CURRENT AFFAIRS FOR 23ST NOVEMBER 2024

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CHINMAYA ACADEMY FOR CIVIL SERVICES
(Coaching For Civil Services-IAS,IFS,IPS,IRS etc.,)
(ACADEMY WHICH CARES TO BE DIFFERENT)

1. Overview of Global Soil Conference 2024

Purpose: Organized by the Indian Society of Soil Science (ISSS) in collaboration with the International Union of Soil Sciences (IUSS), the GSC aimed to address critical challenges related to sustainable soil and resource management.

Theme: Caring Soils Beyond Food Security: Climate Change Mitigation & Ecosystem Services.

Key Focus Areas:

Recognition of soil degradation as a global issue impacting food security and ecosystem balance.

Highlighted that approximately 30% of Indian soil suffers from erosion, salinity, pollution, and reduced organic content.

Called for international collaboration to combat soil degradation in alignment with Sustainable Development Goal (SDG) 15 of the United Nations.

SDG 15 targets sustainable land use, combating desertification, halting biodiversity loss, and restoring degraded land.

Note:

The ISSS was established in 1934 in Kolkata under the Societies Registration Act, 1860.

The IUSS, a non-governmental scientific society under the International Science Council (ISC), fosters global cooperation in soil science research and applications.

Challenges to Soil Health in India

Soil Degradation:

Unsustainable agricultural practices and improper soil management have degraded over one-third of India's land.

Soil Erosion and Fertility Loss:

India loses approximately 15.35 tonnes of soil per hectare annually, leading to reduced crop yields and the loss of 13.4 million tonnes of rainfed crops annually.

Erosion also causes economic losses, increases drought and flood risks, and reduces reservoir capacities by 1–2% annually.

Salinity:

Excessive salinity diminishes water infiltration, nutrient absorption, and soil structure, rendering the land infertile.

Low Organic and Nutrient Content:

Organic content in Indian soils is alarmingly low (around 0.54%), causing nutrient deficiencies and poor fertility.

Over 70% of Indian soils face issues of acidity or alkalinity, further disrupting the natural nutrient cycle.

Desertification:

Leads to loss of organic matter, reduced moisture retention, and declining soil fertility, ultimately affecting food security.

Land Diversion:

Fertile agricultural lands are being increasingly diverted for non-agricultural purposes.

Soil Conservation Initiatives in India

Soil Health Card (SHC) Scheme: Provides farmers with soil health data to guide fertilization and management practices.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY): Promotes water-use efficiency and reduces soil erosion.

Zero Budget Natural Farming: Encourages chemical-free farming practices to restore soil health.

Natural Farming Mission: Aims to improve soil fertility through organic methods.

Soil Types in India

India's diverse topography, climate, and vegetation have resulted in a variety of soils. The Soil Survey of India (established in 1956) and the National Bureau of Soil Survey use the USDA Soil Taxonomy to classify Indian soils based on factors like origin, color, and composition.

Soil Type	Distribution	Characteristics	Main Crops Grown
Alluvial Soil	Northern plains, river valleys	Fertile, rich in potash	Rice, wheat, sugarcane
Black Soil	Deccan Plateau	High moisture retention	Cotton, pulses
Red and Yellow	Eastern India	Low fertility, rich in iron	Millets, pulses
Laterite Soil	High rainfall areas	Poor organic matter	Tea, coffee
Arid Soil	Western India	High salinity, poor fertility	Millets, barley
Saline Soil	Coastal areas	High salt content	Rice (with treatment)
Peaty Soil	Waterlogged regions	High organic matter	Jute, rice
Forest Soil	Himalayan and Ghats regions	Fertile in valleys	Spices, tropical fruits

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Improving Soil Health

Policy Interventions: Expand schemes like SHC for detailed soil nutrient mapping.

Carbon Sequestration: Promote soil carbon storage through practices like cover cropping and no-till farming.

Sustainable Farming: Adopt crop rotation, agroforestry, and organic farming on a larger scale.

Conclusion

The Global Soil Conference 2024 reiterated the need for proactive soil management to enhance food security and address climate challenges. For India, adopting sustainable practices and strengthening policies will be essential to combat soil degradation and achieve long-term agricultural and economic resilience.

