DAILY CURRENT AFFAIRS 21-05-2024

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First evidence of rock art

Syllabus: GS-1: Art and Culture – Rock cut architecture.

Context:

- *Archaeologist finds first evidence of rock art in Mangaluru city.*

More about findings:

- *Found near* **Boloor Panne Koteda Babbu Swamy shrine** *in Mangaluru city*
- **Discovered by:** *T. Murugeshi, retired Associate Professor of Ancient History and Archaeology*
- **Nature of Rock Art:** *Pair of human footprints on a natural stone boulder near the shrine*
- **Estimated Age:** *Created around the* **first or second century A.D.**
- **Significance:** *Raises questions about the origin of Babbu Swamy, a local legend*
- **Context of Discovery:** *Part of a historical exploration project associated with MinchinabaviKordabbu Trust, Padubidri, Udupi district*
- **Future Research:** *Provides a lead to search for similar art near other Babbu Swamy shrines*
- **Definition of Rock Art:** *Refers to paintings and engravings on rock surfaces, serving as evidence of ancient societies*
- **Previous Discovery:***Murugeshi discovered a significant rock art site in Buddhanajeddu, Udupi district in 2009, dating back to the first or second century A.D., with evidence of neolithic period artifacts*

Rock Art: A Brief Overview

- **Definition:** *Rock art refers to human-made markings found on natural stone surfaces. These markings include paintings, engravings, and carvings.*

Types of Rock Art:

- **Petroglyphs:** *Carvings or engravings made by pecking directly on the rock surface.*
- **Pictographs:** *Paintings or drawings made using natural pigments applied onto the rock surface.*
- **Indentations:** *Indentations made by pounding or scraping the rock surface.*

Cultural Significance:

- *Provides insights into the* **cultural, religious, and social practices** *of ancient civilizations.*
- *Reflects the artistic* **capabilities and symbolic expressions** *of prehistoric societies.*
- *Often associated with rituals, ceremonies, and storytelling.*

Chronological Range:

- *Ranges from* **Paleolithic (Old Stone Age)** *to historic periods.*
- **Dating techniques** *include radiocarbon dating, optically stimulated luminescence (OSL), and stylistic analysis.*

Themes and Motifs:

- *Common motifs include human* **figures, animals, geometric shapes***, and abstract symbols.*
- *Themes may depict* **hunting scenes, fertility rituals***, cosmological beliefs, and spiritual ceremonies.*

Preservation Challenges:

- *Vulnerable to natural elements such as* **erosion, weathering, and vegetation** *growth.*
- *Threatened by human activities such as* **vandalism, development, and industrial pollution***.*

Conservation Efforts:

- **Conservation strategies** *involve documentation, monitoring, and protective measures.*
- *Collaborative efforts between* **archaeologists, indigenous communities***, and government agencies are essential for preservation.*

Educational and Cultural Value:

- *Rock art sites serve as outdoor classrooms for* **studying human history** *and environmental changes.*
- *Enhance* **cultural tourism***, fostering appreciation for indigenous cultures and heritage.*

Research Opportunities:

- *Continual research contributes to understanding* **human migration patterns***, artistic traditions, and technological advancements.*
- *Advances in technology, such as* **3D scanning and remote sensing***, aid in documentation and analysis.*

What happens when the President in office dies

Syllabus: GS-2: Union Executive – President.

Context:

- **Iran's President Ebrahim Raisi** *was killed in a helicopter crash, an Iranian official and Mehr news agency reported on Monday.*

Succession in case of Iran's President's death:

- **Article 131 of Iran's constitution** *dictates that the first Vice President, currently Mohammad Mokhber, assumes office.*
- *Confirmation from the supreme leader,* **who holds ultimate authority in Iran**, *is required.*

Arrangement for a new President:

- *A council comprising the first Vice President, the Speaker of Parliament, and the Head of the Judiciary* **must organize an election within 50 days.**

Impact on the upcoming election:

- *Mr. Raisi, the current President elected in 2021, was* **due for reelection in 2025.**
- *Constitutional rules imply the* **election could be advanced**, *possibly occurring by early July.*

What happens when the President in office dies in India?

- *When the President of India,* **who is the head of state**, *dies while in office, there are specific procedures outlined in the* **Constitution of India to manage the situation**.

