DAILY CURRENT AFFAIRS 18-07-2024

GS-2

1. **Karnataka bill mandates 50% quota for locals in management positions**

2. **BIMSTEC**

GS-3

3. **India's Quantum Future**

4. **What is Chandipur virus infection?**

5. **As thoughts become digitised, who will protect our neurorights?**

Karnataka bill mandates 50% quota for locals in management positions

Syllabus: GS-2: Laws and policies made by state legislatures. & GS-1: Regionalism.

Context:

➢ *The Karnataka Cabinet has cleared a Bill which mandates industries, factories and other establishments to appoint 50 per cent of local candidates in management categories and 75 per cent in non-management categories.*

Key Provisions

Local Candidates Reservation:

➢ **Management Categories***: 50% of positions to be reserved for local candidates.*
➢ **Non-Management Categories***: 75% of positions to be reserved for local candidates.*

Penalty for Violation:

➢ *Violation of provisions attracts a penalty up to Rs 25,000.*
➢ *Eligibility Criteria for Local Candidates*

Education Requirements:

➢ *Must possess a* **secondary school certificate** *with Kannada as a language.*
➢ *Alternatively, must pass a Kannada proficiency test specified by the nodal agency.*

Training and Engagement:

➢ *If qualified or suitable local candidates are not available, industries, factories, and establishments* **must train and engage local candidates** *within three years.*

Relaxation Clause

➢ *Establishments can* **apply for relaxation from the Act's provisions** *if sufficient local candidates are not available.*
➢ *The government will* **conduct an enquiry and pass appropriate** *orders based on the findings.*

Nodal Agency

➢ **A nodal agency will be established** *to verify employment reports from industries.*
➢ *The agency* **will submit periodic reports** *to the government.*

Hiring Mandate for Private Industries:

➢ *All private industries* **must hire only Kannadigas** *in group 'C' and 'D' jobs, as approved by the Cabinet.*

Implementation and Impact

Enforcement:

➢ *The nodal agency will ensure* **compliance and report violations***.*
➢ *Industries will need to* **adjust their hiring practices** *to comply with the new reservation requirements.*

Economic and Social Impact:

➢ *The Bill aims to increase employment opportunities for local candidates in Karnataka.*
➢ *It may also* **necessitate additional training programs** *to prepare local candidates for available positions.*

Regionalism Issues

Issue	Description	Impact
Promotion of Regionalism	*The Bill prioritizes local candidates for employment, fostering regional preferences.*	*Increased regionalism and potential exclusion of non-locals.*
Economic Disparities	*Non-local candidates may be discouraged from seeking employment in Karnataka.*	*Reduced talent inflow and potential economic disparities.*
Social Tensions	*Preference for local candidates may lead to conflicts between local and non-local communities.*	*Increased regional discrimination and xenophobia.*
Impact on Business Environment	*Businesses may struggle to hire the best talent irrespective of regional affiliation.*	*Negative impact on the business environment and investment climate.*
Migration Patterns	*Non-locals may avoid Karnataka due to perceived employment barriers.*	*Altered migration patterns and changes in demographic composition.*
Political Polarization	*The law might be leveraged by political entities to polarize voters on regional*	*Deepened regional divides and influence on electoral outcomes.*

Issue	Description	Impact
	lines.	

BIMSTEC

Syllabus: GS-2; International Relations

Context

➢ *Ahead of the Bimstec Summit to be hosted by Thailand later this year, external affairs minister (EAM) S. Jaishankar held talks with his Thai counterpart Maris Sangiampongsa in the capital recently.*

About

➢ **The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** *is a regional organization established in 1997. Here's a detailed breakdown of its functions and significance:*

Member Countries

➢ *BIMSTEC comprises seven member states bordering the Bay of Bengal and its adjoining areas:*
   o *Bangladesh*
   o *Bhutan*
   o *India*
   o *Myanmar*
   o *Nepal*
   o *Sri Lanka*
   o *Thailand*

Functions and Objectives

BIMSTEC focuses on promoting cooperation in various sectors for the collective benefit of the region. Its key objectives include:

➢ **Economic Development***: Creating an enabling environment for rapid economic growth through joint ventures and projects in identified areas.*

- ➢ **Social Progress:** *Accelerating social progress through collaboration in education, healthcare, and poverty alleviation.*
- ➢ **Sectoral Cooperation:** *Promoting active collaboration in 14 priority sectors, including:*
  - o *Trade and Investment*
  - o *Technology*
  - o *Energy*
  - o *Transportation and Communication*
  - o *Tourism*
  - o *Fisheries*
  - o *Agriculture*
  - o *Cultural Cooperation*
  - o *Environment and Disaster Management*
  - o *Public Health*
  - o *Counter Terrorism and Transnational Crime*
  - o *Climate Change*
  - o *People-to-People Contact*
- ➢ **Connectivity:** *Enhancing regional connectivity through infrastructure development projects like coastal shipping, power grid interconnection, and road/rail links.*
- ➢ **Peace and Security***: Maintaining peace and stability in the region by collaborating on counter-terrorism, transnational crime prevention, and disaster management.*

