DAILY CURRENT AFFAIRS ANALYSIS

Lakshya Academy

05 JULY 2024

1 – Line of Actual Control:

GS II

International Relations

- **Context:**

- Since April-May 2020, the People's Liberation Army (PLA) of China has crossed the Line of Actual Control (LAC), occupying Indian territory.
- The Indian government has been cautious in addressing the China issue.

- **Why in News?**

- During the 15th BRICS Summit, the Indian PM and Chinese President agreed to intensify efforts for disengagement and de-escalation along the LAC in eastern Ladakh.
- Attention is now on the plans being devised by military commanders for troop pullback.

- **What is the Line of Actual Control (LAC)?**

- Separates Indian-controlled territory from Chinese-controlled territory.
- Divided into three sectors: eastern (Arunachal Pradesh, Sikkim), middle (Uttarakhand, Himachal Pradesh), and western (Ladakh).
- India claims LAC is 3,488 km long; China claims around 2,000 km.
- India's official boundary (Survey of India) includes Aksai Chin and Gilgit-Baltistan.

- **LAC vs Line of Control (LoC) with Pakistan:**

- LoC established post-1948 ceasefire, formalized in 1972 under the Shimla Agreement.
- LAC is not internationally recognized or demarcated, unlike the LoC.

- **Disagreement over the LAC:**

- Major disagreements in the western sector, stemming from 1959 Chinese PM Zhou Enlai's letters to PM Nehru.
- India rejected China's 1959 and 1962 LAC claims post-1962 War.
- Doklam crisis (2017) highlighted China's assertion of the "1959 LAC."

- **Controversy in Ladakh:**

- Aksai Chin was not part of British India; boundary undefined in western Ladakh.

- **Current Arrangement:**

- India accepted LAC conceptually in 1993.
- Signed Agreement to Maintain Peace and Tranquility at LAC.
- Joint Working Group tasked to clarify LAC alignment.

- **Plans for De-escalation in Eastern Ladakh:**

- Details of troop withdrawal and disengagement phases under discussion since 2020.
- Corps Commanders dialogue resulted in limited disengagement and creation of buffer zones.

- **Legacy Issues:**

- Depsang Plains and Demchok issues predate 2020 incursions.
- PLA incursion in Depsang Plains (2013) near Daulat Beg Oldie unresolved.
- Demchok issues at ChardingNinglung Nullah (CNN) junction persist.

- *Source → The Hindu*

2 – Ayushmaan Bharat Health Accounts

GS II

Health related issues

- **Context:**

- Meghalaya has joined Mizoram and Nagaland in refusing to rename their health and wellness centres as Ayushman Arogya Mandirs.
- The refusal is noteworthy given the religious demographics: about 75% of Meghalaya's population follows Christianity, similar to the 90% in Mizoram and Nagaland.

- **What is ABHA?**

- **About:**

- ABHA (Ayushman Bharat Health Account) is a unique 14-digit number assigned to individuals to link all their health records, fostering a digital health ecosystem.
- Enrollment in the Ayushman Bharat Digital Mission (ABDM) is free, enabling individuals to generate a Health ID or ABHA.

- **Features:**

- Electronic Health Records (EHR): ABHA integrates EHRs, enabling efficient storage and retrieval of patient information, thus maintaining medical histories and streamlining healthcare delivery.
- Portability: These accounts are portable across various healthcare providers under the Ayushman Bharat Scheme, allowing beneficiaries to access services seamlessly across different locations.
- Transparency and Accountability: By digitizing transactions and maintaining electronic records, ABHA enhances transparency and accountability in the healthcare system.

- **What is Ayushman Bharat Yojana?**

- Ayushman Bharat Yojana: Also known as the Pradhan Mantri Jan Arogya Yojana (PMJAY), this flagship scheme was launched in September 2018 following the recommendations of the National Health Policy 2017, aiming to achieve Universal Health Coverage (UHC).
- Ayushman Bharat Digital Mission (ABDM): This mission aims to develop the backbone necessary to support the integrated digital health infrastructure of India, bridging gaps among different stakeholders in the healthcare ecosystem through digital highways.

