



Daily Current Affairs



To The Point by Dhananjay Gautam

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1 India-Canada Diplomatic Dispute

Context: Recently, India recalled its High Commissioner from **Canada and expelled several Canadian diplomats** in response to escalating tensions between the two nations. The conflict intensified when Canada requested India to waive diplomatic immunity for its officials, alleging their involvement in a matter under investigation. India viewed this request as unreasonable and contrary to established diplomatic norms.



Diplomatic Immunity Overview

Diplomatic immunity is a fundamental principle of international law that protects foreign government officials from being subjected to local jurisdiction for both their official and personal actions. The **Vienna Convention on Diplomatic Relations (1961)**, which **India ratified in 1972**, outlines these privileges and immunities for diplomatic staff.

Recent Fallout in India-Canada Relations

- 1. Khalistani Extremism:**
 - **Issue:** The support of Sikh separatist groups by Canada has been a significant strain on India-Canada relations.
 - **Impact:** India's repeated warnings about Khalistani activities, including an unofficial referendum in 2023 to establish an independent Sikh state, are viewed as direct attacks on Indian sovereignty.
- 2. Security Cooperation:** India has made multiple extradition requests for terrorists and organized crime figures residing in Canada, which have largely been ignored by the Canadian government.
- 3. Stalled Agreements:** Key agreements such as the Comprehensive Economic Partnership Agreement and the Foreign Investment Promotion and Protection Agreement have seen no significant progress, leading to further diplomatic strain.
- 4. Vote Bank Politics:** The Sikh community, particularly in Ontario and British Columbia, constitutes a critical vote bank for political parties like the Liberal Party in Canada, influencing their stance on issues related to Khalistani extremism.

Overview of India-Canada Relations:

- **Bilateral Trade:** The trade in goods between India and Canada has been declining, with figures dropping from **USD 10.50 billion in 2022 to USD 7.65 billion in 2023**.
- **Consular Relations:** India and Canada signed a **Mutual Legal Assistance Treaty** in 1994 and an **Extradition Treaty** in 1987 to facilitate legal cooperation.
- **Nuclear Cooperation:** In 2010, both countries signed a Nuclear Cooperation Agreement, leading to the establishment of a **Joint Committee on Civil Nuclear Cooperation**.
- **Space Collaboration:** India's **ISRO** launched its **100th satellite** from **PSLV in 2018** and also flew Canada's first Low Earth Orbit (LEO) satellite.

Conclusion: The recent diplomatic actions and ongoing issues highlight the complex and often tense relationship between India and Canada. With unresolved matters regarding security, economic agreements, and sovereignty concerns, the future of India-Canada relations remains uncertain as both nations navigate these significant challenges.

2

Anusandhan National Research Foundation (ANRF) Launches PMECRG and MAHA-EV Initiatives

Context: The Anusandhan National Research Foundation (ANRF) has launched two significant initiatives aimed at strengthening India's research ecosystem and fostering innovation in critical technology areas. These initiatives are poised to transform the landscape of research and development (R&D) in the country by bridging the gap between academic research and industrial applications.

1. Prime Minister Early Career Research Grant (PMECRG)

Objective: The PMECRG is designed to position India as a leader in science and technology by providing financial support to early-career researchers. It encourages high-quality, innovative research and enables researchers to expand their knowledge, ultimately driving technological progress.

Key Features:

- **Flexible Budget:** Researchers are provided with a flexible budget to ensure ease of research.
- **Support for Early-Career Researchers:** This grant is aimed at nurturing young scientists and fostering new research frontiers.

Significance:

- The initiative aims to foster **innovative research** and promote the **advancement of technology**.
- It is a step towards **expanding knowledge boundaries** in various scientific disciplines.

2. Mission for Advancement in High-Impact Areas - Electric Vehicle (MAHA-EV)

Objective: The MAHA-EV initiative focuses on advancing India's electric vehicle (EV) industry by developing key EV technologies. The mission is aligned with the government's **Atmanirbhar Bharat** vision, reducing dependency on imports and promoting domestic innovation.

Key Focus Areas:

- **Tropical EV Batteries and Battery Cells:** Research and development of EV batteries suited for tropical climates.
- **Power Electronics, Machines, and Drives:** Enhancing power electronics systems critical for EV performance.
- **EV Charging Infrastructure:** Developing efficient and scalable charging infrastructure to support electric mobility.