Q. Mains Question

"Soil health is integral to ensuring food security." Discuss the challenges faced by India regarding soil degradation and propose sustainable solutions.

Upload your answers to https://forms.gle/dVsmLfHqNpFCczGi8

2. Challenges Posed by India's Ageing Population

1. **Healthcare Challenges**
    - The elderly population often requires extensive healthcare for chronic and geriatric diseases like diabetes, arthritis, and cardiovascular conditions.
    - As per the **India Ageing Report 2023**, there is an increasing demand for affordable and accessible healthcare services tailored to the needs of senior citizens.
2. **Economic Dependency**
    - A rising dependency ratio as the elderly population grows will place financial pressure on the working-age population.
    - A smaller workforce relative to dependents can reduce productivity and economic growth.
3. **Inadequate Social Security**
    - Limited pension and social security coverage leave many elderly individuals financially vulnerable, particularly in the unorganized sector.
4. **Infrastructure Deficits**
    - Insufficient geriatric care facilities, lack of accessible public infrastructure, and unavailability of age-friendly homes create hardships for senior citizens.
5. **Social Challenges**
    - Changing family structures, including the decline of joint families, have left many elderly individuals without traditional caregiving support.

Role of Family Planning Policies in Addressing Ageing Challenges

1. **Population Stabilization**

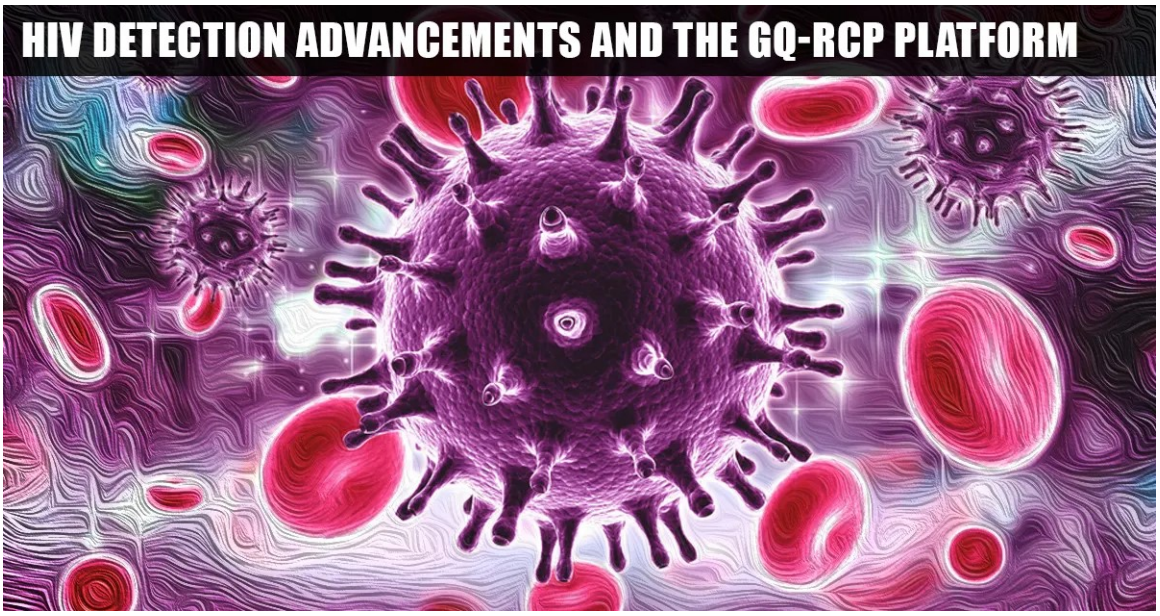
- Holistic family planning policies can ensure a balanced age structure by maintaining a sustainable Total Fertility Rate (TFR). This helps mitigate the economic strain of an ageing population.

2. **Healthy Ageing Advocacy**
    - Family planning policies can incorporate elements that promote healthcare access for all age groups, emphasizing preventive care and lifestyle changes for the elderly.
3. **Enhancing Workforce Participation**
    - Encouraging flexible retirement policies and opportunities for older adults in the workforce helps reduce economic dependency.
4. **Support for Caregiving Systems**
    - Policies can incentivize family caregiving and promote community-based elder care services, ensuring social security for the ageing population.
5. **Investment in Human Capital**
    - By linking family planning with education, healthcare, and employment, a skilled workforce can be developed to support the ageing population.