Here's a detailed breakdown of what happens:

- **Official Announcement:** *The death of the President is officially announced by the Rashtrapati Bhavan (the official residence of the President) and the Prime Minister's Office (PMO) to the public and the media. This announcement is made as soon as possible after the President's passing.*

Immediate Actions:

- **The Vice President**, *who is the second-highest constitutional office in India, assumes the role of* **Acting President** *until a new President is elected.*
- **The Chief Justice of India** *administers the oath of office to the Acting President.*

Notification to the Chief Election Commissioner (CEC):

- *The* **Chief Election Commissioner** *is informed about the vacancy in the office of the President.*
- *The CEC then issues a* **formal notification for the election** *of the new President. The election must be held within a specific timeframe as prescribed by the Constitution.*

Convening of Electoral College:

- **The Electoral College,** *which comprises the elected members of both Houses of Parliament (Lok Sabha and Rajya Sabha) and the elected members of the Legislative Assemblies of States and Union territories, is convened.*
- *The members of the Electoral College* **cast their votes** *to elect the new President.*

Election Process:

- *The election is conducted by* **a system of proportional representation** *by means of a single transferable vote.*
- *The candidate who* **secures a majority of votes** *is declared elected as the President.*

Swearing-in Ceremony:

- *Once the election process is completed and the* **new President is elected***, the swearing-in ceremony takes place.*
- *The Chief Justice of India* **administers the oath of office** *to the newly elected President.*
- *The President then assumes all the duties and powers of the office.*

Period of Acting President:

- *Until the new President is elected,* **the Vice President serves as the Acting President***, performing all the functions and duties of the President.*
- **State Mourning and Funeral Arrangements:**
- *The country typically observes a period of* **mourning to honour the deceased President***.*
- *Funeral arrangements are made according to the* **protocols established for a head of state***.*

Transition of Powers:

- *The* **transition of powers from the Acting President** *to the newly elected President takes place smoothly after the swearing-in ceremony.*

Resumption of Normal Functions:

- **Once the new President assumes office***, the functioning of the government continues as usual under the leadership of the new President.*

- *These steps ensure a smooth transition of power and continuity in the functioning of the government despite the unfortunate event of the* **death of the President while in office.**

Table summarizing the important articles related to the office of the President in India:

Article	Title	Description
52	*President of India*	*Establishes the office of the President of India as the head of state of the country.*
53	*Executive power of the Union*	*Delineates the executive power of the Union, vested in the President, to be exercised either directly or through subordinate officers.*
54	*Method of election of President*	*Specifies the method of election of the President by an Electoral College comprising elected members of Parliament and State Legislatures.*
55	*Manner of election of President*	*Outlines the principles of proportional representation and the system of single transferable vote in the election of the President.*
56	*Term of office of President*	*States that the President shall hold office for a term of five years from the date of assuming office.*
57	*Eligibility for re-election of President*	*Specifies that a person who has held office as President for two terms is not eligible for re-election.*
58	*Qualifications for President*	*Outlines the qualifications required for a person to be eligible for election as President of India.*
59	*Method of election of Vice President*	*Specifies the manner of election of the Vice President and their eligibility criteria.*
60	*Oath or affirmation by President and VP*	*Deals with the oath or affirmation to be taken by the President and Vice President before assuming office.*
61	*Procedure for impeachment of President*	*Outlines the procedure for impeachment of the President on grounds of violation of the Constitution.*
62	*Time of holding election for*	*Deals with the timing and procedures for holding*

Article	Title	Description
	President	*elections to fill a vacancy in the office of the President.*
71	*Disputes regarding election of President*	*Provides for the adjudication of disputes relating to the election of the President and Vice President.*

Practice Question

Q. Analyse the constitutional provisions and procedural intricacies involved when the President of India dies, highlighting the continuity of governance and the electoral process for succession. (15 marks, 250 words)

Co-Lending Loans

Syllabus: GS-3; Economy

Context

- *The government has assured* **non-banking financial companies (NBFCS)** *that it will examine the concerns around levy of* **goods and services tax (GST***) on their co-lending arrangements with banks.*

What is Co Lending?

- *Co lending is an arrangement where* **multiple lenders partner to provide loans to borrowers.**
- *This helps* **increase lending capacity and reduces risk for individual lenders***.*
- *Each lender sets their own terms and conditions.*
- *Co lending is used in various industries like real estate, small business loans, and personal loans.*

Key Players in Co Lending

- **Banks and Non-Banking Financial Companies (NBFCs)** *form partnerships to provide loans, with banks offering a part of the loan amount and NBFCs contributing the rest.*
- *This collaboration allows both parties to share the risk and profit generated from the loan, resulting in a smoother and more streamlined customer experience.*

Co Lending Regulations

- *Co lending, as a rapidly emerging trend in finance, needs to be regulated by the Reserve Bank of India (RBI) and the Ministry of Finance.*