Significance

- ➢ **Geopolitical Bridge***: It acts as a bridge between South and Southeast Asia, fostering stronger diplomatic and economic ties.*
- ➢ **Shared Interests:** *The member countries share common concerns in areas like maritime security, disaster preparedness, and economic development.*
- ➢ **Economic Powerhouse:** *BIMSTEC represents a combined population of 1.73 billion and a GDP of US$5.2 trillion (2023), making it a significant economic bloc.*
- ➢ **Act East Policy***: For India, BIMSTEC plays a crucial role in its "Act East Policy" by facilitating closer ties with Southeast Asian nations.*
- ➢ **Sustainable Development***: BIMSTEC's focus on sectors like climate change and disaster management promotes regional sustainability.*

Current Status

- ➢ **Limited Progress***: Implementation of projects and achievement of goals have been slow.*
- ➢ **Political Instability:** *Internal political issues in some member states can hinder cooperation.*

➢ **Connectivity Bottlenecks:** *Developing robust infrastructure for seamless connectivity across the region remains a work in progress.*

India's Stake in BIMSTEC

➢ *India plays a pivotal role in BIMSTEC due to its size, geographical location, and economic influence.*

Advantages for India

➢ **Economic Gains:** *BIMSTEC offers immense potential for boosting trade, attracting investments, and creating new economic opportunities for India, particularly in its Northeast region.*

➢ **Connectivity Hub:** *India can leverage its geographical position to become a key trade and connectivity hub between South and Southeast Asia.*

➢ **Counter China's Influence:** *BIMSTEC can act as a counterweight to China's growing influence in the region, particularly with its Belt and Road Initiative (BRI).*

➢ **Security:** *Cooperation on maritime security, counter-terrorism, and disaster management strengthens regional security and stability, benefiting India as well.*

➢ **"Act East Policy":** *BIMSTEC aligns with India's "Act East Policy" by fostering closer ties with Southeast Asian nations and promoting regional integration.*

Challenges and Considerations

➢ **Trade Imbalance:** *India currently has an uneven trade balance with some BIMSTEC members, requiring a focus on balanced trade growth.*

➢ **Leadership Role:** *India's proactive approach is crucial for accelerating project implementation and achieving BIMSTEC's goals.*

➢ **Infrastructure Development***: Investing in infrastructure projects like road, rail, and maritime links will enhance connectivity within the region.*

➢ **Internal Coordination:** *Ensuring smooth coordination between India's federal and state governments is vital for effective participation.*

Conclusion

➢ *However, BIMSTEC holds immense promise for the future of South and Southeast Asia. Continued efforts towards stronger collaboration and project implementation can unlock its full potential, leading to a more prosperous and secure Bay of Bengal region.*

India's Quantum Future

Syllabus: GS-3: Science and Technology – Quantum Science.

Context:

> *In 2023, India launched a mission to rapidly develop quantum technologies but it is far behind China and US in terms of filing patents and publishing research papers. However, the gap can still be bridged.*

National Quantum Mission of India

Introduction

> **Launch Year***: 2023*

> **Objective***: Harness the power of quantum technologies for societal benefits*

> **Significance***: India joins the elite group of countries with a dedicated quantum program*

Importance of Quantum Technologies

> **Applications***:*

> o **Clean Energy***: Development of more efficient energy solutions*

> o **Affordable Healthcare***: Advanced medical imaging and drug discovery*

> **Basis***: Utilizes unique properties of sub-atomic particles such as superposition and entanglement*

Current State

> **Research Base***: Strong but lagging behind global leaders*

> **Global Comparison***:*

> o **Investment***: Lower compared to China and the United States*

> o **Workforce***: Fewer researchers and professionals in the field*

> o **Publications***: Fewer scientific papers published*

> o **Patents***: Lower number of patents registered*

Quantum Mission Objectives and Focus Areas

> **Announcement***: 2023*

> **Key Domains***:*

> o **Quantum Computing***: Development of quantum computers with superior processing capabilities*

o **Quantum Communications**: *Secure communication systems using quantum cryptography*

o **Quantum Sensors**: *Highly sensitive sensors for various applications*

o **Quantum Materials**: *Development of new materials with quantum properties*

Quantum Technologies Explained

➢ **Properties of Matter**:

o **Unexpected Behavior**: *Matter behaves differently at the quantum scale*

o **Superposition**: *Ability of particles to exist in multiple states simultaneously*

o **Entanglement**: *Instantaneous influence between entangled particles regardless of distance*