Conclusion

India must address its demographic shifts through an integrated approach combining family planning, economic policies, and social support systems. A focus on healthcare, education, and inclusive development is essential for leveraging the demographic dividend while preparing for the challenges posed by an ageing population.

3. HIV Detection Advancements and the GQ-RCP Platform



Why in News?

Researchers at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) have developed an advanced diagnostic platform called **GQ Topology-Targeted Reliable Conformational Polymorphism (GQ-RCP)** for early and accurate detection of HIV. This innovation builds on technology used for SARS-CoV-2 diagnostics, reflecting India's growing research capabilities.

Key Features of the GQ-RCP Platform

1. **G-Quadruplex (GQ) Structure**
    - The GQ is a unique four-stranded DNA conformation essential in gene regulation and genome stability.
    - This property is leveraged to specifically detect HIV-derived DNA structures.
2. **High Specificity and Accuracy**
    - The GQ-RCP platform enhances diagnostic reliability by reducing false positives, a common issue with traditional detection methods.
    - It uses a **fluorometric test** for targeted and precise detection.
3. **Detection Mechanism**
    - The process involves **reverse transcription and amplification** of a genomic segment.
    - The amplified DNA transitions into the GQ conformation under controlled pH conditions, allowing accurate identification.
4. **Early Detection Capability**
    - The platform's sensitivity ensures earlier HIV detection compared to conventional methods, potentially improving treatment outcomes.

HIV: An Overview

What is HIV?

- **HIV (Human Immunodeficiency Virus)** attacks the immune system, primarily targeting CD4 cells (a type of white blood cell).
- Without treatment, it progresses to **AIDS (Acquired Immunodeficiency Syndrome)**, a severe condition marked by opportunistic infections and cancers.

Transmission

HIV spreads through bodily fluids such as blood, semen, vaginal fluids, and breast milk.

Current Treatment

- **Antiretroviral Therapy (ART)**: Manages HIV by suppressing viral replication, enabling the immune system to recover. However, there is no cure for HIV.

HIV in India: Current Status

Prevalence

- As per **NACO (2021)**, around **2.4 million people** in India live with HIV, with a prevalence rate of **0.22%** among adults.
- HIV prevalence is concentrated in high-risk groups like **injecting drug users (5.91%)** and **female sex workers (2.61%)**.

Geographic and Demographic Trends

- **High-Prevalence States**: Northeast states (e.g., Mizoram 2.70%) and southern states (e.g., Andhra Pradesh 0.67%).
- **Women and Children**: Women constitute 39% of HIV cases, and children under 15 account for 3.5% of infections.

Government Initiatives on HIV

1. **National AIDS Control Program (NACP)**
    - **Phases**:
        - **Phase I (1992-1999)**: Awareness and surveillance.
        - **Phase II (1999-2006)**: Expanded targeted interventions and NGO involvement.
        - **Phase III (2007-2012)**: Scaled up interventions and partnered with civil society organizations.
        - **Phase IV (2012-2021)**: Integrated HIV services into public health systems.
        - **Phase V (2021-2026)**: Targets an 80% reduction in new infections and AIDS-related deaths by 2025-26 (compared to 2010 levels).
2. **HIV/AIDS Prevention and Control Act (2017)**

- Protects the rights of people living with HIV, ensuring access to treatment and freedom from discrimination.

3. **International Partnerships**
    - Collaborates with organizations like **UNAIDS**, **WHO**, and private entities (e.g., Bill & Melinda Gates Foundation) for technical and financial support.

Significance of Advancements like GQ-RCP

1. **Early Diagnosis**
    - Improved early detection enables timely ART initiation, preventing disease progression and transmission.
2. **Enhanced Healthcare Accessibility**
    - The innovation aligns with **India's public health goals**, making diagnostics more affordable and accurate.
3. **Global Contributions**
    - Strengthens India's position as a leader in innovative medical research and diagnostics technology.

Way Forward

- **Adoption of GQ-RCP Technology**: Integration into national HIV testing programs to improve diagnostic outcomes.
- **Increased Awareness**: Campaigns to encourage early testing and reduce stigma around HIV.
- **Strengthening Healthcare Infrastructure**: Enhanced ART facilities and comprehensive care for people living with HIV.

