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46TH ANTARCTIC TREATY CONSULTATIVE MEETING

Context

- India successfully concluded **hosting of the 46th Antarctic Treaty Consultative Meeting (ATCM-46) and the 26th Committee on Environmental Protection (CEP-26)**.

About

- The ATCM-46 and CEP-26 were hosted by the **Ministry of Earth Sciences** through the National Centre for Polar and Ocean Research (NCPOR), Goa, with support from the Antarctic Treaty Secretariat headquartered in Argentina.
- The ATCM-46 was held with the overarching **theme of Vasudhaiva Kutumbakam**, a Sanskrit phrase that means one Earth, one family, one future.
- The event witnessed the reaffirmation of the **Antarctic Treaty (1959)** and the **Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol, 1991)** by the Parties.

More about the News

- The ATCM and CEP are **crucial global forums** for Antarctic affairs **convened annually** that set collective and concerted dialogue and action towards preserving one of Earth's most pristine and fragile ecosystems.
- An additional working group discussed the **development of a tourism framework** for the southern white continent this year.
- Following the advice of the CEP, the Parties **adopted 17 revised and new management plans for ASPAs** (Antarctic Specially Protected Areas).
- The ATCM also encouraged **efforts to increase renewable energy use and to ensure robust implementation of biosecurity measures** to minimize the risks of Highly Pathogenic Avian Influenza.

Significance of Research in Antarctica

- Climate Change and Global Warming:** Antarctica plays a crucial role in regulating Earth's climate. The Research helps scientists understand the dynamics of ice melting, sea level

rise, and the impact of climate change on the polar regions and beyond.

- Ozone Layer Depletion:** Research in Antarctica monitors the recovery of the ozone layer and helps assess the effectiveness of international agreements, such as the Montreal Protocol, in addressing ozone-depleting substances.
- Space Analog:** Antarctica's extreme conditions, including low temperatures and isolation, make it an ideal analog for studying the challenges humans might face in future space exploration, such as missions to Mars.
- Scientific Discovery:** Antarctica provides opportunities for the discovery of the remains of ancient organisms, meteorites, and insights into Earth's geological history.

India and Antarctica

- Antarctic Treaty:** The Treaty covers the area south of **60°S latitude**. It was signed at **Washington D.C. in 1959** with the objective of the Demilitarisation of Antarctica.
 - The signatories are supposed to bring laws so that no activity in contravention of the treaty takes place. **India signed** the treaty in **1983**.
- The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR):** CCAMLR was signed in Canberra in **1980** to protect and preserve the Antarctic environment and, particularly, for the preservation and conservation of marine living resources in Antarctica.
 - India ratified** the CCAMLR in **1985**.
- Madrid Protocol:** The Protocol on the Environmental Protection to the Antarctic Treaty (Madrid Protocol) was signed in **Madrid in 1991**. It aims to strengthen the Antarctic Treaty system and develop a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems.
 - India ratified** the **Madrid Protocol** in **1998**.
- Council of Managers of the National Antarctic Programme (COMNAP)**
 - India is also a member of the COMNAP and the Scientific Committee of Antarctica Research (SCAR), which shows the significant position that India holds among the nations involved in Antarctic research.

About Antarctica

- **Antarctica** is the world's **southernmost and fifth largest** continent. It is also the world's highest, driest, windiest, coldest, and iciest continent.
- The continent is divided into **East Antarctica (Greater Antarctica)** and **West Antarctica (Lesser Antarctica)**. They are separated by **Transantarctic Mountains**.
- **East Antarctica** is composed of older, igneous and metamorphic rocks whereas West Antarctica, is made up of younger, volcanic and sedimentary rock.
 - ♦ West Antarctica, is part of the **"Ring of Fire,"** a tectonically active area around the Pacific Ocean.
- **Mount Erebus**, located on Antarctica's **Ross Island**, is the southernmost active volcano on Earth.
- **Longest River:** Onyx
- **Largest Lake:** Vostok



Source: PIB

VOLCANISM ON VENUS

Context

- Recently, researchers detected evidence of **volcanic eruption on Venus' surface** using data from **NASA's Magellan mission** provided by **NASA's Jet Propulsion Laboratory**.