- **Recent Government Initiatives Related to Healthcare:**

- Health and Wellness Centres: Announced in February 2018, these centres transform existing Sub Centres and Primary Health Centres into Health and Wellness Centres (HWCs). These HWCs are the foundation of Ayushman Bharat, offering Comprehensive Primary Health Care (CPHC), including maternal and child health services, non-communicable diseases management, free essential drugs, and diagnostic services.
- Janaushadhi Kendra: These centres ensure that quality generic medicines are available at affordable prices to all citizens.
- eSanjeevani: This national telemedicine service by the Ministry of Health and Family Welfare has become the world's largest documented telemedicine implementation in primary healthcare, providing digital health services to rural and remote communities.

- *Source → The Hindu*

3 – India Myanmar Relations:

GS II

International Relations

- **Context:**

- The ongoing conflict between ethnic armed organizations (EAOs) and the military junta in Myanmar has led to a severe humanitarian crisis. The United Nations Security Council discussed this issue on July 3. Experts on Myanmar have suggested that India should review its policy and consider establishing communication channels with the EAOs to aid the affected civilians.

- **Significance of India-Myanmar Relationship:**

- **Geopolitical Importance:**

- Gateway to Southeast Asia: Myanmar acts as a crucial land bridge connecting South Asia to Southeast Asia. Its proximity to India's northeastern states establishes a strategic link, enhancing regional connectivity.
- Bay of Bengal Connectivity: The shared maritime boundary in the Bay of Bengal opens opportunities for maritime cooperation, fostering economic and strategic collaboration.
- Regional Power Balancing: A strong relationship with Myanmar helps India maintain regional power balance, countering China's growing influence in the region.

- **Strategic Significance:**

- Strategically Significant Neighbourhood: Myanmar, a large multi-ethnic nation, is located in a strategically important area, impacting its five neighboring countries: China, Laos, Thailand, Bangladesh, and India.
- Neighbourhood First Policy: India's "Neighborhood First" policy emphasizes the importance of a robust, cooperative, and mutually beneficial relationship with Myanmar.
- Act East Policy: Myanmar is a key component of India's Act East Policy, aimed at fostering economic, strategic, and cultural ties with the Asia-Pacific region.
- Multilateral Engagement: Myanmar's membership in SAARC, ASEAN, BIMSTEC, and Mekong Ganga Cooperation adds a regional dimension to bilateral relations, aligning with India's "Act East" policy.

- **Areas of Collaborative Cooperation:**

- **Bilateral Trade:**

- Trade Relations: India is Myanmar's fifth-largest trading partner, with bilateral trade reaching USD 1.03 billion in 2021-22.
- Economic Opportunities: Both countries aim to enhance trade, creating opportunities in agriculture, pharmaceuticals, information technology, and energy sectors.
- Energy Cooperation:
- Energy Security: Myanmar is vital for India's energy security, with an energy investment portfolio of over USD 1.2 billion, making it the largest recipient of India's investment in Southeast Asia's oil and gas sector.

- **Investment in Infrastructure:**

- Kaladan Multi-Modal Transit Transport Project: This project aims to connect Kolkata port in India with Sittwe port in Myanmar by sea, enhancing connectivity and trade.
- India-Myanmar-Thailand Trilateral Highway Project: This highway will link India's Manipur state with Myanmar and Thailand, promoting regional integration.

- **Strategic Defense Partnership:**

- Military Collaboration: India and Myanmar maintain a close defense partnership, conducting joint military exercises and providing training to the Myanmar Army.
- India-Myanmar Bilateral Army Exercise (IMBAX): This exercise aims to strengthen military ties and promote closer relations.

