



## CURRENT AFFAIRS



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### India: A Rising Innovation Hub.

This article covers “Daily Current Affairs” and topic details of India: A Rising Innovation Hub.

#### Syllabus mapping:

**GS-3: Science and Technology:** recent development in the field of science and technology.

#### For Prelims:

What is the status of the innovation in India, the Global Innovation Index, WIPO?

#### For Mains:

What are the factors driving the innovations in India challenges and the way forward to commercialize the innovations?

#### Why in the News?

India Rises to 39th Place in Global Innovation Index 2024 Among 133 Economies.

#### THE GLOBAL INNOVATION INDEX:

The Global Innovation Index (GII), released annually by the World Intellectual Property Organization (WIPO), ranks 131 countries using 81 indicators. Initiated in 2007 by INSEAD and the British magazine World Business, the index evaluates the innovation performance of these nations.

#### WORLD INTELLECTUAL PROPERTY ORGANIZATIONS:

The World Intellectual Property Organization (WIPO) was established in 1893 as the United International Bureau for the Protection of Intellectual Property (BIRPI) and became a United Nations agency in 1974. It's located in Geneva, Switzerland, and has 193 member states including India.

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**LEADING THE INNOVATION CHARGE**  
**INDIA RANKS 39**  
GLOBAL INNOVATION INDEX 2024

**IMPROVED GLOBAL RANK:**  
India climbed from **81st** in **2015** to **39th** in **2024** among **133** economies

**TOP PERFORMER:**  
India ranks **1st** among 38 lower-middle-income economies, maintaining its leadership

**INNOVATION OUTPUT STRENGTH:**  
India excels in innovation outputs, ranking **33rd**, an improvement from last year

## India and innovation:

### Status of innovation:

- **Record Patent Filings:** In 2023, India filed 90,300 patents, a 17% increase from 2022, averaging nearly 247 patents per day—the highest rate in 20 years.
- **Patent Grants:** Over 75,000 patents were granted in 2023.
- **Resident Contributions:** The share of patents filed by Indian residents rose from 20% before 2014 to 32% in 2023.
- **Reduced Pendency:** Patent pendency decreased by 15 months.
- **Strong Growth Rate:** India's patent growth rate stands out compared to other countries.
- **IP Ecosystem Development:** Efforts are ongoing to strengthen the intellectual property rights ecosystem in India.

### Government Policies to Promote Innovation:

- **Atal Innovation Mission:** Foster a culture of innovation through various initiatives and support systems.
- **National Quantum Mission:** Advance research and development in quantum technologies.
- **National Nanotechnology Mission:** Promote nanotechnology research and its applications.
- **Intellectual Property Rights Policy:** Strengthen IP protection to encourage innovation.
- **INSPIRE Initiatives:** Inspire and nurture young talent in science and technology.
- **Centre of Excellence in Intellectual Property:** Provide expertise and support for IP management.
- **SIP-EIT (Support for International Patent Protection in E&IT):** Assist MSMEs and tech startups in securing international patents.
- **Startup India Seed Fund Scheme:** Offer financial assistance for startup development phases, including prototypes.
- **NIDHI (National Initiative for Developing and Harnessing Innovations):** Establish technology business incubators to support startups.
- **TIDE 2.0:** Provide financial and technological support to startups in advanced tech sectors like AI and Blockchain.
- **Startup India Initiative:** Grant tax benefits to new entrepreneurs for five years.
- **SUNIL Programme:** Enhance livelihood systems through technology and enterprise development.

### Drivers of Recent Advances in Innovations

- **Proactive Government Policies:** Initiatives like the National Quantum Mission and National Semiconductor Mission demonstrate the government's active role in fostering innovation.
- **Skilled Workforce Development:** Government efforts have encouraged many aspiring scientists to collaborate with public institutions.
- **Collaboration with Private Sector:** Private companies are partnering with the government to enhance scientific advancements, exemplified by a recent satellite launch by a Hyderabad startup in the space sector.
- **Increased R&D Funding:** Research and development funding saw a substantial rise, with the Gross Expenditure on Research and Development (GERD) growing from ₹601,968 million in 2010-11 to ₹1,273,810 million in 2020-21.
- **Growth of Startup Culture:** India has emerged as the third-largest startup ecosystem globally, with many startups focusing on science and technology.
- **International Collaborations:** Engagements with global research institutions, like the International Renewable Energy Agency, promote knowledge sharing and access to advanced technologies.