Significance:

- It will **position India as a global hub** for EV component development, boosting the nation's **global competitiveness**.
- Accelerating the shift towards **electric mobility**, contributing to a **greener and more sustainable future**.

About ANRF:

The Anusandhan National Research Foundation was established under the **ANRF Act 2023** and operates under the **Department of Science & Technology**. With its establishment, the **Science and Engineering Research Board (SERB)** has been merged into ANRF.

Key Objectives:

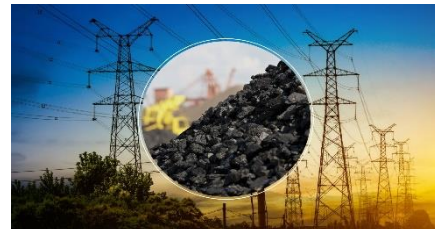
- The foundation aims to **seed, grow, and promote R&D** across India's universities, colleges, research institutions, and laboratories.
- It serves as an **apex body** for guiding the strategic direction of scientific research in the country, as per the recommendations of the **National Education Policy (NEP)**.

Conclusion: By launching these initiatives, ANRF is making a transformative impact on India's research and industrial sectors, driving innovation and positioning the country as a global leader in science, technology, and electric mobility.



3 Union Ministry of Power Launches National Electricity Plan (Transmission)

Context: Recently, the Union Ministry of Power launched the **National Electricity Plan (NEP)** focusing on transmission, developed by the **Central Electricity Authority (CEA)** as mandated under the **Electricity Act, 2003**. This plan is critical for enhancing India's electricity transmission infrastructure, aiming to ensure efficient delivery from generation sources to consumers.

**Key Highlights of the NEP (Transmission)**

- **Renewable Energy Goals:** The plan targets the transmission of **500 GW** of renewable energy installed capacity by **2030** and over **600 GW** by **2032**.
- **Peak Demand Management:** It aims to meet a peak demand of **458 GW** by **2032**.
- **Transmission Network Expansion:** The transmission network is expected to grow from **4.85 lakh ckm (circular kilometres)** in **2024** to **6.48 lakh ckm** by **2032**.
- **Inter-regional Transmission Capacity:** The plan includes an increase in inter-regional transmission capacity from **119 GW** to **168 GW** by **2032**.
- **Innovative Elements:** The NEP incorporates innovative elements such as:
 - **10 GW** of offshore wind farms
 - **47 GW** of battery energy storage systems
 - **30 GW** of pumped storage plants
- **Green Hydrogen and Ammonia:** It addresses the power needs for manufacturing hubs of green hydrogen and green ammonia, particularly in coastal areas.
- **Cross-Border Interconnections:** The plan covers interconnections with neighbouring countries such as **Nepal, Bhutan, Myanmar, Bangladesh, and Sri Lanka**, as well as potential interconnections with **Saudi Arabia and UAE**.

Challenges in India's Transmission System

The NEP acknowledges several challenges faced by India's transmission system, including:

- **Transmission Losses:** High losses during power transmission.
- **Integration Issues:** Difficulties in integrating renewable energy sources into the grid.
- **Obsolete Technology:** Outdated technology affecting efficiency.
- **Regulatory Focus:** A skewed focus of regulators primarily on generation rather than transmission.
- **Cybersecurity Threats:** Increasing risks associated with cyber threats in the energy sector.

Central Electricity Authority (CEA)

- **Establishment:** The CEA was established under the now-repealed **Electricity (Supply) Act, 1948**, which was replaced by the **Electricity Act, 2003**.
- **Composition:** It consists of no more than **14 members**, including a chairperson, with up to **8 full-time members** appointed by the Central Government.
- **Functions:** The CEA advises the Central Government on the National Electricity Policy and specifies technical standards for constructing electric plants, electric lines, and grid connectivity.

Conclusion: This launch marks a significant step towards enhancing India's energy infrastructure and facilitating the transition to a sustainable energy future.

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4 PM GatiShakti National Master Plan (PMGS-NMP) : Three-Year

The PM GatiShakti National Master Plan (PMGS-NMP), launched in 2021, aims to enhance multimodal connectivity infrastructure across various economic zones in India.