Advantages and Disadvantages of Co Lending

- *Co lending in the financial services sector offers numerous advantages to banks, NBFCs, and consumers.*

To Banks

- *Co lending presents an opportunity for banks to* **increase their share of credit to priority sectors.**
- *By partnering with NBFCs, banks can tap into their expertise and reach in specific market segments.*
- *Allows banks to benefit from* **product innovations** *and lower interest rates, ultimately expanding their loan portfolio.*
- *Helps banks meet* **regulatory requirements** *like priority sector lending norms.*
- *Enables banks enhance their presence in underserved areas, bridging the credit gap and providing financial services to potential customers.*

To NBFCs

- *NBFCs can leverage their* **expertise in niche sectors and reach underserved customers**
- *Partnering with banks grants NBFCs access to lower-cost funds and a* **wider customer base.**
- *This enables NBFCs to offer* **competitive interest rates** *and customized loan products, enhancing credit flow to priority sectors and supporting financial inclusion initiatives.*
- *NBFCs can benefit from the* **technological interventions and digital penetration** *of their partner banks.*
- *Co lending arrangements allow NBFCs to maximize their potential customer reach and contribute to filling the credit gap in the market.*

To Consumers

- *Consumers benefit greatly from this arrangement, particularly underserved customers who may have limited access to credit.*
- *Access to a* **wide range of loan products** *and enjoy* **competitive interest rates.**
- *The process is faster, as it* **reduces the turnaround time** *for loan approvals and disbursements.*

- *It also plays a crucial role in ensuring the* **availability of credit** *in underserved sectors and rural areas.*
- *Creates opportunities for small businesses and individuals to access affordable finance.*

Applications of Co Lending

- *Co lending offers a wide range of application and opportunities across various sectors, including* **retail, MSMEs, agriculture, and housing finance**.
- *It can be utilized for financing business loans, working capital requirements, and capital expenditure.*
- *This arrangement not only provides opportunities for product diversification and expansion into new markets but also enable lenders to share the credit risk and leverage each other's strengths.*

Venus water mystery

Syllabus: GS-3: Science and Technology –Solar system.

Context:

- *Recently, The Hindu published an article 'An overlooked molecule could help solve the Venus water mystery'.*

Summary of the article:

- *Venus once had enough water to cover its surface* **with an ocean 3 km deep**.
- *Currently, Venus only has enough water for a* **surface ocean 3 cm deep.**
- *Scientists have been* **able to explain much of the water loss** *over time, but not all of it.*
- *A team of U.S. scientists may have made a* **significant discovery related to Venus's water** *loss.*
- *Their findings,* **published in Nature**, *address a gap between expected water loss and actual observations from satellites.*
- *Co-author Eryn Cangi described the discovery as significant and worthy of community discussion.*
- *The study's broader implications relate to* **planetary habitability and the history of water** *on Venus compared to Earth.*
- *Emmanuel Marcq, a planetary scientist not involved in the study, highlighted the importance of* **understanding water history for planetary habitability**.

Reasons for Water Loss:

- *Venus's* **carbon dioxide-rich atmosphere** *creates a strong greenhouse effect, resulting in surface temperatures above water's boiling point.*
- *Proximity to the Sun causes* **heat and ultraviolet radiation**, *which break water molecules into hydrogen and oxygen atoms in Venus's ionosphere.*

Uncertainty in Processes:

- *The rates at which these processes occurred are unknown.*
- *Two theories exist regarding how water levels changed over time, involving* **thermal and non-thermal processes.**

Thermal Process (Hydrodynamic Escape):

- *Sun's heat* **expands Venus's outer atmosphere**, *allowing hydrogen gas to escape into space.*
- *This process continued until the* **outer atmosphere cooled**, *approximately 2.5 billion years ago.*

Non-Thermal Process (Present-Day Water Loss):

- *Hydrogen atoms escape Venus into space,* **reducing water levels as oxygen atoms remain**, *unable to form water without hydrogen.*
- *Previous estimates suggested* **more water than satellite observations** *indicated.*

Discovery by Dr. Cangi's Team:

- *Discrepancy between estimated* **water loss rates and satellite observations** *resolved.*
- *Accounting for a chemical reaction* **overlooked by the scientific community** *for over five decades explained the difference.*

Encounter with Formyl Cation (HCO+):

- *Dr. Cangi encountered HCO+ during her PhD research* **on water loss in Mars' atmosphere.**
- *Similarities between* **Venusian and Martian upper atmospheres** *prompted Dr. Cangi and her team to model reactions involving HCO+ in Venus' ionosphere.*
- *HCO+ dissociative recombination reaction (DR) occurs at an altitude of about 125 km above Venus' sulfuric acid clouds.*
- *Formation of HCO+ involves a* **carbon monoxide molecule (CO)** *losing an electron while absorbing a hydrogen atom, while DR is the reverse process.*