Planet Venus

- **Earth's Twin:** Venus is **Earth's closest planetary neighbour** which is similar in structure but **slightly smaller than Earth**.
 - ♦ It is the **second planet from the sun**.
- **Thick & Toxic Atmosphere:** Venus has an atmosphere 50 times denser than Earth.
 - ♦ It is wrapped in a thick, toxic atmosphere **filled with carbon dioxide** that traps in heat.
- **Inhabitable:** Venus is the **hottest planet** in the solar system. The **temperature** of Venus is too high (about 471°C), and its **atmosphere is highly acidic**.
- **Other Features:** It has **no moons and no rings**.
 - ♦ Venus' solid surface is a **volcanic landscape** covered with extensive plains featuring **high volcanic mountains and vast ridges**.
 - ♦ It spins from **east to west**, the opposite direction from all other planets in our solar system but the **same as Uranus**.

Volcanism on Venus

- The **Magellan Mission of NASA**, launched in 1989, provided **crucial insights into Venus' geology**. The spacecraft used **Synthetic Aperture Radar to map 98% of Venus' surface** between 1990 and 1992 that revealed features that hinted at a **tumultuous volcanic past**.

Specific Sites

- **Sif Mons:** A volcano approximately 200 miles (300 km) wide **located in the Eistla Regio region**. It exhibited signs of eruption during the early 1990s.
 - ♦ Radar images show a lava flow covering about 12 square miles (30 square km) of rock.
 - ♦ It changed the perception that Venus is a dormant world.
- **Niobe Planitia:** A large volcanic plain where approximately 17 square miles (45 square kilometres) of rock were produced by lava flow.

Venusian Volcanic Activity

- A 2023 study revealed that a **volcanic vent on Maat Mons** in a region called **Atla Regio** expanded and changed shape during the Magellan mission.

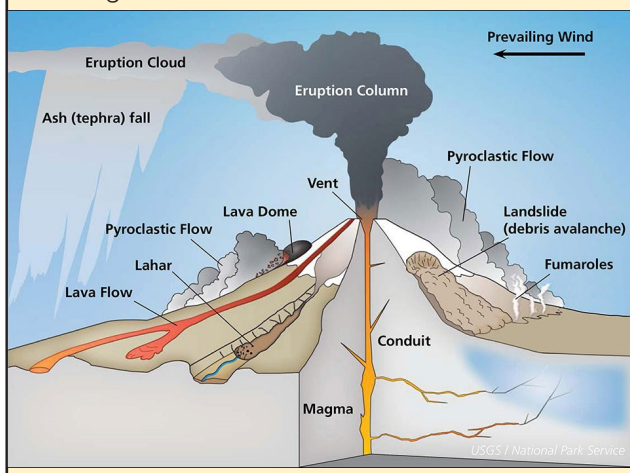
- **Maat Mons:** In 2023, Magellan's Radar images captured changes near the volcano Maat Mons.
 - ♦ These changes indicated a recent eruption, **providing direct geological evidence** of volcanic activity on Venus.
 - ♦ The outflow of molten rock filled the vent's crater and spilled down its slopes.

Implications

- **Venus' Evolution:** The discovery of recent volcanism suggests that Venus may be more volcanically active than previously thought.
 - ♦ Understanding its volcanic history helps explain why Venus took a different evolutionary path than Earth.
- **Climate Alterations:** Massive volcanic outpourings in Venus' ancient past likely altered its climate.
 - ♦ Venus boasts **scorching surface temperatures** and a thick atmosphere that **may have originated from intense volcanic activity.**

Volcanoes

- It is a **vent or fissure in Earth's crust** through which **lava, ash, rocks, and gases erupt**. It can be **active, dormant or extinct**.
- An eruption takes place when **magma (a thick flowing substance)**, formed when the earth's mantle melts, rises to the surface.
- The **magma is lighter than solid rock**, it is able to rise through vents and fissures on the surface of the earth.
 - ♦ **After it has erupted, it is called lava.**
- Not all volcanic eruptions are explosive since explosivity depends on the composition of the magma.



Types and Characteristics

- **Cinder Cones:** These are small, steep-sided volcanoes formed by the accumulation of volcanic fragments around a single vent.
 - ♦ **Eruption Style:** They erupt **mostly small pieces of scoria and pyroclastics**.
 - ♦ **Example:** Capulin Volcano in New Mexico.
- **Composite Volcanoes (Stratovolcanoes):** These are tall and steep with layers of lava, ash, and rock debris. They often have a conical shape.
 - ♦ **Eruption Style:** High-viscosity lava, ash, and rock debris.
 - ♦ **Examples:** Mount Rainier in Washington, Mount Fuji in Japan.
- **Shield Volcanoes:** These have gentle slopes and are shaped like a bowl or shield. They result from **basaltic lava flows**.
 - ♦ **Eruption Style:** Low-viscosity lava that can flow great distances from the vent.
 - ♦ **Examples:** Mauna Loa in Hawai'i, Iceland's volcanic chain.
- **Lava Domes:** These form when **thick, viscous lava accumulates** near the volcanic vent. They have **steep sides**.
 - ♦ **Eruption Style:** Slow eruptions of highly viscous lava.
 - ♦ **Example:** Novarupta dome in Alaska.