- **Capacity Building Measures:**

- Developmental Assistance: India has extended USD 2 billion in soft loans and provides developmental assistance tailored to Myanmar's needs, including setting up higher education and research institutions.
- Disaster Response: India supports capacity building in disaster risk mitigation and strengthening Myanmar's National Disaster Response Mechanism.
- Humanitarian Assistance: India has provided aid during crises, such as COVID-19 and natural calamities like Cyclone Mora (2017), Cyclone Komen (2015), and the 2010 Shan State earthquake.

- **Cultural Connectivity:**

- Cultural and Historical Ties: Shared Buddhist heritage and colonial history strengthen diplomatic relations and mutual understanding.

- Indian Diaspora: The Indian diaspora, constituting about 4% of Myanmar's population, plays a significant role in the economy through business, trade, and investment.
- Key Issues in India-Myanmar Relationship:
- Internal Security Concerns:
- Porous Border: The India-Myanmar border is poorly guarded and located in an underdeveloped, insurgency-prone region, facilitating illegal activities by terrorist and insurgent groups.
- Insurgent Groups: Various Indian insurgent groups have established camps in Myanmar's border areas, posing security challenges.

- **Free Movement Regime (FMR):**

- Controversy: While FMR benefits local populations and enhances relations, it has also facilitated illegal immigration, drug trafficking, and arms trade.

- **Triangular Power Struggle:**

- Internal Strife: Myanmar's ongoing internal conflict post-military coup has led to persistent civil unrest, with no clear resolution in sight.

- **China's Influence:**

- Economic Ties: China, Myanmar's largest investor and trading partner, has solidified its influence through significant infrastructure projects, posing a challenge for India.

- **Infrastructure Project Delays:**

- Trust Deficit: Delays in completing collaborative projects like the Kaladan Multi-Modal Transit Transport Project and Sittwe port have hindered economic cooperation.

- **Rohingya Crisis:**

- Humanitarian Concern: The Rohingya crisis has strained India-Myanmar relations, with security concerns and resource burdens cited by India as reasons for its stance.

- **Way Forward:**

- **Strategic Diplomacy:**

- Regulate Free Movement Regime: Effectively manage FMR while preserving cross-border connections, upgrading infrastructure, and formalizing trade at entry points.
- Engage Multiple Stakeholders: Balance relations with the military government while engaging with pro-democracy stakeholders.
- Balance China's Influence: Pursue strategic partnerships and economic collaborations to counterbalance China's influence.

- **Collaborative Instruments:**

- Promote Two-way Trade: Address trade imbalances by diversifying trade relations and exploring new sectors for collaboration.
- Accelerate Infrastructure Projects: Ensure timely completion of joint projects to boost connectivity and economic cooperation.
- Enhanced Security Cooperation: Collaborate on counterinsurgency measures, intelligence-sharing, and joint operations.

- **Track II Diplomacy:**

- Cultural Exchange: Strengthen cultural ties through exchange programs, joint cultural events, and educational collaborations.
- Organize Peace Conclaves: Consider hosting a Peace Assembly with Quad and ASEAN representatives to address human rights issues and support regional stability.

- **Conclusion:**

- India and Myanmar have much to gain from each other, forming a reciprocal dynamic that underpins their bilateral relationship. By actively engaging in collaborative efforts and committing to regional peace and stability, both nations can forge a forward-looking alliance.

- *Source → The Hindu*

4 - Climate-Resilient Farming:

GS III

Environmental Conservation

- **Context:**

- The Union government is set to introduce a comprehensive framework aimed at promoting climate-resilient agriculture across 50,000 villages situated in climatically vulnerable districts. This initiative falls under a national programme for climate-resilient agriculture, which the Ministry of Agriculture and Farmers' Welfare is poised to launch as part of its 100-day agenda. The Union Cabinet is expected to approve a proposal for this programme soon, according to a reliable source.

- **Major Impacts of Climate Change on Indian Agriculture:**

- **Changes in Rainfall Patterns:**

- Climate change has caused significant alterations in rainfall patterns, affecting the timing, intensity, and distribution of rainfall.
- These changes can lead to droughts, floods, and erratic rainfall, all of which negatively impact agricultural productivity.
- For instance, the delayed and deficient monsoon rains in 2019 resulted in reduced crop yields across many regions in India.

