which led to profound changes in global history.
 - ♦ It also ushered in an era of colonization and exploitation that continues to be debated today.

Source: IE