Source: TH

MANAGED CARE ORGANISATION IN INDIAN HEALTH POLICY

Context

- **Health Insurance seems** to become the **main component of Universal Health Coverage (UHC)** discussion in the Indian Health Policy.

About

- Recently, a notable health-care chain in South India announced its foray into comprehensive health insurance by **combining insurance and health-care provision functions under one roof** — what can be called the **Indian iteration of a managed care organisation (MCO)**.
- It is timely to reflect on **whether MCOs hold promise for the bigger Indian health-care landscape**, particularly when it comes to extending universal health care.

Health Security in India

- On the health security front, for the unorganised sector, there is the **Ayushman Bharat Scheme of the central government** with over 490 million beneficiaries.
- In the organized sector, the Central government runs the **Employees State Insurance Corporation (ESIC) and Central Government Health Scheme (CGHS)** catering to 130 million and four million beneficiaries, respectively.
- Health insurance schemes run by various State governments cover about 200 million people.
- Despite these large-scale provisions, about **400 million Indians are not covered under any kind of health insurance.**
- In India, ever since the first public commercial health insurance was promulgated in the 1980s, the focus has been on **indemnity insurance and covering hospitalisation costs**, despite a near \$26 billion market for outpatient consultations in the country.

Managed Care Organisation

- A Managed Care Organization (MCO) is a health plan or health care company that **utilizes managed care as its model to keep the quality of care high while limiting costs.**
 - ◆ The term “**managed care**” is used to describe **a type of health care focused on helping to reduce costs**, while keeping quality of care high.
- The strongest impetus for mainstreaming MCOs in U.S. health care came in the 1970s, when cost containment concerns in health care loomed large.

Significance of MCO

- **Cost Control:** MCOs are designed to control healthcare costs by managing utilization, negotiating discounted rates with healthcare providers, and implementing cost-effective treatment protocols.
 - ◆ By coordinating care and focusing on preventive measures, MCOs aim to reduce unnecessary medical expenses.
- **Quality Improvement:** MCOs often emphasize quality improvement initiatives, such as implementing clinical guidelines, monitoring outcomes, and promoting evidence-based practices.

- ◆ This focus on quality helps ensure that patients receive appropriate and effective care.
- **Care Coordination:** One of the primary roles of MCOs is to coordinate care across different providers and settings.
 - ◆ They facilitate communication among healthcare professionals, streamline referrals, and help ensure that patients receive seamless and integrated care.
- **Healthcare Access:** MCOs can improve access to healthcare services by offering networks of providers and facilities, including primary care physicians, specialists, hospitals, and other healthcare professionals.
 - ◆ This network approach helps patients access a wide range of services within their insurance coverage.
- **Risk Management:** MCOs assume financial risk for the healthcare services they provide, which incentivizes them to manage costs and outcomes effectively.
 - ◆ Through risk-sharing arrangements with providers and innovative payment models, MCOs align financial incentives with quality and efficiency goals.

Source: TH

FRAMEWORK FOR SELF-REGULATORY ORGANIZATIONS IN FINTECH SECTOR

Context

- The Reserve Bank of India (RBI) released the framework for recognising self-regulatory organizations in the financial technology sector (SRO-FT).

About

- **An SRO is a non-governmental organization** that acts as a bridge between industry players and the regulator. It also sets standards for the conduct of entities operating in the country.
- **Key responsibilities** of SROs include establishing and enforcing regulatory standards, promoting ethical conduct, resolving disputes, and fostering transparency and accountability among members.

India's Fintech Sector

- India is the **3rd largest** fintech ecosystem globally. The Fintech sector in India has witnessed funding accounting to **14% share** of Global Funding.

- The Indian FinTech industry's market size was **\$50 Bn** in 2021 and is estimated at ~\$150 Bn by 2025.
- India accounted for **46%** of all **real-time transactions worldwide** in 2022.

Significance of Fintech Sector

- **Innovation and Efficiency:** Fintech companies leverage technology to introduce innovative financial products and services. These innovations enhance efficiency, reduce costs, and streamline operations in the financial sector.
- **Financial Inclusion:** Fintech has significantly improved financial inclusion by providing access to financial services for unbanked and underbanked populations.
- **Economic Growth:** The fintech sector contributes to economic growth by fostering entrepreneurship and creating new jobs.
- **Global Connectivity:** Fintech facilitates global financial connectivity, enabling seamless cross-border transactions and remittances. This connectivity supports international trade, investment, and economic integration.