- **Increased Temperature:**

- Rising temperatures adversely affect crop growth and development.
- High temperatures during the growing season can lead to decreased crop yields and lower the nutritional value of crops. Additionally, heat stress can harm livestock health and productivity.
- Recent heatwaves in India have particularly impacted heat-sensitive crops like wheat and rice, reducing their yields.

- **Shifting Pest and Disease Patterns:**

- Climate change alters the distribution and abundance of pests and diseases, complicating agricultural pest management.
- Changes in temperature and rainfall patterns can favor the spread of certain pests and diseases, negatively impacting crop health.

- For example, the increased incidence of pests like the pink bollworm has harmed cotton production in India, and locust swarms from the Somalia region due to erratic rain have also posed significant challenges.

- **Water Scarcity:**

- Climate change affects water availability, particularly in regions reliant on rainfall or snowmelt for irrigation.
- Altered precipitation patterns and melting glaciers can result in water scarcity, especially during crucial crop growth stages, reducing agricultural productivity and increasing competition for water resources.

- **Changes in Cropping Patterns:**

- Climate change influences the suitability of various crops in different regions, necessitating adjustments in cropping patterns to maintain productivity.
- Some crops may become less viable, while others may become more suitable. For instance, on an all-India basis, climate change is projected to boost coconut production.

- **Increased Extreme Weather Events:**

- Climate change has been linked to a rise in extreme weather events such as cyclones, storms, and hailstorms, causing significant damage to crops, livestock, and infrastructure, leading to yield losses and economic hardships for farmers.
- A recent example is Cyclone Biporjoy.

- **Way Forward:**

- **From Input-Intensive to Knowledge-Intensive Agriculture:**

- India's diverse farming practices necessitate the engagement of diverse viewpoints in a national dialogue to identify suitable solutions for the future.
- The advanced world is moving towards precision farming using sensors and scientific tools for exact practices and input application.
- Adopting high-tech, precise farming practices in India can reduce average costs, increase farmers' incomes, and address many challenges related to scale.

- **Intercropping and Agroforestry:**

- Growing different crops together in the same field or integrating trees with crops can enhance biodiversity, reduce soil erosion, and increase climate resilience.
- Intercropping legumes with cereals not only provides additional income but also improves soil fertility through nitrogen fixation.

- Promoting the cultivation of non-traditional crops that are more resilient to climate extremes can reduce dependency on a single crop and mitigate risks. For instance, promoting drought-tolerant millets can help farmers adapt to changing climatic conditions.

- **Climate-Smart Water Management:**

- Efficient water management is crucial for achieving climate resilience in agriculture, especially in water-stressed regions.
- Implementing climate-smart water management practices can enhance agricultural productivity while conserving water resources.
- Constructing ponds, check dams, and farm ponds to capture and store rainwater can help recharge groundwater and provide irrigation during dry spells. Farmers can use this stored water during droughts or for supplementary irrigation, thus reducing dependence on erratic rainfall patterns.

- *Source → The Hindu*

5 - Shanghai Cooperation Organisation:

GS II

International Bodies

- **Context:**

- On Thursday, July 4, during the final day of the Shanghai Cooperation Organisation (SCO) Summit held in Astana, Kazakhstan's capital, Indian External Affairs Minister S. Jaishankar engaged in talks with Chinese Foreign Minister Wang Yi. Jaishankar also conducted bilateral meetings with his counterparts from SCO member countries Tajikistan, Russia, and the newest member Belarus, during the two-day summit that began on Wednesday.

- **Who are the Members?**

- **Membership:**

- The SCO comprises eight member countries: China, India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Uzbekistan, and Tajikistan. Iran is poised to join as well.

- **Observers:**

- Observers of the SCO include Afghanistan, Belarus, and Mongolia, with aspirations to follow Tehran's lead.

