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ANALYSIS**



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23 MARCH 2024

1 - 'Xiaokang' Border Defence Villages in China near the LAC:

GS III

Internal Security

- **Context:**
- A new trend along the Line of Actual Control (LAC) separating China and India is that Chinese citizens have started moving into "Xiaokang" border security communities that were previously empty.
- China built these settlements in 2019, and the Indian Army is concerned about the nature of the population and the strategic ramifications.
- **What are the Border Defence Villages known as "Xiaokang"?**
- **Village Models:**
- China is developing strategic infrastructure along its borders, especially along the LAC with India, and one component of this project is the border defence villages known as Xiaokang, or "well-off villages."
- Arunachal Pradesh's Tawang region and the villages across the Lohit Valley are notable examples of occupied territory.
- They are constructed in areas where there is perceived need to strengthen sovereignty or when territorial claims are disputed.
- **Infrastructure with two uses:**
- Because these settlements are intended to fulfil both military and civilian functions, they are known as "dual-use infrastructure."
- They are constructed in areas where there is perceived need to strengthen sovereignty or when territorial claims are disputed.
- **Related Issues for India:**
- Chinese development of 628 such villages along India's borders with the Tibet Autonomous Region indicates a deliberate effort to make territorial claims along the Line of Actual Control (LAC). This gives Indian military strategists cause for concern and emphasises the importance of maintaining vigilante security along the border.

- Potential for dual usage, the communities carry military implications as well as worries about further militarization along the already strained LAC.
 - Uncertain Intentions: Efforts to establish confidence are hampered by the lack of clarity surrounding the precise goal and size of the civilian population in these settlements.
- **What initiatives does India have along the LAC?**
- Since 2019, India has stepped up efforts to improve its border infrastructure in response to China's infrastructural expansion.
- **Programme for Vibrant Villages:**
- With 17 chosen for improvement along the China-India border in areas like Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh, the Vibrant communities programme intends to upgrade 663 border communities.
- **About BRO:**
- At a cost of Rs 2,941 crore, the BRO has finished 90 infrastructure projects along the China-India border.
 - 36 of these projects are in Arunachal Pradesh, 26 are in Ladakh, and 11 are in Jammu and Kashmir as of September 2023.
 - Major roadways being built by BRO include the Trans-Arunachal Highway, Frontier Highway, and East-West Industrial Corridor Highway. These projects are intended to increase connectivity, especially in the Tawang region and the eastern portion of Arunachal Pradesh.
- **Border Area Development Program (BADP):**
- The BADP is a centrally financed programme designed to address the unique developmental requirements of individuals residing in isolated and unreachable regions close to international borders.
 - Projects in the fields of infrastructure, livelihood, agriculture, health, and education are all eligible to receive funding.
- **Trains:**
- To enable the quick mobilisation of the Indian army, Indian Railways is building key rail connections in the Northeast.

- **The Line of Actual Control (LAC): What is it?**

- Chinese-controlled territory and Indian-controlled territory are divided by the LAC.
- China claims that the length of the Land Area Conflict (LAC) is roughly 2,000 km, whereas India claims that it is 3,488 km long.

- **Three sectors are distinguished by this demarcation:**

- The eastern region includes Sikkim and Arunachal Pradesh.
- Himachal Pradesh and Uttarakhand are included in the middle sector.
- Southwestern region found in Ladakh.

- **Conflicts Regarding the LAC:**

- The LAC's alignment in several areas is the main source of disagreement. With a few minor disagreements on ground placements, the LAC in the eastern sector adheres to the 1914 McMahon Line.
- There are significant differences in the Western world that stem from correspondence between Chinese Prime Minister Zhou Enlai and Indian Prime Minister Jawaharlal Nehru in 1959.
- The Chinese only provided a general description of the LAC on non-scale maps.
- Following the 1962 War, the Chinese claimed to have withdrew to a location 20 km below the LAC in November 1959.
- A spokesman for the Chinese Foreign Ministry encouraged India to follow the "1959 LAC" during the 2017 Doklam dispute.
- Even after further explanations, confusion remained, resulting in different interpretations by the two countries.

- **China's LAC Designation and India's Reaction:**

- India first opposed the idea of the LAC in 1959 and 1962, expressing worries about its ambiguous meaning and China's possible use of it to use military force to change the reality on the ground.
- In response to more frequent border confrontations, India began to modify its approach to the Law of Arc in the mid-1980s, which included a review of patrolling boundaries.
- India signed the Agreement to Maintain Peace and Tranquilly at the LAC in 1993, the same year that the notion of the LAC was formally adopted by that country.
- China and India have only shared maps of the LAC's middle region. For the Western sector, maps were "shared" but never legally exchanged, and since 2002, efforts to clarify the LAC have essentially come to a standstill.
- The two most significant war outbreaks in recent memory occurred in Tawang, Arunachal Pradesh, in 2022, and the Galwan Valley in Ladakh in 2020.