Impact of HCO+ DR Reaction:

- *The reaction leads to the* **production of energetic hydrogen atoms** *that escape into space.*
- *Models built by the team showed that HCO+ DR accelerated the decline of water in Venus' atmosphere after the* **hydrodynamic escape of hydrogen gas ceased.**
- *The* **rate of water loss due to hydrogen** *escape may have doubled because of this reaction.*

Implications for Venus's Water History:

- *The accelerated water loss suggests that* **if Venus had oceans in the past***, they might have lasted longer than previously thought.*
- *The model predicts that the am***ount of water on Venus remained relatively stable from about 2 billion years ago** *due to the continuous non-thermal process of HCO+ DR.*
- *Despite this,* **Venus still retains some water today***, suggesting potential replenishment mechanisms like comet impacts, according to Dr. Marcq.*

Absence of Proof for HCO+ Ions in Venus's Atmosphere:

- *There is* **no evidence confirming** *the presence of HCO+ ions in Venus's atmosphere.*
- *It remains uncertain whether HCO+ ions participated in* **the HCO+ DR process.**
- *Previous space missions* **did not actively search for HCO+ ions***.*
- **Orbiters sent to Venus** *were unable to detect the chemical signatures of HCO+ DR from a distance.*
- *These missions prioritized studying other* **atmospheric chemical reactions** *of interest to scientists.*

Connection with Water Loss:

- *Dr. Cangi suggests that scientists might have overlooked HCO+ ions because they* **did not see a direct connection between HCO+ DR and water loss** *on Venus.*

Indirect Evidence from Pioneer Venus Orbiter Data:

- *Analysis of data collected by the* **NASA Pioneer Venus orbiter** *(launched in 1978) provided some indirect evidence of HCO+ DR.*
- *The presence of other molecules important in the chemistry to form* **HCO+ suggests that HCO+ ions** *might be present in Venus's atmosphere.*

Recent Discoveries Supporting HCO+ DR Model:

- *Scientists reported finding a* **signature of carbon ions** *escaping Venus in data collected by the* **BepiColombo spacecraft.**
- *Dr. Marcq suggests that this finding qualitatively supports the HCO+ DR model, although quantitative evidence is still lacking.*

Call for Future Venus Missions:

- *Dr. Cangi urges scientists involved in future Venus missions to prioritize the search for HCO+ in the planet's upper atmosphere.*
- *She cites* **NASA's MAVEN mission to Mars** *as an example of a mission dedicated to probing the upper atmosphere, suggesting a similar approach for Venus.*

Importance of Understanding Venus's Dryness:

- *Dr. Marcq emphasizes that* **Venus being 100,000 times drier** *than Earth is an anomaly that requires explanation.*
- *Determining whether* **Venus is abnormally dry or Earth** *is abnormally wet has significant implications for planetary habitability.*

Ancient Baobab Trees

Syllabus: GS-3; Environment and Ecology, GS-2; Government policies

Context

1. *A new study has uncovered the origins of baobabs, the tall and uniquely shaped* **deciduous trees** *which are famously spotted on the island of Madagascar.*
   *Also known as the "***mother of the forest***", other species of these trees are native to Africa and Australia.*
2. *The Madhya Pradesh government recently decided that the forest department cannot give permission to translocate* **Dhar's famed Baobab trees***.*

Origin

- *NPR reports that baobab trees likely originated in Madagascar, and oceanic currents may have spread the fruit to Africa and Australia, where new species evolved.*

Size

- *Baobab trees can grow up to 50 meters tall and have trunks that can be up to 10 meters in diameter.*

Lifespan

- *Baobab trees can live up to 2,000 years.*

Appearance

- *Baobab trees have large trunks with thin branches and are sometimes called "upside down" trees because their tops resemble uprooted plants.*

Distribution

- *There are nine species of baobab tree, two native to mainland Africa, six to Madagascar, and one to Australia. In India, baobab trees can be found in Mandu, Madhya Pradesh.*

Uses

- *The fruits and seeds of baobab trees are edible, the seed oil can be used for cooking, and the bark fiber can be used for clothing.*

Ecological significance

- *Baobab trees are important for birds and can store large amounts of fresh water in their trunks, making them vital during droughts.*

Conservation status

- *According to the IUCN Red List of Threatened Species, baobab trees are threatened with extinction, but are in the "Least Concern" category.*