Guidelines Issued by RBI

- **Independent entity:** SROs in the fintech sector should be independent entities, free from external influence, and committed to upholding regulatory standards.
- **The SROs need to be representative bodies,** drawing upon the collective expertise and experience of their members to develop pragmatic and widely accepted standards.
- **Membership:** SROs should have diversified shareholding, with no single entity holding more than **10%** of its paid-up share capital.
 - ♦ Additionally, fintech companies domiciled outside India may also be eligible for membership.
- **Applicants will be required** to have a minimum net worth of **Rs 2 crore** within a year of being recognised as an SRO-FT. The entity should be a not-for-profit company.
- **Oversight and enforcement:** SROs are encouraged to establish structured frameworks for monitoring fintech activities and ensuring compliance with regulatory standards.

- **Surveillance:** There is a requirement for SROs to **address instances of 'user harm,'** such as fraud, misselling, and unauthorized transactions.
 - ♦ Surveillance mechanisms should be deployed to detect exceptions, with a focus on maintaining confidentiality and collecting only essential information.
- **Grievance redress:** SRO-FTs will be required to establish a dispute resolution framework for its members.

Source: **BS**

NEWS IN SHORT

EARTHCARE MISSION

Context

- Recently the EarthCARE Mission was launched to measure the influence of clouds on the climate.

About

- **EarthCARE (Cloud, Aerosol and Radiation Explorer) mission** will advance the understanding of the role that clouds and aerosols play in reflecting incident solar radiation back into space and trapping infrared radiation emitted from Earth's surface.
- It is a joint venture between **ESA (European Space Agency)** and **JAXA (Japan Aerospace Exploration Agency)**.

EarthCARE Instruments

- **The Atmospheric Lidar (ATLID)** provides vertical profiles of aerosols and thin clouds. It operates at a wavelength of 355 nm.
- **The Cloud Profiling Radar (CPR)** provides vertical profile measurements of clouds and observes vertical velocities of cloud particles through Doppler measurements. It operates at 94GHz.
- **The Multi-Spectral Imager (MSI)** hosted by EarthCARE provides across-track information on clouds and aerosols with channels in the visible, near infrared, shortwave and thermal infrared.
- **The Broad-Band Radiometer (BBR)** provides measurements of top-of-the-atmosphere radiances and fluxes.

Source: **BBC**

WORLD'S FIRST ROCKET WITH FULLY 3D-PRINTED ENGINE

Context

- IIT Madras' startup, Agnikul Cosmos, has launched Agnibaan SubOrbital Technology Demonstrator (SORTeD), with a three-dimensional (3D) printed engine.

Agnibaan SubOrbital Technology Demonstrator (SORTeD)

- The rocket **Agnibaan SORTeD (SubOrbital Technological Demonstrator)** is India's first semi-cryogenic engine-powered rocket launch that was completely designed and manufactured indigenously.
- It was launched from India's first privately developed launchpad called '**Dhanush**'.

Features of Agnibaan SORTeD

- Agnibaan is a **two-stage rocket** with a capacity to carry up to **300 kg** to a height of **700 km**.
- The rocket engines are powered by **liquid oxygen or kerosene**.
- It can access both low- and high-inclination orbits and is completely mobile, designed for accessing more than 10 launch ports.

What is 3D printing?

- **3D Printing is** a process that uses computer-created design to make three-dimensional objects layer by layer.
- **It is an additive process**, in which layers of a material like plastic, composites or bio-materials are built up to construct objects that range in shape, size, rigidity and color.
- **3D Printing was invented** in the **1980s** by **Charles W. Hull**.

Source: AIR

EXERCISE RED FLAG

In News

- The Indian Air Force (IAF) has joined a 16-day multi-nation mega military exercise in Alaska.

About Exercise Red Flag

- Exercise Red Flag is a premier international aerial combat training event hosted by the United States Air Force.

- It is held several times a year and brings together air forces from around the world to engage in advanced aerial combat training.
- India's participation in Exercise Red Flag signifies the strengthening of the US-India strategic partnership. The exercise allows both nations to share expertise, test tactics, and enhance interoperability.

Other Joint Exercises conducted by the Air Force

- ♦ Israel: Blue Flag
- ♦ Oman: Eastern Bridge
- ♦ Russia: Indra
- ♦ Thailand: SIAM BHARAT
- ♦ UAE: DESERT EAGLE
- ♦ UK: INDRADHANUSH
- ♦ USA: RED FLAG
- ♦ Multinational Air Exercise: Ex Samvedna with Bangladesh, Nepal, Sri Lanka, UAE

Source: TH

INFLAMMATORY BOWEL DISEASE

In Context

- A girl from Andhra Pradesh was diagnosed with severe **Crohn's disease**.