- Both sides of the LAC's observers concur that since 2013, there have been more significant military encounters.
- **Line of Control with Pakistan against LAC:**
- The UN-negotiated ceasefire line from 1948 served as the foundation for the 1972 establishment of the Line of Control (LoC), which followed the Kashmir War. It is marked out on a map that both nations have signed and has international legal authority.
- However, neither country has approved the LAC, and it is not marked out on a map nor marked in real life.

Source → The Hindu

2 - Digital Public Infrastructure:

GS II

Government Policies and Interventions

- **Context:**
- In a recent research titled "Digital Public Infrastructure of India - Accelerating India's Digital Inclusion," published in collaboration with Arthur D. Little and Nasscom, it was predicted that India's DPIs will help the country grow from a USD 1 trillion to a USD 1 trillion digital economy by 2030.
- **A DPI: What is it?**
- About: DPI refers to building blocks or platforms like digital identity, financial infrastructure, and data exchange solutions that assist nations in providing their inhabitants with basic services, empowering them and enhancing their quality of life through the facilitation of digital inclusion.
- **DPI Ecosystem: People, money, and information are mediated by DPIs. These three collections serve as the cornerstone for creating a productive DPI ecosystem:**
- People going via a digital ID system comes first.
- Second, the money moving via a quick, real-time payment system.
- Thirdly, the exchange of personal data via a consent-based data sharing framework to actualize DPI benefits and give citizens a genuine say over their data.

- IndiaStack is a collection of application programming interfaces (APIs) that enables governments, corporations, startups, and developers to leverage a distinctive digital infrastructure to address India's challenging issues in the direction of providing services that are presence-, paper-, and cash-free.
- India has developed all three of the core DPIs—Digital identification (Aadhar), Real-time rapid payment (UPI), and Account Aggregator—built on the Data Empowerment Protection Architecture (DEPA) and is the first country to do so through India Stack.
- Through the use of a third party organisation known as Consent Managers, DEPA establishes a digital framework that enables users to disclose their data on their own terms.

- **Which aspects of the report stand out the most?**

- **Economic Repercussions:**

- By 2030, DPIs are expected to have a major impact on India's economy, helping it grow from USD 8 trillion to a USD 1 trillion digital economy.
- It is anticipated that DPIs will improve residents' productivity and encourage both social and financial inclusion.

- **Reach and Scalability:**

- By 2022, mature DPIs like Aadhaar, UPI, and FASTag have already experienced exponential acceptance. Over the next seven to eight years, it is expected that these same DPIs will continue to grow exponentially, reaching even the most remote portions of the population.
- The substantial economic value produced by mature DPIs is already equal to 0.9% of India's GDP (Gross Domestic Product). This number is expected to rise to between 2.9% and 4.2% of GDP by 2030 when taking into account both direct and indirect effects.
- The majority of the value growth will be driven by the Ayushman Bharat Digital Mission (ABDM), which aims to enhance India's digital health infrastructure.

- **Worldwide Headship:**

- India is now leading the world in the development of DPIs, using them to execute digital payment acceptance on a large scale, support domestic enterprises, and encourage entrepreneurship in the nation.

- **Government Assistance and the IT Landscape:**

- The government's unwavering backing, together with the IT industry's intellectual capital and startup ecosystem, which foster innovation and growth, are credited with DPIs' success.
- Progress and Enhanced User Experience:

- It is anticipated that current digital entities will develop to provide better user experiences by utilising cutting edge technology like Web 3, AI, and others.
- As Aadhaar's use cases spread to include more services, it is anticipated that it will continue to play a significant role in strengthening its position within India's digital infrastructure.
- **Basis for the Revolution in Digitalization:**
 - DPIs, or India Stack, have strengthened the groundwork for India's digital revolution by improving the nation's capacity to leverage digital technologies at a population size to propel economic growth and societal transformations.
 - With an eye on reaching the "India@47" milestone, DPIs serve as the cornerstone to shape the "tech-ade" and eventually drive India's growth path.
- **Obstacles and recommendations:**
 - DPI offers opportunities, but problems still exist. These include the limited language possibilities, the lack of real-time data, the lack of relationships between stakeholders, and the limited scope outside government services.
 - To encourage the use of DPI, the governments must establish task teams, offer regulatory clarity, and support policies. They must also try to collaborate with businesses and startups.
- **What Constitutes the DPI Ecosystem in India?**
- **Adhaar:**
 - Strategic policy tools such as Aadhaar can be used for social and financial inclusion, public sector delivery reforms, fiscal budget management, convenience, and hassle-free, people-centric government.
 - Holders of Aadhaar are free to utilise their ID for private sector activities; private sector organisations do not need to request additional authorization to do so.
- **DigiYatra:**
 - Based on a facial recognition system, DigiYatra is a Biometric Enabled Seamless Travel (BEST) experience (FRS).
 - It envisions passengers utilising paperless and contactless procedures to move past airport checkpoints, verifying their identity by facial features connected to their boarding card.
- **DigiLocker:**
 - Six billion documents have been kept by DigiLocker, which has 150 million users and operates on a meagre RS 50 crore over seven years.

- Documents in digital format, including insurance policies, medical reports, PAN cards, passports, marriage certificates, school certificates, and other records, can be stored by users.
- The Unified Payment Interface (UPI) processes around 8 billion transactions annually, amounting to USD 180 billion in transactions.
- Among the systems run by the National Payments Corporation of India (NPCI), such as RuPay, IMPS, AePS, Bharat Bill Payment System (BBPS), and National Automated Clearing House (NACH), UPI is now the most popular.
- Through the provision of citizen-centric solutions, DPIs are in line with the fundamental UN Sustainable Development Goals.
- More than 30 nations are currently considering or adopting India's open-source, interoperable DPIs to improve social and financial inclusion.
- **What Problems Do DPIs Face in India?**
- **Inability to Access Infrastructure:**
- There is often insufficient or no access to dependable digital infrastructure and internet connectivity, particularly in rural and isolated places. The issue is made worse by restricted access to energy and a lack of essential digital devices, such as computers and cellphones.
- **The Digital Divide:**
- India's urban and rural areas have a substantial digital divide. Although rural areas frequently have technological inequities and lack dependable internet connectivity, urban centres typically offer more access to digital infrastructure and services.
- **Cost-effectiveness:**
- The cost of digital gadgets and internet connectivity can be unaffordable for many individuals and families, especially in low-income neighbourhoods, even in the case that digital infrastructure is available.
- **Barriers related to language and content:**
- Non-English speakers or people who are not fluent in the prevailing language may be excluded due to the content's predominance in a small number of major languages. Access to important information and services may be hampered by a lack of locally relevant and tailored material.

- **Cognitive and Motor Impairments:**
- Due to the lack of accessibility features and platform design considerations, people with disabilities frequently encounter difficulties while attempting to use and utilise digital technologies.
- **Security and Privacy Issues:**
- People may be discouraged from adopting digital technology due to concerns about data security and privacy breaches, particularly with regard to sensitive personal data.

Source → The Hindu

3 - India's Horticultural Sector:

GS III

Indian Agriculture

- **Context:**
- Dietary habits have seen a dramatic change in India in the last several years, with a greater focus now being placed on nutrition security as opposed to calorie intake alone.
- Horticulture farming is rising noticeably in the country to suit the changing dietary needs of a growing population.
- **What is farming in horticulture?**
- The area of agriculture known as horticulture is dedicated to the extensive cultivation of plants that are utilised by people for food, medicine, and aesthetic pleasure.
- It involves the production, sale, and cultivation of exotic or decorative plants as well as fruits, vegetables, flowers, and herbs.
- Hortus (garden) and cultūra (cultivation) are the Latin terms from which the word horticulture is derived.
- L.H. Bailey is regarded as the founder of M.H. and American horticulture. One might argue that Marigowda is the Father of Indian Horticulture.

- **Grouping:**

- Pomology is the study of growing, gathering, storing, preparing, and selling fruits and nuts.
- Olericulture: Vegetable cultivation and marketing.
- Arboriculture is the study, selection, and maintenance of single trees, shrubs, or other woody perennials.

- **Beautiful Horticulture: It is divided into two sections:**

- Producing, utilising, and promoting floral crops is known as floriculture.
- Landscape horticulture is the cultivation and sale of plants intended to enhance outdoor spaces.