- **Dialogue Partners:**

- Current and potential dialogue partners are Azerbaijan, Armenia, Egypt, Qatar, Turkey, Saudi Arabia, the United Arab Emirates, Maldives, Nepal, and Sri Lanka.
- What are the Conflicts Among Member Countries of SCO?
- **Conflicts Exist Between:**

- **India and China over Border Issues:**

- Despite the 18th round of India-China Corps Commander Level Meetings, no significant progress has been made in alleviating tensions.

- **India and Pakistan over Terrorism:**

- State-sponsored terrorism remains a significant source of tension.
- Frequent ceasefire violations along the India-Pakistan border further exacerbate the situation.

- **Kyrgyzstan and Tajikistan over Border Issues:**

- The conflict escalation in September and November 2022 is concerning for regional stability.
- This conflict potentially undermines the stability of Central Asia and its neighboring regions.

- **Afghanistan and Pakistan:**

- Various conflicts between Taliban-led Afghanistan and Pakistan contribute to instability along their border areas.
- The SCO aims to foster peace in Eurasia, yet its capability to address intra-state and inter-state conflicts among its members remains under scrutiny.

- **What are the Challenges?**

- **China's Rise:**

- The increasing influence of China poses challenges, as other regional powers, including the United States, attempt to curb its dominance and influence in the region.

- **Limited Institutional Mechanisms:**

- Although the SCO has several bodies like the Council of Heads of State, Council of Ministers of Foreign Affairs, and Council of National Coordinators, these entities lack the formal decision-making and enforcement powers needed for effective governance.
- The SCO does not have a formal dispute resolution mechanism between member states.

- **Divergent Interests and Disagreements:**

- Member states possess differing political systems, economic models, and strategic priorities, which can lead to internal conflicts and disagreements on issues such as economic cooperation and security.

- **Limited Geographical Scope:**

- The SCO's focus is limited to Eurasia and neighboring regions, restricting its engagement with global issues and challenges.

- **Western Skepticism and Criticism:**

- The SCO faces criticism from Western countries for its lack of democratic principles, support for authoritarian regimes, and internal conflicts among members.

- **What is the Importance of SCO for India?**

- **Economic Cooperation:**

- The SCO offers a platform for India to enhance economic cooperation with Central Asian countries rich in natural resources.
- India seeks to diversify its economic partnerships by increasing trade and investment ties with SCO countries.

- **Energy Security:**

- Central Asia's vast reserves of oil and gas present opportunities for India to bolster its energy security.
- The SCO provides a forum for India to explore energy cooperation with these resource-rich countries.

- **Cultural Cooperation:**

- The SCO member states, observers, and partners collectively have 207 UNESCO World Heritage Sites.
- A rotating initiative designates one city from SCO member countries as a tourism and cultural capital each year, with Kashi (Varanasi) being the first cultural capital under this initiative.

- **Counterterrorism:**

- The SCO's focus on counterterrorism cooperation is beneficial for India, which has been a victim of terrorism.
- India can leverage the collective efforts of the SCO to combat terrorism in the region.

- **What is the Significance of the SCO?**

- **Economic Cooperation:**

- Representing around 42% of the world population and 25% of the global GDP, the SCO has immense tourism potential that can be promoted by increasing awareness about SCO countries.

- **Connectivity:**

- The SCO promotes connectivity among member states through infrastructure projects like the China-Pakistan Economic Corridor (CPEC) and the International North-South Transport Corridor (INSTC).

- **Security Cooperation:**

- The SCO focuses on combating terrorism, separatism, and extremism.
- The Regional Anti-Terrorist Structure (RATS) promotes cooperation among member states in addressing these threats, providing a platform for sharing intelligence, conducting joint exercises, and coordinating actions to prevent and combat terrorism in the region.

- **Conclusion:**

- While the SCO is an attractive forum for regional states, its internal contradictions pose significant challenges. Preventing conflict among member states remains a high priority, yet the SCO's record in this regard is not impressive. Despite China's growing regional influence potentially coming at Russia's expense, Russia and China have drawn closer and have little reason to compete over Central Asia. Their strategic division of labor—Russia's military presence and China's financial investments—aims to keep Western powers out of the region.

