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To The Point

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GS Paper 2 – International Relation

1 Power Transaction From Nepal to Bangladesh Through Indian Grid

Context: India, Nepal, and Bangladesh achieved a historic milestone by inaugurating the **first trilateral power transaction** through the Indian grid. This marks a significant step toward establishing an integrated South Asian power market.

Key Highlights:

1. **Agreement Details**:
   - A **power sales agreement** was signed in **October 2024** among:
     - **NTPC Vidyut Vyapar Nigam (NVVN)** – India.
     - **Nepal Electricity Authority** – Nepal.
     - **Bangladesh Power Development Board** – Bangladesh.
2. **Power Export**:
   - Nepal will export **up to 40 MW** of power to Bangladesh using India's power grid.
   - This is the **first trilateral power transaction** facilitated through India's grid.
3. **Expected Impact**:
   - Enhances **sub-regional connectivity** in the energy sector.
   - Strengthens cooperation and mutual benefits among the three nations.
   - Promotes **energy security** and economic integration in South Asia.

India's Role in Regional Energy Trade:

1. **Ambitions**:
   - India aims to be a **regional energy hub**, trading electricity and refined petroleum products across South Asia.
   - Plans to supply **LNG to Sri Lanka** and work on an undersea electricity transmission line.
2. **Current Power Trading**:
   - Conducted through **bilateral agreements** under the **2014 SAARC Framework Agreement for Energy Cooperation**.
   - Since 2021, the **Indian Energy Exchange (IEX)** has facilitated power trading with Nepal.
3. **Policy Enhancements**:
   - **2023 Guidelines** for electricity import/export ensure grid reliability and promote regional energy cooperation.
   - **Market coupling** introduced for spot power trading to enhance efficiency.
4. **Key Agencies**: **NTPC Vidyut Vyapar Nigam (NVVN)** and **PTC India** are the nodal agencies for cross-border power trading.

Global Energy Integration Initiatives:

1. **OSOWOG Initiative** (One Sun, One World, One Grid):
   - Aims to create a **transnational mega grid** to facilitate renewable energy trade from Southeast Asia to Europe via the Middle East.
   - Enhances access to low-cost renewable energy for participating nations.
2. **Collaborations**: India is working with **Saudi Arabia, UAE, and Singapore** to develop OSOWOG infrastructure.

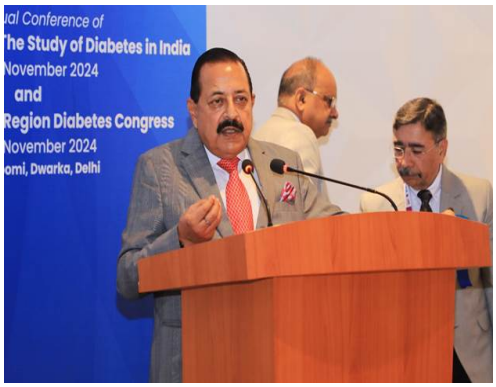
Significance of the Trilateral Power Transaction:

1. **Strengthens Regional Integration**: Fosters cooperation among India, Nepal, and Bangladesh in achieving sustainable energy goals.
2. **Enhances Energy Security**: Reduces dependency on non-renewable energy sources and builds resilience.
3. **Promotes Economic Growth**: Facilitates efficient energy sharing, reducing costs and enhancing regional development.
4. **Advances Sustainable Development**: Contributes to renewable energy adoption and reduces carbon footprints in the region.

This initiative underscores India's growing leadership in advancing regional energy cooperation and sustainable development in South Asia

GS Paper 2 – Health

2 'PPP plus PPP' Model for Diabetes Management



Context: India faces a severe diabetes crisis, with **over 212 million individuals** affected, representing a substantial share of the global burden. To address this public health challenge, the **"PPP plus PPP" model** was introduced on **World Diabetes Day (14th November)** as a collaborative framework integrating domestic and international partnerships.

What is the 'PPP plus PPP' Model?

The model is designed to address diabetes holistically by combining:

1. **Domestic Public-Private Partnerships (PPPs):**
   - **Affordable Insulin Production**: Collaborations with pharmaceutical companies to manufacture low-cost recombinant insulin.
   - **Awareness Campaigns**: Engaging private hospitals and NGOs for large-scale awareness drives and diabetes screenings.
   - **Healthcare Infrastructure**: Setting up diabetes clinics in rural and semi-urban areas to improve access to care.
2. **International Collaborations (PPP):**
   - **Partnerships with Global Organizations**: Working with entities like the **WHO** and **International Diabetes Federation** to improve care protocols.
   - **Advanced Technologies**: Utilizing **AI and machine learning** for predictive analytics and personalized treatments.
   - **Investment in Research**: Attracting international funding for research and large-scale diabetes interventions.