Key Achievements of PMGS-NMP:

- Whole of Government Integration:** Integrated **44 Central Ministries** and **36 States/UTs** for collaborative planning and execution of infrastructure projects.
- Infrastructure Development:**
 - Planned a **300 km coastal corridor in Gujarat**.
 - Developed **over 8,891 km of roads** and **27,000 km of railway lines** across the country.
- Social Sector Impact:**
 - Improved infrastructure planning in critical sectors such as **primary healthcare, education, and tribal development**, especially in remote and underserved areas.
 - Example: Used the **Pahunch Portal** to identify locations for new schools in underserved areas of Uttar Pradesh.
- State Master Plans:**
 - Established **PM GatiShakti State Master Plan portals** in all States/UTs, mapping **533+ projects** to streamline capital investments.
 - Goa developed a **Disaster Management Plan** for flood-prone areas along the **Amona River** using NMP.
- Trade Facilitation:** Instrumental in reducing logistics costs, improving India's **Logistics Performance Index** rank from **44 to 38**.
- Data-Driven Development:** Utilized **GIS-based tools** and real-time monitoring to enable informed decision-making and align projects with national priorities.
- District-Level Planning:** Development of the **PMGS - District Master Plan portal** to facilitate collaborative planning at the district level.

Overview of the PM GatiShakti National Master Plan:

- Objective:** To create next-generation infrastructure by leveraging past experiences.
- Digital Master Planning Tool:** Developed by **BISAG-N** (Bhaskaracharya National Institute for Space Applications and Geoinformatics), providing a comprehensive database of ongoing and future projects from various ministries and states involved in the development of economic zones.
- Seven Engines of NMP:** Focus areas include **Railways, Roads, Ports, Waterways, Airports, Mass Transport, and Logistics Infrastructure**.

Conclusion: The PMGS-NMP marks a significant step towards transforming infrastructure development in India, promoting economic growth and enhancing the quality of life through improved connectivity.



5 Inter-Parliamentary Union (IPU)

Context: Recently, the **Lok Sabha Speaker** led an Indian Parliamentary Delegation at the **149th Assembly of the Inter-Parliamentary Union (IPU)** held in **Geneva**. During his address, he highlighted the critical importance of **multilateralism** in addressing global challenges and fostering international cooperation.



Inter-Parliamentary Union
For democracy. For everyone.

About Inter-Parliamentary Union (IPU):

The **Inter-Parliamentary Union (IPU)** is an international organization of national parliaments that aims to promote representative democracy and world peace. Established in **1889** in Paris, it was the first multilateral political organization globally and plays a crucial role in fostering cooperation and dialogue among nations.

Key Functions and Objectives

- **Parliamentary Diplomacy:** The IPU facilitates diplomatic interactions between parliamentarians from different countries, enabling discussions on global challenges and fostering collaborative solutions.
- **Promotion of Peace and Democracy:** The organization empowers parliaments and parliamentarians to promote peace, democracy, and sustainable development worldwide.
- **Human Rights Advocacy:** The IPU defends the rights of parliamentarians through a dedicated committee composed of members from various national parliaments.

Membership:

- The IPU comprises **180 member parliaments** and **15 associate members**, working collectively to strengthen parliamentary governance and representation.
- It focuses on making parliaments more inclusive by promoting gender balance, youth participation, and diversity.

Headquarters: The IPU moved its headquarters to **Geneva** in **1921**, further establishing its role in international diplomacy and cooperation.

Funding: The organization is primarily funded by its member parliaments through public funds, which supports its activities and initiatives.

Structure:

1. **IPU Assembly:** This is the principal statutory body that articulates the views of the IPU on political issues. It convenes parliamentarians to analyse international problems and recommend actions.
2. **Governing Council:** Composed of three representatives from each member parliament, the Governing Council is the policymaking body responsible for setting the annual program and budget of the IPU. The President of the IPU serves as the ex-officio President of the Council.
3. **Executive Committees:** This 17-member body oversees the administration of the IPU and advises the Governing Council. The Executive Committee consists of 15 members elected for a four-year term, with the IPU President as an ex-officio member.
4. **Standing Committees:** The IPU has three Standing Committees established by the Governing Council to support the Assembly's work and focus on specific areas of parliamentary concern.