India's efforts in combating HIV/AIDS, complemented by advancements like the GQ-RCP platform, signify progress toward achieving the **2030 Sustainable Development Goal of ending the AIDS epidemic.**

4. Discovery of Megalithic Footprints in Kerala

Why in News?

Archaeologists have discovered 24 pairs of prehistoric **Megalithic footprints** and a human figure in **Madikkai, Kerala**, dating back over 2,000 years. These findings shed light on the cultural practices of the Megalithic period and add to Kerala's rich prehistoric heritage.

Key Highlights of the Discovery

1. **Cultural and Symbolic Importance**
    - All footprints point **westward**, which may symbolize a ritualistic or spiritual significance.
    - **Interpretations**:
        - Archaeologists suggest they represent **souls of the deceased**.
        - Local folklore attributes them to a **goddess**.
2. **Age and Historical Context**
    - The site is estimated to be over **2,000 years old**, linking it to the **Megalithic period**, a time marked by the use of large stone monuments.
3. **Comparison with Other Sites**
    - The site shows similarities to prehistoric rock art in **Avalakki Pera, Karnataka**.
    - Other notable prehistoric finds in Kerala include:
        - **Erikulam valiyapara**: Temple decorations.
        - **Neeleswaram**: Running tiger carvings.
        - **Cheemeni Ariyittapara**: Human figures.
        - **Ettukudukka, Kannur**: Bull carvings.

- **Edakkal Caves, Wayanad**: Prehistoric carvings.

Understanding Megalithic Culture

1. **What is Megalithic Culture?**
    - Refers to a prehistoric tradition characterized by large stone structures or monuments (**megaliths**) used as burial sites or ritual markers.
2. **Chronology and Spread**
    - Dates back to the **3rd century BCE to 1st century CE** in South India.
    - Concentrated mainly in the **Deccan Plateau** and areas south of the **Godavari River**, but also found in regions like Punjab, Rajasthan, Gujarat, and Jammu & Kashmir.
3. **Key Features of Megalithic Culture**
    - **Iron Usage**: Marked a full-fledged **Iron Age**, evidenced by iron tools and weapons at sites like **Junapani (Vidarbha)** and **Adichanallur (Tamil Nadu)**.
    - **Rock Paintings**: Depict scenes of **hunting**, **cattle raids**, and **group dancing**, providing insights into their social and economic life.