Understanding Diabetes Mellitus (DM):

1. **What is Diabetes:** A chronic metabolic disorder where the body has elevated blood glucose levels due to insufficient insulin production or resistance to insulin.
2. **Types of Diabetes**:
   - **Type 1 Diabetes**: Autoimmune destruction of insulin-producing cells in the pancreas.
   - **Type 2 Diabetes**: Commonly linked to obesity and inactivity; the body is insulin-resistant or insufficient in insulin production.
   - **Gestational Diabetes**: Occurs during pregnancy and usually resolves post-childbirth.
3. **Symptoms**:
   - Frequent urination
   - Increased thirst
   - Excessive hunger
   - Blurred vision
   - Fatigue
4. **Complications**:
   - Heart disease
   - Stroke
   - Kidney disease
   - Nerve damage, Retinopathy (eye damage)

Global and Indian Context:

- **Global Prevalence**: 830 million people worldwide are affected, with a significant portion in low- and middle-income countries.
- **India's Burden**: 212 million people in India live with diabetes, highlighting the urgent need for action.
- **WHO Target**: Halt the rise of diabetes and obesity by **2025**.

Insulin's Role in Diabetes Management:

- **Function**: Insulin regulates blood sugar by enabling glucose from the bloodstream to enter cells for energy.
- **In Diabetes**:
  - Type 1: Insufficient insulin production.
  - Type 2: Ineffective response to insulin by the body's cells.
- **Result**: High blood sugar levels lead to complications without proper management.

Government Initiatives to Combat Diabetes in India:

1. **National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS)**: Focus on prevention, early detection, and management of diabetes and other non-communicable diseases.
2. **National Health Mission (NHM)**: Includes screening, diagnosis, treatment, and lifestyle promotion to prevent diabetes.
3. **Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PMJAY)**: Financial coverage for diabetes-related treatments.
4. **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)**: Provides affordable generic medicines, including insulin.
5. **National Diabetes Control Program**: Early detection, treatment, and prevention of diabetes.

Significance of the 'PPP plus PPP' Model:

- **Enhanced Affordability**: Low-cost insulin and treatments for widespread accessibility.
- **Improved Access**: Rural and semi-urban clinics bridge healthcare gaps.
- **Global Expertise**: Advanced analytics and investments bolster research and intervention strategies.
- **Integrated Approach**: Combines domestic efforts and international resources to combat diabetes effectively.

This innovative framework reflects India's commitment to addressing its diabetes epidemic with a collaborative and comprehensive approach.

GS Paper 3 – Economic Development

3 'Raising Ambition and Accelerating Delivery of Climate Finance' Report

Context: The report was unveiled at the **29th Conference of the Parties (CoP)** to the **United Nations Framework Convention on Climate Change (UNFCCC)**. It outlines investment needs and strategies for addressing climate challenges under the **Paris Agreement**.

Key Findings of the Report:

Global Investment Needs:

- **$6.3–6.7 trillion annually** is needed globally by **2030** to address climate challenges.
- **Emerging markets and developing countries (EMDCs)** (excluding China) require **$2.3–2.5 trillion annually**.

Current Investment Trends:

- Climate finance is primarily concentrated in economies like **India** and **Brazil**.
- **Non-traditional sources** such as the **voluntary carbon market**, **South-South Cooperation**, and **Special Drawing Rights (SDRs)** play an increasingly important role in closing the financing gap.

Opportunities for Developing Nations:

- **Declining costs of solar technology** provide a unique advantage.
- **China's vast supply chains** enhance access to clean energy infrastructure globally.

Recommendations for Climate Finance:

1. Integrated Approach

- Foster **collaboration** across public, private, and multilateral sectors.
- Develop **sector-specific investment plans** and co-create **project pipelines** for effective implementation.

2. Public Funding

- Address debt and fiscal constraints to improve funding availability.
- Enhance **domestic resource mobilization** using tools like **carbon pricing**.

3. Private Sector Participation

- Reduce the cost of capital to attract private investments.
- Expand access to **concessional financing** and leverage the **carbon market**.

4. Multilateral Development Banks (MDBs)

- MDBs should **triple their lending capacity** by **2030** to support the new **Collective Quantified Goal on Climate Finance (NCQG)**.

Mechanisms to Facilitate Climate Finance:

1. Global Environment Facility (GEF): Established in 1991**, GEF addresses global environmental issues, including climate change.**

2. Green Climate Fund (GCF): Set up at COP 16 (Cancún Conference) **in** 2010**, it supports mitigation and adaptation efforts in developing countries.**

3. New Collective Quantified Goal (NCQG): Under negotiation, NCQG aims to set post-2025 financial targets **for supporting developing nations' climate actions.**

Conclusion:

The report underscores the **urgency of scaling up climate finance** to achieve the goals of the **Paris Agreement**. With declining technology costs and emerging innovative financial mechanisms, developing nations have a significant opportunity to lead the global climate transition.

Collaboration among governments, private investors, and international organizations is critical to mobilizing resources, enhancing resilience, and achieving sustainable climate action.