- *Source → The Hindu*

6 - National Green Hydrogen Mission:

GS II

Government Policies and Interventions

- **Context:**

- The Ministry of New and Renewable Energy has recently issued guidelines aimed at funding testing facilities, infrastructure, and institutional support under the National Green Hydrogen Mission. These guidelines focus on developing standards and a regulatory framework essential for the mission's success.

- The new guidelines will help identify gaps in the current testing facilities for green hydrogen components, technologies, and processes.
- It will facilitate the creation of new testing facilities and upgrade existing ones to ensure safe and secure operations.
- The scheme, with a total budget of ₹200 crore until the financial year 2025-26, is part of the broader ₹19,744 crore allocation under the mission.
- The National Institute of Solar Energy will act as the implementation agency for this scheme.

- **What is the National Green Hydrogen Mission?**

- **About:**

- The National Green Hydrogen Mission is designed to incentivize the commercial production of green hydrogen, with the goal of positioning India as a net exporter of this fuel.
- The mission aims to foster demand creation, production, utilization, and export of green hydrogen.

- **Sub Schemes:**

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT):

- This initiative will fund the domestic manufacturing of electrolysers and the production of green hydrogen.

- **Green Hydrogen Hubs:**

- States and regions with the potential for large-scale production or utilization of hydrogen will be identified and developed as Green Hydrogen Hubs.

- **Objective:**

- To establish a green hydrogen production capacity of at least 5 million metric tonnes (MMT) per annum by 2030.
- To add approximately 125 GW of renewable energy capacity by 2030.
- The mission is expected to attract investments over ₹8 lakh crore and create around six lakh jobs.
- It will help reduce fossil fuel imports by over ₹1 lakh crore and lower annual greenhouse gas emissions by nearly 50 MT.

- **Nodal Ministry:**

- Ministry of New and Renewable Energy

- **Significance:**

- The mission will contribute to the decarbonization of industrial, mobility, and energy sectors.
- It aims to reduce dependence on imported fossil fuels and feedstock.
- It will foster the development of indigenous manufacturing capabilities and create employment opportunities.
- The mission encourages the development of new technologies, such as efficient fuel cells.

- **Potential:**

- India has favorable geographic conditions and abundant sunlight and wind resources, making it ideal for green hydrogen production.
- Green hydrogen technologies are particularly useful in sectors where direct electrification is challenging, such as heavy-duty, long-range transport, certain industrial sectors, and long-term power storage.
- The early stage of the industry presents an opportunity to create regional hubs that export high-value green products and provide engineering, procurement, and construction services.

- **Challenges:**

- **Nascent Stage Globally:**

- Green hydrogen development is still in its early stages worldwide. While India can emerge as a major producer, it currently lacks the necessary infrastructure to support all intermediary steps.

- **Economic Sustainability:**

- A significant challenge is the economic viability of green hydrogen production. For hydrogen to be commercially viable, it must be cost-competitive with conventional fuels and technologies.

- **What is Green Hydrogen?**

- **About:**

- Hydrogen is a crucial industrial fuel used in producing ammonia, steel, refining processes, and electricity.
- Currently, most hydrogen is derived from coal and is referred to as 'black' or 'brown' hydrogen.
- Pure hydrogen is rare; it usually exists in compounds like H_2O (water). Electrolysis, using renewable electricity, can split water into oxygen and hydrogen, producing green hydrogen.
- Different colors indicate the electricity source used to produce hydrogen, such as brown (coal), grey, blue, and green (renewable sources).

- **Current Production:**

- Green hydrogen accounts for less than 1% of global hydrogen production due to high costs.
- Production costs vary: black hydrogen (USD 0.9-1.5/kg), grey hydrogen (USD 1.7-2.3/kg), blue hydrogen (USD 1.3-3.6/kg), and green hydrogen (USD 3.5-5.5/kg).

