DAILY CURRENT AFFAIRS 06-08-2024

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Krishna Raja Sagar (KRS) dam

Syllabus: GS-1; Geography

Context

- *Incessant rains in the Cauvery catchment area has resulted in the stepping up of the outflow from the Krishnaraja Sagar (KRS) and Kabini dam and a fresh* **flood warning** *has been issued for people living downstream of the two dams.*

About

- *The Krishna Raja Sagar (KRS) Dam is a monumental engineering marvel located across the* **Kaveri River in Karnataka**, *India.*
- *It's a testament to the vision of* **Sir M. Visvesvaraya**, *a renowned engineer, and stands as a crucial lifeline for the region.*

Geographical and Historical Context

- **Location:** *Situated across the Kaveri River, in Mandya district of Karnataka.*

- **River:** *Kaveri, a perennial river originating from Brahmagiri Hills in the Western Ghats.*
- **Construction:** *Built between 1911 and 1931, inaugurated in 1932.*
- **Named after:** *Krishnaraja Wodeyar IV, the then Maharaja of Mysore.*

Significance and Purpose

- **Irrigation:** *Primarily built for irrigation, the dam supplies water to vast agricultural lands in Mysore and Mandya districts, contributing significantly to the region's agrarian economy.*
- **Drinking water:** *The reservoir is a major source of drinking water for Mysore city and a substantial portion of Bengaluru.*
- **Hydropower:** *The dam supports the Shivanasamudra hydroelectric power station, generating electricity for the region.*
- **Flood control***: The dam plays a crucial role in mitigating floods during the monsoon season.*
- **Tourism:** *The Brindavan Gardens, an iconic ornamental garden, is located at the dam site, attracting tourists.*

Engineering Marvel

- **Design***: A gravity dam constructed using traditional stone masonry and lime-pozzolan mortar (surki).*
- **Dimensions:** *2,621 meters long and 40 meters high.*
- **Capacity:** *The reservoir, at its peak, was Asia's largest.*

Challenges and Issues

- **Inter-state disputes:** *The sharing of Kaveri river water between Karnataka and Tamil Nadu has been a contentious issue, often leading to legal battles and water disputes.*
- **Environmental concerns:** *The dam's operations have raised concerns about ecological impacts on the river ecosystem.*
- **Sedimentation:** *The reservoir is facing sedimentation issues, reducing its storage capacity.*
- **Maintenance:** *Regular maintenance and upkeep are essential to ensure the dam's structural integrity and optimal performance.*

Conclusion

- *The Krishna Raja Sagar Dam is more than just a concrete structure; it's a symbol of India's engineering prowess and a lifeline for millions.*
- *Its significance in terms of irrigation, drinking water, hydropower, and flood control cannot be overstated.*

- *However, the challenges it faces, such as inter-state disputes and environmental concerns, require careful management and sustainable solutions.*

One DAE One Subscription

Syllabus: GS-2; Government policies and Interventions

Context

- *The first ceremony for the 'One DAE One Subscription' (ODOS) program took place at Tata Memorial Hospital in Mumbai.*

About

- *The One DAE One Subscription (ODOS) is a significant initiative undertaken by the* **Department of Atomic Energy (DAE)** *in India.*
- *Launched in July 2024, it aims to provide a unified platform for all DAE units and subunits (approximately 60) to access a vast repository of national and international research papers, as well as scientific journals.*

Key Features of ODOS

- **Consolidated Access:** *By bringing together all DAE entities under one subscription, ODOS ensures equitable access to knowledge resources for scientists, engineers, researchers, and students across the department.*
- **Enhanced Research Capabilities:** *With a broader spectrum of research papers at their fingertips, DAE personnel can conduct more comprehensive and cutting-edge research, leading to advancements in the nuclear and atomic energy sector.*
- **Cost-Effective:** *Centralizing subscriptions reduces overall expenditure and optimizes resource utilization.*
- **Digital Platform:** *The initiative emphasizes the use of digital platforms for efficient knowledge sharing and collaboration.*

Significance of ODOS

- **Knowledge Democratization:** *ODOS promotes the democratization of knowledge within the DAE, fostering a culture of learning and innovation.*
- **Research Excellence:** *By providing access to a wealth of research, the initiative is expected to enhance the quality and impact of DAE's research output.*

- **Global Collaboration:** *With access to international journals, DAE researchers can stay updated with global trends and collaborate with the international scientific community.*
- **Foundation for ONOS:** *ODOS serves as a pilot project for the larger 'One Nation One Subscription' (ONOS) initiative, which aims to provide similar access to research resources for the entire country.*

Saffron cultivation

Syllabus: GS-3; Agriculture

Context

- *Kashmir's prized saffron crop hit by dry spells*

About

- *Saffron, often referred to as* **'red gold'**, *is one of the* **world's most expensive spices.**
- *Derived from the stigmas of the* **Crocus sativus flower**, *it has been cultivated for centuries, primarily in regions with specific climatic and soil conditions.*

Geographical Distribution

- **India:** *Kashmir is the traditional heartland of saffron cultivation, particularly the Pampore region, often dubbed the 'Saffron Bowl of India'.*
- **Other Countries:** *Iran, Afghanistan, Spain, and Morocco are also significant producers.*