➢ **Applications**:

o **Quantum Computing**:

▪ **Current State**: *Limited capabilities but potential for revolutionary changes*

▪ **Future Potential**: *Solve complex problems beyond the reach of classical computers*

o **Economic Impact**: *Quantum-enabled technologies can drive new economic growth*

Investment and Global Standing

➢ **Funding**:

o **India**: *Rs 6,000 crore (~$0.75 billion)*

o **China**: *$15 billion*

o **USA**: *$3.75 billion*

o **UK**: *$4.3 billion*

o **Germany, South Korea, France**: *>$2 billion each*

Research and Patents

➢ **Publications (2000-2018)**:

- o **India**: *1,711 papers*

- o **China**: *12,110 papers*

- o **USA**: *13,489 papers*

- ➢ **Citations***:*

  - o **Top 10% Most Cited Papers**: *India ranks 20th*

- ➢ **Patents (2015-2020)***:*

  - o **China**: *23,335 patents*

  - o **USA**: *8,935 patents*

  - o **India**: *339 patents (Rank 9th)*

Current Capabilities and Workforce

- ➢ **Senior Scientists**: *110-145 leading research groups in quantum-related technologies*

- ➢ **Post-doctoral Fellows**: *75-100*

- ➢ **PhD Students**: *About 400*

- ➢ **Related Fields***:*

  - o **Material Sciences**

  - o **Electronics**

  - o **Computer Science**

  - o **Physics**

- ➢ **Graduate Students***:*

  - o **Aligned Disciplines**: *Biochemistry, electronics, chemical engineering, statistics, ICT*

  - o **Enrollment**: *Over 82,000, more than China or the US outside the European Union*

Challenges and Opportunities

- ➢ **Gaps***:*

o **Investment**: *Significantly lower than leading countries*

o **Research Output**: *Fewer papers and patents*

➢ **Strengths**:

o **Existing Research**: *Strong foundation in quantum communications and sensing*

o **Potential**: *Capable of bridging gaps in computing and materials*

Future Directions

➢ **Talent Identification**: *Promote and nurture young talent in quantum technologies*

➢ **Cadre Development**: *Create a dedicated cadre of quantum scientists similar to atomic energy and space science sectors*

➢ **Focus Areas**:

o **Quantum Communications**: *Maintain leadership and expand capabilities*

o **Quantum Sensing**: *Enhance research and development*

o **Quantum Computing**: *Close the gap with global leaders*

o **Quantum Materials**: *Innovate and develop new materials with unique quantum properties*

Conclusion

➢ **Potential**: *Quantum-enabled technologies can transform industries and drive economic growth.*

➢ **Goal**: *Rapid capability building to ensure India becomes a leader in quantum technologies and reaps early benefits.*

Practice Qs:

Q. Assess India's National Quantum Mission in bridging the global gap in quantum technology research, emphasizing strategic investments, capabilities, and future prospects. (15 marks, 250 words)

What is Chandipur virus infection?

Syllabus: GS-3: General Science – diseases.

Context:

➢ *On 16ᵗʰ July 2024, two additional children succumbed to suspected* **Chandipura virus infection in Gujarat**, *bringing the total fatalities in the state to eight.*

➢ *The number of* **confirmed infections has reached 15**, *with nine deaths reported including cases from neighboring states.*

➢ **One fatality was reported from Rajasthan**, *while two cases from Rajasthan and one from Madhya Pradesh were treated in Gujarat hospitals.*

Government Response and Measures

➢ **Intensive Surveillance and Advisory***:*

o *The Gujarat State Health Department has initiated* **intensive surveillance in affected districts.**

o *A special advisory has been issued to communities, primary health centers, sub-district hospitals, and medical colleges* **to promptly identify and treat suspected cases presenting symptoms** *consistent with Chandipura virus infection.*

➢ **Community Screening Efforts***:*

o *As a preventive measure, over 44,000 people across 8,600 households in 26 residential zones* **have been screened to identify potential cases early***.*

Preventive Actions Suggested

➢ **Environmental Measures***:*

- o *Authorities recommend the* **spraying of pesticides in rural areas** *to control vector populations like mosquitoes, ticks, and sandflies.*

- o *Emphasis is placed on* **maintaining proper sanitation** *and conducting fumigation of livestock to minimize the risk of viral transmission.*

Medical Insights

- ➢ **Symptoms and Transmission***:*

  - o *Chandipura virus infection typically manifests with symptoms resembling* **flu, including fever, body aches, diarrhea, vomiting***, and acute encephalitis (inflammation of the brain).*

  - o *The virus is* **transmitted primarily through vectors** *such as mosquitoes, ticks, and sandflies.*

- ➢ **Pathogen Characteristics***:*

  - o *Chandipura virus belongs to the* **Vesiculovirus genus** *within the* **Rhabdoviridae family***, known for its ability to cause severe neurological complications.*