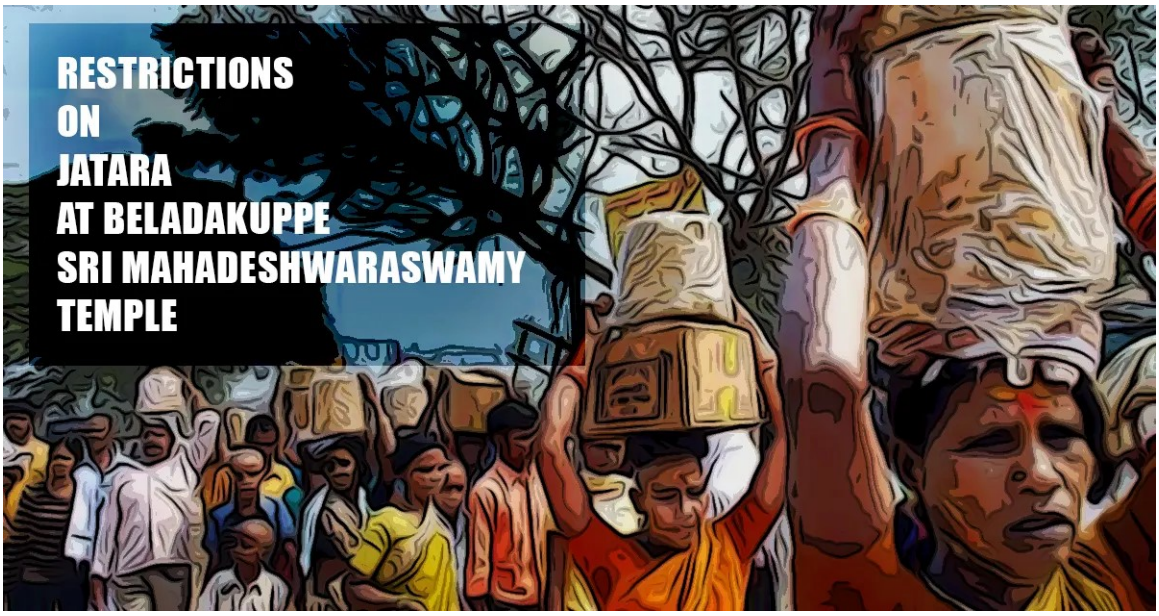
Significance of the Discovery

1. **Cultural Insights**
    - Highlights the **ritualistic practices** and spiritual beliefs of the Megalithic communities.
2. **Historical Importance**
    - Connects Kerala's prehistory to the larger **Megalithic cultural network** of India.
3. **Preserving Prehistoric Heritage**
    - Adds to our understanding of India's **pre-literate past** and emphasizes the need for conserving such sites.

Way Forward

1. **Archaeological Preservation**
    - Protect the site from encroachments and environmental degradation.
2. **Research and Documentation**
    - Conduct further studies to uncover the **purpose and origin** of the footprints.
3. **Public Awareness and Tourism**
    - Promote these sites as part of Kerala's heritage to encourage responsible tourism and awareness about India's prehistoric culture.

5. Restrictions on Jatara at Beladakuppe Sri Mahadeshwaraswamy Temple in Bandipur Tiger Reserve (BTR)



Why in News?

The government has restricted the annual jatara (festival) of the **Beladakuppe Sri Mahadeshwaraswamy Temple**, held on the last Monday of Kartika month. The temple is located in the **core area of Bandipur Tiger Reserve (BTR)**, a critical wildlife habitat.

Details of the Restriction

1. **Reason for Restrictions**
    - The **core area** of tiger reserves is strictly reserved for wildlife conservation and is free from human activities.
    - Large gatherings for the jatara could disturb the habitat and activities of endangered species, particularly **tigers** and **elephants**.
2. **Core vs. Buffer Areas in Tiger Reserves**
    - **Core Area**: Focused on wildlife protection, where human activities are prohibited.
    - **Buffer Area**: Allows limited, conservation-oriented land use to integrate wildlife protection with community needs.

About Bandipur Tiger Reserve (BTR)

1. **Location and Importance**
    - Situated in **Karnataka**, BTR is a crucial part of the **Western Ghats**, a UNESCO World Heritage Site.
    - The reserve plays a significant role in the conservation of tigers, elephants, and other species.

2. **Key Features**
    - **Biodiversity Hotspot**:
        - Home to **1/8th of the world's tiger population**, making it a critical tiger habitat.
        - Forms part of the **Nilgiri Biosphere Reserve**, India's first biosphere reserve (established in 1986).
    - **Tiger Landscape**:
        - BTR is part of a larger landscape that includes **Nagarahole, Wayanad, Mudumalai**, and **Sathyamangalam Tiger Reserves**, spanning Karnataka, Tamil Nadu, and Kerala.
    - **Elephant Population**:
        - Part of the **Mysore Elephant Reserve**, housing the largest population of **Asian elephants** globally.
3. **Conservation Challenges**
    - **Human-Wildlife Conflict**: Proximity of human settlements and activities increases risks.
    - **Deforestation and Encroachment**: Pressure from developmental and agricultural activities threatens habitats.

Significance of the Jatara Restrictions

1. **Wildlife Conservation Priority**
    - Prevents disturbances in the core area, ensuring a safe and undisturbed environment for wildlife.
2. **Balancing Cultural Practices and Ecology**
    - Encourages adherence to conservation laws while respecting cultural practices by suggesting alternative locations for the festival.
3. **Ecological Preservation**
    - Supports India's commitment to protecting its biodiversity hotspots and tiger populations under initiatives like **Project Tiger** and the **National Wildlife Action Plan**.

Way Forward

1. **Awareness and Engagement**
    - Educate local communities about the importance of wildlife conservation and the ecological sensitivity of core areas.
2. **Alternative Arrangements**
    - Provide facilities in the **buffer area** for conducting cultural and religious activities.
3. **Strengthen Wildlife Protection**
    - Enhance patrolling and monitoring in the reserve to prevent illegal encroachments and ensure species protection.