Conclusion: The Inter-Parliamentary Union plays a vital role in promoting democratic governance and international cooperation. By providing a platform for dialogue among parliamentarians, the IPU contributes to addressing global challenges, enhancing democratic processes, and advocating for the rights of parliamentarians worldwide.

6 Haber-Bosch process

Context: The **Haber-Bosch process** is a groundbreaking industrial method that enables the conversion of atmospheric nitrogen into ammonia, a key ingredient for fertilizers. Currently, this process removes approximately **100 million tonnes of nitrogen** from the atmosphere annually, resulting in the addition of **165 million tonnes of reactive nitrogen** to the soil. This industrial process plays a crucial role in modern agriculture, especially when compared to biological processes, which are estimated to replenish only **100-140 million tonnes** of reactive nitrogen each year.

Haber-Bosch process:

The **Haber-Bosch process** is a significant industrial method that converts nitrogen from the atmosphere into ammonia (NH_3), which is a crucial component in the production of fertilizers. This process has had a transformative impact on agriculture, enabling the mass production of fertilizers that support global food production.

Key Highlights:

- **Nitrogen Fixation:** The process removes approximately **100 million tonnes of nitrogen** from the atmosphere, converting it into **165 million tonnes of reactive nitrogen** that enriches the soil.
- **Historical Development:** Developed in the early **1900s** by **Fritz Haber** and later modified into an industrial process by **Carl Bosch**, the Haber-Bosch process is hailed as one of the most important technological advancements of the 20th century.

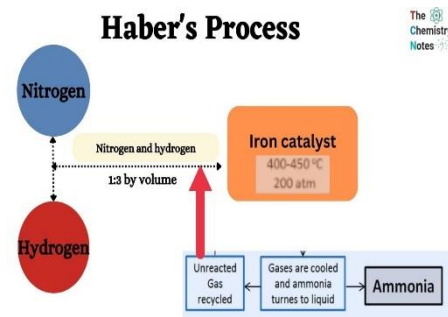
Importance:

- **Mass Production of Fertilizers:** The Haber-Bosch process was the first to enable the large-scale production of ammonia, facilitating widespread access to fertilizers and significantly enhancing agricultural productivity.
- **Innovative Chemical Engineering:** It was the first industrial chemical process to implement high pressure to facilitate chemical reactions, marking a significant advancement in chemical engineering.

How the Haber-Bosch Process Works:

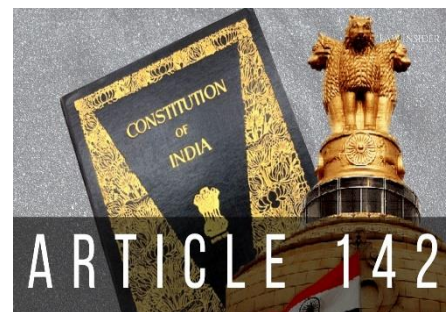
1. **Basic Reaction:** The process involves the direct combination of nitrogen gas (N_2) from the air with hydrogen gas (H_2) to form ammonia (NH_3):
2. **Conditions:**
 - The reaction occurs under **high pressures** (around 150-300 atmospheres) and **moderate temperatures** (400-500°C).
 - **Catalyst:** A catalyst, primarily composed of iron, is used to facilitate the reaction, allowing it to occur at lower temperatures than would otherwise be necessary.
3. **Maintaining Equilibrium:**
 - To enhance ammonia production, ammonia is continuously removed from the reaction mixture as it is formed. This practice helps maintain an equilibrium that favors product formation.
 - The yield of ammonia can be increased by employing lower temperatures and higher pressures.

Conclusion: The Haber-Bosch process has revolutionized agriculture and has played a critical role in feeding the world's population by enabling the efficient production of fertilizers. Its development marked a turning point in chemical manufacturing and agricultural practices, illustrating the profound impact of scientific innovation on global food security.



7 Article 142 of the Indian Constitution

Context: Recently, the Supreme Court of India declined to entertain a **Public Interest Litigation (PIL)** that sought directions under Article 142 to include sexual offences against men, trans persons, and animals under the newly enacted **Bharatiya Nyaya Sanhita (BNS)**. This refusal highlights the scope and application of Article 142 within the Indian legal framework.