About Inflammatory Bowel Disease

- A chronic **autoimmune condition** where the body's immune system attacks the gastrointestinal tract, causing inflammation and ulcers.
- **Types of IBD:**
 - ♦ **Ulcerative Colitis:** Limited to the **inner lining (mucosa)** of the large intestine (colon) and rectum.
 - ♦ **Crohn's Disease:** Can affect any part of the gastrointestinal tract from the mouth to the anus.
- **Treatment:**
 - ♦ There is no cure for IBD, but treatments aim to manage symptoms.
 - ♦ Steroids and Biologics are used to control inflammation and suppress the immune system.
 - ♦ Maintaining remission with milder immunosuppressants.

Rising Cases in India

- Rising cases in India are attributed to lifestyle changes, including the adoption of a Westernized diet.

Source: TH

RIVERS IN ALASKA TURNING ORANGE

In News

- The rivers in Alaska are turning orange due to the thawing of permafrost, a consequence of climate change.

About

- This thawing process releases toxic metals such as zinc, nickel, copper, cadmium, and iron, which have been locked away in the permafrost for thousands of years.
- As these metals enter the water, they make the rivers highly acidic and cause **orange discolouration**.

Alaska

- It is located in the extreme northwest of the North American continent and is a state of the USA. It shares land borders with Canada and maritime borders with Russia.
- The state is surrounded by the Beaufort Sea and the Arctic Ocean to the north, the Gulf of Alaska and the Pacific Ocean to the south, and the Bering Sea and Chukchi Sea to the west.

Source: DTE

OEDOCLADIUM SAHYADRICUM

In News

- New algal species "**Oedocladium sahyadricum**" discovered in Western Ghats.

About Oedocladium sahyadricum

- The name 'sahyadricum' refers to the Western Ghats, also known as Sahyadri, which is rich in plant diversity and provides ideal conditions for the growth of terrestrial microalgae.
- This is the first time a species in the Oedocladium category has been recorded in Kerala.
- It was identified by its **unique features**, such as being dioecious and terrestrial, having a superior operculum, and possessing ellipsoid oogonium and oospore.

- It looks like moss protonema, is velvety green but turns yellowish-green as it matures.
- Rainy weather is likely needed for its abundant growth.
- **Utility** : Species of Oedocladium have potential practical applications in medicine, agriculture, and in the production of a natural pigment, astaxanthin, which is well-documented for its unique biological activities and health benefits.

Source: TH

COLOMBO PROCESS

Context

- India has assumed the **chair of Colombo Process for 2024-26**.

About

- India has become chair of regional grouping Colombo Process **for the first time since its inception in 2003**.
- Colombo Process is a **Regional Consultative Process** comprising 12 Member States of Asia (countries of origin of migrant workers).
- **Member States**: Afghanistan, Bangladesh, China, India, Indonesia, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, Cambodia and Vietnam.
- It provides an important platform for **consultations on the management of overseas employment and contractual labour**.
- The Process is **non-binding** and decision-making is by **consensus**.
- The Process is governed by **Ministerial Consultations** wherein recommendations and action plans are discussed and adopted by the Ministers of the participating countries.

Source: IE

INFRASTRUCTURE INVESTMENT TRUSTS

Context

- Securities and Exchange Board of India has notified a **framework** for issuance of subordinate units by privately placed **infrastructure investment trusts (InvITs)**.

About

- The issuance of subordinate units is primarily **intended to bridge the valuation gaps** that may arise as a result of the difference in the valuation of an asset assessed by the Sponsor (in its capacity of the asset seller) and the InvIT (in capacity of the asset buyer).
 - Also, the framework has been designed to **include risk mitigation measures in respect of such units**.
 - An Infrastructure Investment Trust (InvIT) is like a **mutual fund**, which enables **direct investment of money** from individual and institutional investors in **infrastructure projects** to earn a portion of the income as return.
- ♦ InvITs work similarly to Real Estate Investment Trusts (REITs), but instead of investing in real estate properties, they invest in infrastructure projects like roads, power plants, pipelines, and other such assets.
 - InvITs serve as an avenue for investors to participate in the infrastructure development of the country while also generating returns on their investments.
 - InvIT are regulated by the **SEBI (Infrastructure Investment Trusts) Regulations, 2014**.

Source: [ET](#)