- **Need for Producing Green Hydrogen:**

- Hydrogen has a high energy content per unit weight, making it a valuable energy source, even for rocket fuel.
- Green hydrogen is one of the cleanest energy sources, with near-zero emissions. It is suitable for fuel cells in cars and energy-intensive industries like fertilizer and steel manufacturing.
- Global efforts to build green hydrogen capacity aim to enhance energy security and reduce carbon emissions.

- **Other Renewable Energy Initiatives:**

- Jawaharlal Nehru National Solar Mission (JNNSM)
- International Solar Alliance
- PM-KUSUM
- National Wind-Solar Hybrid Policy
- Rooftop Solar Scheme

- **Way Forward:**

- Incentives are needed to encourage industrial hydrogen users to adopt green hydrogen.
- Developing supply chains, including pipelines, tankers, storage, and distribution networks, is crucial.
- A comprehensive skill development program is essential to train workers for the green hydrogen economy.
- Leveraging low-cost renewable plants and cost-curtailment experience from solar and wind auctions can reduce green hydrogen costs.

- India's young demographic and thriving economy present significant market potential for hydrogen-based technologies.

- *Source → The Hindu*

7 – Gharial Population in India:

Prelims Specific

- **Context:**

- A solitary female gharial has recently drawn significant attention in the Kaziranga National Park and Tiger Reserve in eastern Assam, temporarily overshadowing the one-horned rhino. Wildlife officials and experts are puzzled about how this gharial ended up in the Brahmaputra river section within the park. However, they agree that this nearly adult reptile could be crucial for reestablishing the gharial population in the river.

- **About:**

- Gharials, also known as gavials, are a unique type of Asian crocodilian easily identified by their elongated, narrow snouts. The crocodilian family includes crocodiles, alligators, caimans, and more.

- **India is home to three crocodilian species:**

- Gharial (Gavialis gangeticus): Listed as Critically Endangered on the IUCN Red List.
- Mugger crocodile (Crocodylus palustris): Classified as Vulnerable by the IUCN.
- Saltwater crocodile (Crocodylus porosus): Categorized as Least Concern by the IUCN.

- All three species are included in Appendix I of CITES and Schedule I of the Wild Life (Protection) Act, 1972, with the exception of Saltwater Crocodile populations in Australia, Indonesia, and Papua New Guinea, which are listed in Appendix II of CITES.

- **Habitat of Gharials:**

- Natural Habitat: Found in the fresh waters of northern India.
- Primary Habitat: Chambal River (a tributary of the Yamuna).
- Secondary Habitats: Ghagra, Gandak, Girwa rivers (Uttar Pradesh), Ramganga river (Uttarakhand), and the Sone river (Bihar).

- **Significance:**

- The population of gharials serves as a significant indicator of clean river water.

- **Conservation Efforts:**

- Breeding Centres: Kukrail Gharial Rehabilitation Centre in Lucknow, Uttar Pradesh, and the National Chambal Sanctuary (Gharial Eco Park, Madhya Pradesh).

- **Threats:**

- Increased river pollution
- Construction of dams
- Large-scale fishing operations
- Floods
- Illegal sand mining
- Poaching

- **Additional Information:**

- The gharial's diet mainly consists of fish, and their presence indicates a healthy fish population in rivers.
- Conservation programs have been in place for decades, yet the species continues to face significant threats from human activities.
- Public awareness and involvement are critical for the successful conservation of gharials.
- The discovery of the lone female gharial in Kaziranga could potentially lead to new insights and strategies for gharial conservation in India.

- *Source → The Hindu*

8 – Radiation Bio Dosimetry:

Prelims Specific

- **Context:**

- After a large-scale radiological event, such as an Improvised Nuclear Device or reactor accident, it is crucial to quickly identify individuals who have received significant radiation doses for timely administration of recently approved radiation sickness drugs. Prompt assessment also helps reassure those not significantly exposed, preventing hospital overcrowding.