- **How does India's horticultural sector stand right now?**

- India ranks second globally in terms of fruit and vegetable production.
- The Indian horticultural industry plays a vital role in the country's economy, accounting for roughly 33% of agriculture's Gross Value Added (GVA).
- India is currently generating more horticulture output than food grains, with an estimated 320.48 million tonnes produced from much less space (25.66 million Ha. for horticulture versus 127.6 M. ha. for food grains).
- Horticultural crop productivity is significantly higher than food grain productivity (12.49 tones/ha versus 2.23 tones/ha).
- Horticultural crop productivity increased by around 38.5% between 2004–05 and 2021–22.
- The Food and Agricultural Organisation (FAO) states that India is the world's top producer of some fruits and vegetables, including papaya, mangoes, and ginger.
- India ranks 23rd in fruits and 14th in vegetables when it comes to exports; it has a meagre 1% market share in the world for horticulture.
- In India, somewhere between 15 and 20% of fruits and vegetables are lost either at the consumer level or within the supply chain, which increases greenhouse gas emissions (GHGs).

- **What difficulties does India's horticultural sector face?**

- **Vulnerability to Climate Change:**

- Erratic Weather Patterns: Horticultural crops are severely hampered by temperature swings, rainfall, and erratic weather occurrences, which can result in lower yields and crop losses.
- Extreme Events: Crop quality is impacted and horticulture production is disrupted by an increase in the frequency and intensity of droughts, floods, and cyclones.

- **Problems with Water Management:**

- **Water Scarcity:** The growth of horticulture crops is hampered by limited access to irrigation water and ineffective water management techniques, particularly in areas with limited water resources.
- **Overuse of Water Resources:** Ineffective irrigation methods and unsustainable groundwater extraction cause water resources to be depleted, aggravating the problem of water scarcity.

- **Diseases and Pests:**

- **Pesticide Resistance:** As pests and diseases become more resistant to traditional pesticides, integrated pest management (IPM) techniques must be developed and implemented.
- **Invasive Species:** Vegetable crops are at risk from the introduction and spread of invasive pests and diseases, such as desert locusts, necessitating careful monitoring and management techniques.

- **Restrictions on Infrastructure and Post-Harvest Losses:**

- **Inadequate Storage Facilities:** Inadequate storage facilities shorten the shelf life and market value of horticulture produce by causing post-harvest losses.
- **Challenges with the Cold Chain and Transportation:** Inadequate cold chain facilities and transportation networks cause perishable horticulture products to spoil and waste away.

- **How Can the Horticultural Industry Be Made Better?**

- **Taking Up Climate-Smart Behaviours:**

- Encourage the use of sustainable farming methods and climate-resilient crop types to lessen the negative effects of climate change on horticulture.
- Invest in the study and creation of crop types that can withstand heat and drought in response to shifting climatic circumstances.

- **Effective Water Management:**

- To maximise water use efficiency in horticulture, promote the use of drip irrigation, rainwater harvesting, and effective water-saving technologies.
- To solve the problem of water shortage, put into practice water management techniques include watershed management programmes and water price schemes.

- **Combined Veterinary and Pest Control:**

- Encourage the implementation of Integrated Pest and Disease Management (IPM) techniques, with a focus on cultural customs, biological control, and the sparing use of pesticides.
- Boost early detection and surveillance systems to efficiently track and control pest and disease outbreaks.

- **Infrastructure and Value Chain Development Investments:**

- Expand and modernise cold storage facilities, packhouses, and transportation systems to lower post-harvest losses and give horticulture growers better access to markets.
- Enable infrastructure development and public-private partnerships to improve the horticulture value chain's competitiveness and efficiency.

- **Building Capacity and Transferring Knowledge:**

- Offer horticulture producers extension assistance and training on contemporary farming methods, market-driven production, and sound agricultural practices.
- To spread best practices and technological advancements in horticulture, encourage cooperation between research institutes, universities, and agricultural extension agencies.

- **Which government initiatives are in place to enhance horticulture?**

- **The purpose of MIDH, or Integrated Development of Horticulture, is to:**

- A Centrally Sponsored Scheme called MIDH aims to develop the horticulture industry holistically by promoting the growth of fruits, vegetables, aromatic plants, mushrooms, cashew, coconut, cocoa, and root and tuber crops.
- Nodal Ministry: Under the Green Revolution - Krishonnati Yojana, the Ministry of Agriculture and Farmers Welfare has been carrying out MIDH from 2014 to 2015.
- Funding Pattern: States and the Union contribute 60%/40% (except from states in the Northeast and the Himalayas).
- The Union government provides 90% of the funding for the Himalayan and Northeastern states.