- **Emphasis on STEM Education:** The National Education Policy (NEP) 2020 prioritizes STEM education, cultivating a skilled workforce ready to tackle intricate challenges.
- **Digital Transformation:** The swift adoption of digital technologies is enhancing research processes and data analysis capabilities, driven by initiatives like the Digital India Mission.
- **Emerging Technologies:** Advancements in fields such as AI, biotechnology, and nanotechnology are creating new research and application opportunities.
- **Sustainability Initiatives:** Increased awareness around sustainability and climate change is driving research in green technologies and renewable energy.

### Ongoing Challenges in Scientific Development

- **Low GERD:** India's research spending remains around 1% of GDP, significantly lower than China (2%) and the US (3.5%).
- **Limited Innovation Formalization:** A majority of innovations in India are not patented, reducing their societal impact compared to countries like China and the US.
- **Narrow Focus on Certain Domains:** Current research funding is primarily directed toward space and communication technologies, while critical sectors like health and education receive less support.
- **Infrastructure Gaps:** Insufficient research facilities hinder high-quality research and development efforts.
- **Talent Drain:** Skilled professionals often leave for better opportunities abroad, resulting in a loss of talent.
- **Lack of Interdisciplinary Collaboration:** Despite NEP 2020 initiatives, collaboration across scientific disciplines remains limited, affecting innovative problem-solving.
- **Policy Implementation Issues:** Challenges in executing supportive policies can impede progress, as seen in healthcare innovations.
- **Import Dependency:** India's scientific advancements largely rely on imported materials, which is unsustainable in the long run, especially in light of geopolitical tensions.
- **Equitable Access Challenges:** Ensuring that advancements in science and technology reach all demographics and regions is crucial but difficult.

### Solutions for Scientific Advancement in India

- **Strengthened Government Support:** Significant increases in funding for science and technology research, exceeding ₹1,00,000 crore in recent budgets, can enhance support for innovation.
- **Global Collaborations:** Partnerships with international tech leaders and research institutions will promote knowledge exchange and technology transfer.
- **Targeted Investments:** Strategic investments in emerging sectors like electric vehicles and renewable energy are essential for sustainable growth.
- **Boosting Electronics Manufacturing:** The Production-Linked Incentive (PLI) scheme aims to enhance local electronics manufacturing through a ₹75,000 crore investment.
- **Fostering an Innovation Ecosystem:** India's thriving startup ecosystem, with over 60,000 startups valued at over \$200 billion, needs further support for continued innovation.
- **Reducing Import Reliance:** Strengthening domestic production capabilities, particularly in semiconductors, is vital for reducing dependence on imports.
- **Developing Local Talent:** Initiatives like the Skill India Mission aim to equip the workforce with essential skills for the evolving technological landscape.
- **Advancing New Technologies:** Investments in cutting-edge technologies such as 5G, IoT, and AI are set to reach \$20 billion by 2025.

- **Long-Term Growth and Export Goals:** Aiming for \$1 trillion in manufacturing output by 2025 positions India as a crucial player in global supply chains.
- **Job Creation Initiatives:** Expansion in manufacturing and technology sectors is projected to create millions of new jobs, bolstering economic growth.

### Conclusion

The recent advancements in scientific development are commendable, contributing to milestones like improved internet connectivity in rural areas and renewable energy targets. Addressing challenges related to dependency, equity, and infrastructure through public-private partnerships and equitable resource distribution is essential.