- **What is Biodosimetry?**

- Biodosimetry determines radiation exposure levels by analyzing changes in blood, urine, or hair, particularly useful when individuals lack personal radiation monitoring devices.

- **Dicentric Chromosome Assay (DCA):**

- **Mechanism:** Measures chromosome aberrations in white blood cells, specifically dicentric chromosomes (DC), which form uniquely due to radiation.
- **Procedure:** Lymphocytes are cultured, chromosomes spread and stained, and DCs are counted.
- **Timeframe:** 2-3 days for results.
- **Usage:** Effective for small-scale radiation accidents; limited throughput in large-scale events.

- **Cytokinesis Block Micronucleus Assay (CBMN):**

- **Mechanism:** Detects micronuclei formation in dividing white blood cells, indicative of radiation exposure.
- **Procedure:** Cells are divided but arrested before complete division to form binucleated cells.
- **Timeframe:** About 3 days due to longer culturing.

- **Gamma-H2AX Assay:**

- **Mechanism:** Measures phosphorylated gamma-H2AX histone protein levels to segregate exposed from unexposed and determine radiation dose levels.
- **Procedure:** No cell culturing needed; results within 6-8 hours.
- **Timeframe:** Must be performed within 24 hours due to histone phosphorylation kinetics.

- *Source → The Hindu*

9 - Swami Vivekananda:

Prelims Specific

- **Context:**

- On the occasion of Swami Vivekananda's death anniversary, Prime Minister Narendra Modi honored his legacy, reaffirming a commitment to realize his vision of a prosperous and progressive society.

- **Key Points:**

- **Birth:**

- Born as Narendranath Datta on 12th January, 1863.
- National Youth Day is celebrated annually on his birth anniversary.

- **Name Change:**

- In 1893, at the behest of Maharaja Ajit Singh of the Khetri State, he adopted the name 'Vivekananda'.

- **Contributions:**

- Introduced Indian philosophies of Vedanta and Yoga to the world stage.
- Advocated 'neo-Vedanta,' interpreting Hinduism through a Western perspective, and emphasized the blend of spirituality with material progress.
- Emphasized the importance of education for the revitalization of India, promoting a 'man-making' and 'character-building' education.
- Gained global recognition for his address at the World Parliament of Religion in Chicago in 1893.
- Outlined four paths to achieve moksha (liberation from worldly attachments) in his books: Raja-yoga, Karma-yoga, Jnana-yoga, and Bhakti-yoga.
- Praised by Netaji Subhas Chandra Bose as the "maker of modern India."

- **Associated Organisations:**

- Chief disciple of 19th-century mystic Ramakrishna Paramhansa.
- Founded the Ramakrishna Mission in 1897, focusing on value-based education, cultural activities, healthcare, women's empowerment, youth and tribal welfare, and disaster relief and rehabilitation.

- Established the Belur Math in 1899, which became his permanent residence and is the headquarters of Ramakrishna Math and Ramakrishna Mission.

- **Death:**

- Passed away at Belur Math in 1902. Belur Math, located in West Bengal, remains the headquarters of the Ramakrishna Math & Ramakrishna Mission.

- **Additional Information:**

- **Philosophical Impact:**

- Swami Vivekananda's teachings have had a profound influence on Indian and Western thought, inspiring countless individuals towards a path of self-realization and social service.

- **Literary Contributions:**

- His writings and speeches continue to be studied for their deep philosophical insights and practical guidance on personal and social development.

- **Legacy:**

- Swami Vivekananda's legacy endures through the ongoing work of the Ramakrishna Mission, which continues to uphold his vision of a harmonious, educated, and spiritually enriched society.

- **Recognition:**

- His birth anniversary, National Youth Day, is celebrated with activities that inspire the youth to follow his ideals of courage, self-reliance, and commitment to social service.
- By reinterpreting his teachings and ideals, Swami Vivekananda laid the foundation for modern spiritual thought and education in India, leaving a legacy that continues to inspire and guide generations.

- *Source → The Hindu*