**About Article 142:**

Article 142 of the Indian Constitution empowers the Supreme Court to ensure complete justice in any cause or matter pending before it. This article endows the apex court with special and extraordinary powers, allowing it to address situations where litigants have suffered due to illegality or injustice in the course of legal proceedings.

- **Article 142(1) states:**

“The Supreme Court, in the exercise of its jurisdiction, may pass such decree or make such order as is necessary for doing complete justice in any cause or matter pending before it, and any decree so passed or order so made shall be enforceable throughout the territory of India in such manner as may be prescribed by or under any law made by Parliament and, until provision in that behalf is so made, in such manner as the President may by order prescribe.”

Key Features:

- **Exceptional Justice:** Article 142 allows the Supreme Court to deliver justice in exceptional cases where existing laws may not provide a remedy or where enforcement is challenged.
- **Supremacy of Orders:** If a legislative enactment attempts to make unenforceable the decree or order of the Supreme Court under Article 142, such a law would be rendered void, as it contravenes the authority of Article 142.
- **Limitations:** The powers under Article 142 cannot be used to replace or supplant the substantive laws applicable to the specific case being considered.

Significant Cases Involving Article 142:

1. **Babri Masjid Case:** Article 142 played a critical role in the Ram Janmabhoomi-Babri Masjid land dispute, where the Supreme Court ordered the handover of the disputed land to a trust formed by the Union Government.
2. **Bhopal Gas Tragedy:** The Supreme Court invoked Article 142 in the case of *Union Carbide vs. Union Govt* to provide compensation to the victims of the catastrophic Bhopal Gas Tragedy, demonstrating the court's role in ensuring justice when legislative frameworks fall short.

Conclusion: Article 142 serves as a vital tool for the Supreme Court to address complex legal issues and ensure that justice is delivered effectively, particularly in cases where conventional legal remedies may be inadequate. Its significance is underscored in landmark cases that have shaped Indian jurisprudence, highlighting the court's commitment to upholding justice in exceptional circumstances.

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Mount Adams

Context: Mount Adams, Washington's largest volcano, has recently experienced a surge in seismic activity after being largely dormant for thousands of years. This increased activity has drawn attention to the stratovolcano's potential for future eruptions.

**About Mount Adams:**

- **Location:** Mount Adams is situated in Washington State, United States.
- **Height and Size:** Standing at **12,277 feet (3,742 meters)** tall and spanning **18 miles (29 kilometres)** wide, it is the largest active volcano in Washington, surpassing Mount Rainier in volume.
- **Volcanic Field:** The mountain is located in the Mount Adams volcanic field, a **1,250 sq. km area** that includes at least **120 mostly basaltic volcanoes**, characterized by spatter and scoria cones, shield volcanoes, and extensive lava flows.
- **Glaciers:** Mount Adams is home to over **10 active glaciers** that contribute vital water resources to the surrounding forests, streams, and meadows.
- **Last Eruption:** The most recent eruption at Mount Adams occurred sometime between 3,800 and 7,600 years ago, during the Stone Age.

What is a Stratovolcano?

Stratovolcanoes, also known as composite volcanoes, are notable for their tall, steep, cone-shaped structures. Here are key characteristics of stratovolcanoes:

- **Structure:** Stratovolcanoes are built from successive layers of ash and lava, resulting in higher peaks compared to flatter shield volcanoes.
- **Magma Characteristics:** The magma within stratovolcanoes is viscous and often contains trapped gases, which can lead to explosive eruptions.
- **Tectonic Plate Margins:** These volcanoes typically form at the margins of tectonic plates, where the denser oceanic plates are subducted beneath lighter continental plates. The magma generated from the subducting plate rises through cracks in the Earth's crust, eventually resulting in a volcanic eruption.
- **Distribution:** Stratovolcanoes constitute about **60% of the Earth's** individual volcanoes. Approximately **85%** of them are located around the Pacific Ocean, forming a region known as the "Ring of Fire."

Conclusion: Mount Adams stands as a significant geological feature in Washington State, representing the power and complexity of stratovolcano systems. With recent seismic activity indicating potential unrest, monitoring this volcano is crucial for understanding its behaviour and mitigating risks to nearby communities.

9 THAAD Missile System

Context: In response to Israel's ongoing military operations against Hezbollah militants in Lebanon, the United States has announced the deployment of the Terminal High Altitude Area Defence (THAAD) missile defence system to Israel.