### **Prelims Question:**

**Q. With reference to the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, Consider the following statement:**

1. The TRIPS agreement is signed under the aegis of the WIPO.
2. The TRIPS agreement deals with trademarks, geographical indications and patents
3. India has signed the agreement but has yet to ratify it.

**How many of the above-given statements are correct?**

- A. Only one
- B. Only two
- C. All three
- D. None

**ANSWER: A.**

### **Mains Question:**

Innovation is considered one of the pillars of India's journey as a developed nation by 2047. Discuss the government policies, and challenges and suggest the ways to tackle these challenges. (Answer in 250 words)

[Munde Dhananjay Navnath](#)

## **INTERNAL SECURITY CHALLENGES IN BORDER AREAS**

### **SYLLABUS MAPPING:**

GS-3- *Internal Security—Internal Security Challenges In Border Areas*

### **FOR PRELIMS:**

Examine the internal security challenges prevalent along the Indo-Myanmar border, considering factors such as insurgency, smuggling, community relations, and geopolitical dynamics.

### **FOR MAINS:**

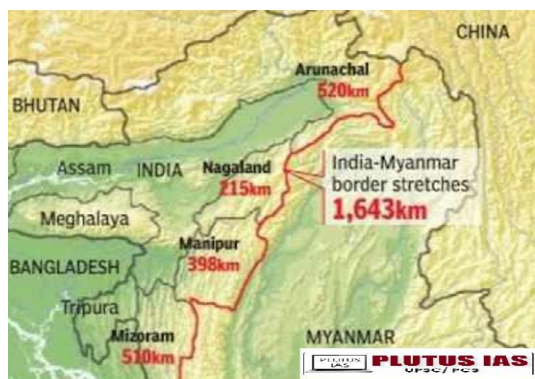
Analyze the internal security challenges along the Indo-Myanmar border, focusing on the impact of ethnic insurgencies, cross-border smuggling, and the role of local communities. Discuss the implications for national security and potential strategies for effective border management and regional cooperation.

### **RECENT CONTEXT:**

The Indo-Myanmar border, stretching approximately 1,643 kilometers, has become a focal point for India's security and diplomatic efforts, particularly in light of recent developments in regional security dynamics,

ethnic insurgencies, and cross-border activities. The government has initiated several programs aimed at enhancing security, fostering development, and building better relationships with local communities.

## **BORDER DATA:**



The Indo-Myanmar border extends approximately 1,643 kilometers, connecting the Indian states of Arunachal Pradesh, Nagaland, Manipur, and Mizoram with Myanmar. This border region is characterized by diverse ethnic communities and complex socio-political dynamics. Key statistics related to the border include:

**Length:** 1,643 km

**States Involved:** Arunachal Pradesh, Nagaland, Manipur, Mizoram

**Border Districts:** Several districts along the border are significantly affected by cross-border issues, including insurgency and

smuggling.

**Cross-Border Population:** The border is home to numerous ethnic groups, which often have familial ties across the border, complicating security dynamics.

## **KEY GOVERNMENT INITIATIVES:**

### **1.Border Area Development Programme (BADP):**

To promote socio-economic development in border areas through infrastructure improvement, education, and healthcare facilities.

### **2.Integrated Border Management System (IBMS):**

To utilize advanced technology for enhanced surveillance and management of borders, thereby improving response capabilities to security threats.

### **3.Border Village Programme:**

To uplift the living standards of residents in border villages through targeted development projects, including roads, electricity, and sanitation.

### **4.Strengthening Border Infrastructure:**

To upgrade and construct roads, communication networks, and border outposts, which will facilitate better movement of security forces and enhance surveillance capabilities.

### **5.Joint Task Force Initiatives:**

To enhance collaboration between Indian security forces and their Myanmar counterparts for coordinated efforts against cross-border crime and insurgency.

### **6.Skill Development and Livelihood Programs:**

To empower local communities through skill training and entrepreneurship support, reducing economic dependency on illegal activities. By providing sustainable livelihoods, the government aims to mitigate factors that contribute to unrest.