- **Sub-Schemes in MIDH:**

- The National Horticulture Mission (NHM) is being carried out in a few districts throughout 18 States and 6 Union Territories by State Horticulture Missions (SHM).
- The Horticulture Mission for North East & Himalayan States (HMNEH) aims to advance the general growth of horticulture in the states of the North East and the Himalayas.

- The Central Institute for Horticulture (CIH) was founded in 2006–07 at Medi Zip Hima, Nagaland, with the goal of assisting with technical support by enhancing the skills and knowledge of farmers and field workers in the Northeastern Region.
- **Programme for the Development of Horticulture Clusters:**
- **Regarding:**
 - This central sector initiative aims to strengthen and expand designated horticultural clusters to increase their competitiveness on a worldwide scale.
 - A targeted horticultural crop cluster is a geographic or regional concentration of such crops.
 - The Ministry of Agriculture and Farmers' Welfare's National Horticulture Board (NHB) is in charge of carrying out this task. The horticulture ministry has recognised fifty-five clusters.
- **Goals:**
 - In order to increase the competitiveness of cluster crops, the CDP seeks to increase targeted crop exports by roughly 20% and develop brands unique to each cluster.
 - to handle all significant concerns pertaining to the Indian horticultural industry, such as planning, manufacturing, post-harvest handling, transportation, marketing, and branding.
 - to take advantage of regional specialisation and encourage the integrated, market-driven growth of horticultural clusters.
 - to align with other government programmes like the Agriculture Infrastructure Fund.
 - In order to achieve demand-driven production, higher productivity, efficient credit and risk management, and better market links, multi-stakeholder relationships between farmers, the government, consumers, business, and academia/research must be strengthened.
 - In order for India to become a preeminent worldwide centre for fruits and vegetables (F&V), joint efforts and a shared commitment to promoting concrete income and livelihood improvements for the country's small-scale farmers will define the way ahead.

Source → The Hindu

4 - India's High-Risk Pregnancies:

GS II

Health related issues

- **Context:**
- Researchers from the National Institute for Research in Reproductive and Child Health (NIRRCH) at the Indian Council of Medical Research (ICMR) in Mumbai have published a study in the Journal of Global Health that provides insight into the incidence of high-risk pregnancies in India.
- A high-risk pregnancy is defined as one in which the expectant mother has one or more risk factors that enhance the possibility of premature delivery and health issues for the unborn child.
- **What are the study's main conclusions?**
- High Prevalence: 49.4% of Indian pregnant women had high-risk pregnancies, according to the study.
- One high-risk factor affected about 33% of pregnant women, whereas multiple high-risk variables affected 16% of them.
- Regional Differences: Telangana and the states of Meghalaya, Manipur, and Mizoram showed the greatest rates of high-risk factor prevalence.
- Sikkim, Odisha, and Chhattisgarh, on the other hand, had the lowest rates of high-risk pregnancies.
- **Factors Affecting Pregnancies at High Risk:**
- Birth Spacing: One of the main risk factors for high-risk pregnancies has been found as short birth spacing, which is defined as less than 18 months between the previous birth and the current conception.
- Maternal risk factors included things like a higher body mass index (BMI), small stature, and age (adolescent or older than 35 years).
- Lifestyle and Previous Birth Outcome Risks: High-risk pregnancies were significantly influenced by lifestyle risk factors such as alcohol and tobacco use, as well as by prior bad birth outcomes such as stillbirth, abortion, or miscarriage.
- **What initiatives does the Indian government have in place to support pregnant women?**
- The Pradhan Mantri Matru Vandana Yojana is being carried out in accordance with the guidelines set forth in Section 4 of the National Food Security Act (NFSA), 2013, which offers

monetary assistance to expectant and nursing mothers in order to enhance their health and nutrition and to make up for lost wages.

- Janani Suraksha Yojana (JSY): This programme encourages institutional delivery by giving pregnant women, particularly those from poor groups, monetary help.
- All pregnant women have the right to free birth at public health facilities, including caesarean sections (C-sections), as well as free transportation, diagnostics, medications, and food. This programme is known as Janani Shishu Suraksha Karyakram (JSSK).
- The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) offers expectant mothers a high-quality prenatal check-up by a specialist or medical officer on the ninth day of each month, guaranteed to be free of cost.
- The mission of Surakshit Matratva Ashwasan (SUMAN) is to guarantee that every expectant mother and child receives high-quality, courteous, and cost-free healthcare in public facilities.
- LaQshya: Seek to enhance the standard of care in delivery rooms, possibly lowering problems and enhancing outcomes for moms and babies.

Source → The Hindu



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