Climatic and Soil Requirements

- **Altitude:** *Thrives at altitudes of around 2000 meters above sea level.*
- **Temperature:** *Requires a distinct climatic difference between summer and winter, with temperatures ranging from -15°C to 35°C.*
- **Rainfall:** *Adequate rainfall (1000-1500 mm) is essential.*
- **Soil:** *Well-drained, calcareous, humus-rich soil with a pH of 6-8 is ideal.*

Cultivation Process

- **Propagation:** *Saffron is propagated through corms (bulb-like structures).*
- **Planting:** *Corms are planted in autumn.*
- **Flowering:** *Flowers bloom in autumn, typically October-November.*
- **Harvesting:** *The stigmas, the part used for spice, are hand-picked, a labor-intensive process.*
- **Drying:** *Stigmas are dried to reduce moisture content.*

Challenges and Importance

- **Labor-intensive:** *Saffron cultivation is highly labor-intensive, affecting production costs.*
- **Climate change:** *Climate change poses a threat to saffron cultivation due to changing weather patterns.*
- **Economic significance:** *Saffron is a high-value crop, contributing to the economy of producing regions.*
- **Cultural importance:** *It holds cultural and medicinal significance in many societies.*

Government Initiatives

- **National Saffron Mission:** *Aims to increase saffron production and area under cultivation.*
- **Research and development:** *Efforts to develop improved varieties and cultivation techniques.*

Conclusion

- *Saffron cultivation is a specialized and economically important agricultural practice.*
- *Factors like geography, climate, and labor availability play crucial roles in its production.*

- *Government initiatives and technological advancements can help address challenges and boost the saffron sector.*

Practice Question

Q. Examine the economic importance of saffron cultivation and its potential for generating rural employment.

Four ringed butterfly

Syllabus: GS-3; Environment and Ecology

Context

- *The* **rediscovery of a butterfly after 61 years** *in Namdapha National Park has emphasised the significance of Namdapha National Park as a crucial protected area for various species in Northeast India.*

About

- **Species:** *Ypthima cantliei, belonging to the Satyrinae subfamily.*
- **Habitat:** *Primarily found in the eastern Himalayas, specifically Namdapha National Park in Arunachal Pradesh.*

Significance

- **Biodiversity Indicator:** *Its presence indicates the health and richness of the ecosystem.*
- **Endangered Species:** *Given its long absence from records, it is likely an endangered species.*
- **Research Potential***: Further study of its ecology and behavior can provide valuable insights into butterfly conservation.*

Namdapha National Park

- *Located in* **Arunachal Pradesh,** *it is India's largest national park.*
- *Known for its rich biodiversity, including tigers, elephants, and various bird species.*
- *A hotspot for butterfly diversity.*

Conservation Challenges

- *Habitat loss due to deforestation and human encroachment.*
- *Climate change impacting butterfly populations.*
- *Lack of awareness about the importance of butterfly conservation.*

Genetic screening

Syllabus: GS-3; Science and Technology

Context

- *Athletes worldwide turn to genetic screening for improved performance.*

About

- *Genetic screening is a medical test that* **identifies changes in chromosomes, genes, or proteins.**
- *It is used to detect genetic disorders and predispositions to certain diseases.*

Types of Genetic Screening

- **Newborn Screening:** *Conducted on infants shortly after birth to detect genetic disorders that can be treated early in life.*
- **Carrier Screening:** *Determines if a person carries a gene for a genetic disorder that could be passed on to offspring.*
- **Prenatal Screening:** *Conducted during pregnancy to assess the health of the fetus.*
- **Predictive and Pre-symptomatic Testing:** *Identifies gene mutations that might increase a person's risk of developing genetic conditions.*
- **Pharmacogenomics:** *Determines how genes affect a person's response to drugs.*

Applications

- **Disease Prevention:** *Identifies individuals at risk for certain genetic diseases, enabling early intervention.*
- **Personalized Medicine:** *Helps in tailoring medical treatment based on individual genetic profiles.*
- **Reproductive Planning***: Assists prospective parents in understanding the risk of passing genetic disorders to their children.*
- **Population Health:** *Enables health professionals to develop targeted public health strategies.*

Ethical and Social Considerations

- **Privacy and Confidentiality***: Ensuring the genetic information is protected and not misused.*
- **Discrimination:** *Preventing genetic information from being used to discriminate in employment or insurance.*
- **Informed Consent:** *Ensuring individuals understand the implications of genetic testing.*
- **Psychological Impact:** *Managing the emotional and psychological consequences of genetic screening results.*

Benefits

- **Early Detection and Treatment:** *Early identification of genetic disorders can lead to timely interventions and better health outcomes.*
- **Informed Decision Making***: Individuals can make informed choices about their health and reproductive planning.*
- **Improved Public Health:** *Helps in creating targeted health policies and programs.*

Challenges

- **Accuracy and Reliability:** *Ensuring the tests provide accurate and reliable results.*
- **Access and Cost:** *Making genetic screening affordable and accessible to all sections of society.*

- **Regulation and Oversight:** *Developing regulatory frameworks to govern the use of genetic screening technologies.*

Conclusion

- *Genetic screening holds significant potential in advancing healthcare by enabling early detection and personalized treatment of genetic disorders.*
- *However, it also raises important ethical, legal, and social issues that need to be carefully managed to ensure that the benefits of genetic screening are realized while protecting individual rights and maintaining public trust.*