### **7.Promotion of Cross-Border Trade:**

To facilitate legitimate trade between India and Myanmar, encouraging economic interdependence while discouraging illegal smuggling.

## **CHALLENGES IN BORDER AREAS:**

### **1.Insurgency and Ethnic Tensions:**

The Indo-Myanmar border is home to various ethnic armed groups that often engage in violent conflicts. This insurgency complicates law enforcement and fosters an environment of instability.

### **2.Cross-Border Smuggling:**

The porous nature of the border facilitates the smuggling of drugs, weapons, and goods. This illegal trade not only undermines security but also contributes to organized crime and local violence.

### **3. Illegal Immigration:**

Unregulated immigration from Myanmar can strain local resources, leading to demographic shifts and increased competition for jobs and services, which may escalate tensions between communities.

### **4. Corruption:**

Corruption within law enforcement agencies can hinder effective policing, allowing illegal activities to proliferate and eroding public trust in authorities.

### **5. Limited Infrastructure:**

Many border areas suffer from inadequate infrastructure, such as poor roads and insufficient communication systems. This hampers effective governance and the ability of security forces to respond swiftly to threats.

### **6. Community Distrust:**

Mistrust between local populations and security forces can complicate cooperation and intelligence-gathering efforts, making it harder to address security challenges effectively.

### **7. Environmental and Geographic Barriers:**

The rugged terrain and dense forests present operational challenges for surveillance and law enforcement, limiting the reach of security forces.

## **WAY FORWARD:**

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### **1. Strengthening Community Engagement:**

Building trust with local communities is essential. Initiatives should focus on regular dialogue, involving residents in security planning and development projects to foster cooperation.

### **2. Investment in Infrastructure:**

Upgrading roads, communication networks, and public services in border areas can enhance governance and improve the quality of life, addressing the socio-economic root causes of unrest.

### **3. Enhanced Training for Law Enforcement:**

Capacity-building programs focused on community policing, counter-insurgency, and intelligence gathering can empower local security forces to better handle challenges.

### **4. Bilateral Cooperation with Myanmar:**

Strengthening diplomatic ties and operational cooperation with Myanmar can improve regional security. Joint training exercises and intelligence sharing can enhance operational effectiveness against cross-border issues.

### **5. Economic Development Initiatives:**

Promoting skill development and entrepreneurship can create sustainable livelihoods, reducing dependency on illegal activities. Economic empowerment is key to mitigating unrest.

### **6. Utilization of Technology:**

Investing in advanced surveillance technologies can enhance border management. Tools like drones and integrated monitoring systems can improve situational awareness and response capabilities.

### **7. Regular Monitoring and Evaluation:**

Establishing mechanisms for ongoing assessment of security initiatives and development programs will ensure adaptability to changing circumstances and challenges.

## **CONCLUSION:**

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The challenges along the Indo-Myanmar border are multifaceted, encompassing issues like insurgency, smuggling, and community distrust. Addressing these challenges requires a comprehensive and integrated approach that combines security measures with socio-economic development. By fostering community engagement, improving infrastructure, and enhancing bilateral cooperation with Myanmar, India can create

a more secure and stable border environment. A proactive strategy that addresses both security and developmental concerns will ultimately contribute to lasting peace and prosperity in this strategically important region.



**PRELIMS QUESTION:**

Q. Which of the following are significant internal security challenges faced along the Indo-Myanmar border?

- A. Insurgency and Ethnic Conflicts
- B. Cross-Border Smuggling
- C. Inadequate Infrastructure
- D. Community Trust and Relations

Select the correct options:

- a) 1, 2, 3, 4
- b) 2, 3, 5
- c) 1, 2, 4

Answer Key: A

**MAINS QUESTION:**

Q. Critically analyze the internal security challenges faced along the Indo-Myanmar border, focusing on issues such as insurgency, cross-border smuggling, and community relations. Discuss the implications of these challenges for national security and propose effective strategies for addressing them?

[Ritik singh](#)

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