- ➢ **High Mortality Rate***:*

  - o *The* **infection carries a high mortality rate,** *particularly among children, and prompt medical intervention is critical to improve survival chances.*

  - o *If* **left untreated or if treatment is delayed***, the risk of fatality significantly increases.*

Historical Context and Severity

- ➢ **Previous Outbreaks***:*

  - o *Historically,* **Chandipura virus outbreaks in central India** *during 2003-2004, particularly in Andhra Pradesh and Gujarat, recorded alarmingly high case* **fatality rates ranging from 56% to 75%.**

  - o *The disease often presents with* **severe encephalitic symptoms***, underscoring the urgent need for proactive public health measures and community awareness campaigns during outbreaks.*

Additional Considerations

- ➢ **Diagnostic Confirmation***:*

- o *Initial suspected cases were reported from the civil hospital in* **Himatnagar, Sabarkantha district.**

- o *Blood samples of affected individuals have been sent to the* **National Institute of Virology in Pune** *for definitive diagnosis, with results pending.*

About Chandipura virus (CHPV)

Chandipura virus (CHPV) is indeed a notable pathogen known for causing fever and acute encephalitis, particularly affecting children in rural areas of India.

Here are some key points about Chandipura virus:

- ➢ **Virus Classification***: Chandipura virus belongs to the Vesiculovirus genus within the family Rhabdoviridae. This family also includes other viruses such as rabies virus.*

- ➢ **Transmission***: The virus is primarily transmitted by vectors such as mosquitoes, ticks, and sandflies.*

- ➢ **Symptoms***: Infected individuals typically experience symptoms similar to flu (influenza-like illness) initially. Severe cases can progress to acute encephalitis, leading to neurological dysfunctions.*

- ➢ **Diagnosis***: Diagnosis often involves real-time one-step reverse-transcriptase PCR assay to detect viral RNA, which is crucial for early identification and management.*

- ➢ **Genome and Proteins***: Chandipura virus has a negative-sense RNA genome that encodes five proteins: N (nucleocapsid), P (phosphoprotein), M (matrix), G (glycoprotein), and L (large protein). These proteins play various roles in the virus's life cycle and pathogenesis.*

- ➢ **Treatment***: Currently, there is no specific antiviral treatment available for Chandipura virus infection. Symptomatic treatment focuses on managing symptoms, including the use of mannitol to reduce brain edema in severe cases.*

- ➢ **Prevention***: Preventive measures primarily involve vector control strategies, such as mosquito and sandfly control, to reduce transmission.*

As thoughts become digitised, who will protect our neurorights?

Syllabus: GS-3; Science and Technology

Context

➢ *This article explores the exciting world of neurotechnologies and the ethical considerations that come with it.*

The Rise of Neurotechnology:

➢ *Neurotechnologies have come a long way, from EEG (electroencephalography) to* **brain-computer interfaces (BCI)** *like Elon Musk's Neuralink.*

➢ *Increased research funding in the 1990s and by private companies today has fueled advancements in areas like brain imaging and deep-brain stimulation.*

The Power of Neurodata:

➢ **Wearable devices and biosensors** *can now capture a wide range of physiological and emotional data.*

➢ *This data has immense potential in healthcare (real-time health tracking, personalized medicine) but also raises privacy concerns.*

The Double-Edged Sword of Surveillance:

➢ *Neurodata collection by employers, healthcare providers, and even governments can lead to excessive surveillance.*

➢ *This data can be misused for commercial gain (targeted advertising, neuromarketing) or to control behavior.*

The Need for Neuroethics:

➢ *Neuroethics is a crucial field addressing the ethical implications of neurotechnologies.*

➢ *It focuses on developing frameworks to ensure responsible development and use of these technologies, prioritizing human well-being and minimizing harm.*

The Fight for Neuro-Rights:

➢ **The right to privacy** *and freedom of thought are fundamental human rights challenged by neurotechnologies.*

➢ *While international human rights principles exist, enforcing them requires stronger legal frameworks within each country.*

➢ *Chile is a pioneer, recognizing its citizens' neurorights in its constitution, while the US (Colorado) and California are taking steps towards neurodata privacy laws.*

The Future of Neuroethics

➢ *Developing robust neuroethical standards is complex due to the rapidly evolving technology and diverse contexts of use.*

> ➤ **UNESCO** *is leading the charge with the first global framework on neurotechnology ethics, expected by the end of 2025.*
> ➤ *This framework, along with efforts by other organizations, will hopefully shape responsible policies and legal safeguards for the future of neurotechnology.*

Conclusion

> ➤ *Neurotechnologies offer immense potential but also raise serious ethical concerns. By prioritizing neuroethics and safeguarding neuro-rights, we can ensure these advancements benefit humanity without compromising our privacy and autonomy.*