About THAAD Missile System:

THAAD is an advanced missile defence system designed to engage and destroy short-, medium-, and intermediate-range ballistic missiles during their terminal phase of flight.

Key Features:

- **Hit-to-Kill Technology:** THAAD employs a "hit to kill" approach, which means it intercepts and destroys missiles by colliding with them, effectively blasting them apart as they enter their target zone during descent.
- **Kinetic Energy Interception:** The system uses kinetic energy to neutralize incoming threats, including nuclear warheads, by targeting them directly without relying on explosives.
- **Engagement Range:** THAAD can cover a wide operational area, capable of engaging targets at distances ranging from 150 to 200 kilometres (approximately 93 to 124 miles).

Development of THAAD:

- **Origins:** THAAD was developed by the United States following its experiences with Iraq's Scud missile attacks during the Persian Gulf War in 1991. The need for an effective defence against such threats spurred the development of this advanced system.
- **Deployments:** In 2008, the US deployed an early missile warning radar, a component of the THAAD system, to Israel. Additional deployments occurred in 2012 and 2019, enhancing Israel's missile defence capabilities and reinforcing its position as a military power in the region.

Conclusion: The THAAD missile defence system plays a crucial role in enhancing the defence capabilities of nations facing ballistic missile threats. With its advanced interception technology and strategic deployments, THAAD serves as a significant deterrent against potential missile attacks, particularly in volatile regions like the Middle East.

10 Diphtheria

Context: A team from the World Health Organization (WHO) has arrived in **Deeg, Rajasthan**, due to a rise in cases of diphtheria in the region.

About Diphtheria:

- Diphtheria is a serious contagious bacterial infection primarily affecting the nose and throat.

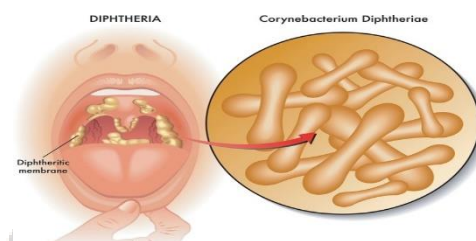
Cause: It is caused by strains of the bacterium *Corynebacterium diphtheriae*, which produce a toxin that leads to severe complications.

Transmission

- Diphtheria spreads from person to person, primarily through respiratory droplets from coughing or sneezing.
- Infection can also occur through contact with open sores or ulcers from infected individuals.
- While *Corynebacterium diphtheriae* can infect the skin, leading to open sores, these skin infections rarely result in severe illness.

Symptoms: The disease presents with:

- A thick, Gray membrane covering the throat and tonsils
- Sore throat and hoarseness
- Swollen glands (enlarged lymph nodes) in the neck
- Difficulty breathing



Complications: If untreated or advanced, the bacterial infection can damage vital organs such as the heart, kidneys, and nervous system.

Current Treatments: Treatment strategies include:

- **Neutralization of Toxin:** Using Diphtheria Antitoxin (DAT) to neutralize unbound toxins.
- **Antibiotics:** Administering antibiotics to inhibit further bacterial growth.
- **Monitoring and Supportive Care:** Essential for managing complications like airway obstruction and myocarditis.

WHO Recommendations: The World Health Organization (WHO) has issued the following new recommendations regarding the treatment of diphtheria:

1. **Antibiotic Preference:** In patients with suspected or confirmed diphtheria, WHO recommends the use of macrolide antibiotics (such as azithromycin and erythromycin) over penicillin antibiotics.
2. **Sensitivity Testing:** WHO advises against routine sensitivity testing prior to administering Diphtheria Antitoxin (DAT) in patients with suspected or confirmed diphtheria.
3. **Dosing Regimen for DAT:** For patients with suspected or confirmed symptomatic diphtheria, WHO suggests implementing an escalating dosing regimen for **Diphtheria Antitoxin (DAT)** based on the severity of the disease and the time elapsed since symptom onset, rather than using a fixed dose for all patients

Conclusion: Diphtheria remains a significant public health concern, especially among children. Vaccination is crucial in preventing outbreaks and protecting vulnerable populations. The recent rise in cases highlights the need for increased awareness and vaccination efforts in affected areas.