GS Paper 3 – Science and Technology

4 BSNL Launches India's First Direct-to-Device (D2D) Satellite Connectivity

Context: Bharat Sanchar Nigam Limited (BSNL) has launched **India's first Direct-to-Device (D2D) satellite connectivity**, a landmark in making satellite communications available to everyday consumers. Previously, such technology was primarily used for **military** and **emergency purposes**.

What is Direct-to-Device Satellite Technology?

- **Satellites as Space Cell Towers**: Unlike traditional mobile connectivity that relies on ground-based towers, D2D technology uses **satellites in orbit** to transmit signals directly to devices on Earth.
- **Non-Terrestrial Network (NTN)**: This system enables seamless two-way communication between devices and satellites.
- **BSNL Technology**:
    - Utilizes **Viasat's Geostationary L-band satellites**, located **36,000 km above the Earth**.
    - Eliminates reliance on terrestrial cell towers, making it ideal for **remote coverage**.

Global Counterparts:

Other initiatives using D2D technology include **AST SpaceMobile**, **Lynk Global**, **Constellation Global**, and **SpaceX-Starlink**.

Significance of D2D Satellite Connectivity:

1. **Reliable Connectivity:** Offers uninterrupted **internet access** regardless of weather conditions.
2. **High-Speed Internet in Remote Areas:** Ensures **wider coverage**, even in areas where cellular or Wi-Fi networks are unavailable.
3. **Supporting UPI Payments:** Enables digital transactions in **rural and underserved regions**, bridging the digital divide.
4. **Emergency Services:** Provides essential communication for **SOS messaging** and emergency calls, crucial for **adventurers, travelers**, and during disasters.

Challenges in Implementation:

1. **Latency:** Reducing delays for real-time applications like **voice calls** and **video streaming** is a key challenge.
2. **Regulatory Hurdles:** Cross-border communications may encounter **regulatory issues** in multiple jurisdictions.
3. **Spectrum Allocation:** Ensuring sufficient bandwidth for smooth satellite-to-ground communication.
4. **Device Compatibility:** Adapting technology for **diverse smartphones** and operating systems.
5. **Propagation Challenges:** Overcoming **signal loss** and **interference** in varied environmental conditions.

Conclusion:

BSNL's D2D satellite connectivity initiative is a transformative step toward **digital inclusivity** in India. By extending high-speed internet and reliable connectivity to **remote and underserved areas**, it supports critical functions like **digital payments**, **emergency communication**, and **economic development**. However, addressing technological and regulatory challenges is crucial for its widespread adoption and success.

GS Paper 3 – Internal Security and Disaster Management

5 Exercise Poorvi Prahar: Enhancing India's Military Preparedness

Context: The **Indian Army**, in collaboration with the **Navy** and **Air Force**, is conducting **Exercise Poorvi Prahar**, a high-intensity **tri-service military drill** in the **forward areas of Arunachal Pradesh**. This exercise underscores India's focus on strengthening **inter-service coordination** and improving **operational readiness** in strategically significant regions.

Key Highlights of Exercise Poorvi Prahar:

1. Objective and Scope

- Designed to sharpen the **combat effectiveness** of the Armed Forces in conducting **Integrated Joint Operations**.
- Aims to tackle the challenges posed by **mountainous terrains** and ensure seamless inter-service coordination across all domains.

2. Cutting-Edge Technology Integration

- **Showcasing Technological Prowess**: Features advanced **military platforms and systems**, reflecting India's progress in **modern warfare technology**.
- **State-of-the-Art Systems** Deployed:
  - **Swarm Drones**: Enable coordinated operations.
  - **First Person View (FPV) Drones**: Enhance reconnaissance and tactical planning.
  - **Loitering Munitions**: Ensure precision strikes, boosting operational flexibility.
- **Artificial Intelligence and Satellite Connectivity**:
  - Systems powered by **AI-driven analytics** ensure real-time information sharing and faster decision-making.

3. Empasis on Inter-Service Collaboration

- **Development of a Common Operating Picture (COP)**:
  - A joint control structure optimizes coordination among the **Army, Navy, and Air Force**.
  - Provides **real-time situational awareness**, enabling **faster response times** during operations.
- **Integration Across Domains**:
  - Ensures smooth **multi-domain operations**, reinforcing India's strategic capabilities in land, air, and sea warfare.

Significance of Exercise Poorvi Prahar:

1. Bolstering National Security

- Enhances India's ability to **deter threats** in the **North-East region** through **advanced operational preparedness**.

2. Preparing for Future Warfare

- Emphasizes the absorption of **next-generation technologies**, ensuring readiness for **evolving military challenges**.

3. Strengthening Joint Operations

- Promotes **inter-service coordination**, ensuring effective collaboration in **high-stakes combat scenarios**.

Conclusion:

Exercise Poorvi Prahar is a testament to India's commitment to **modernizing its defence forces** and enhancing **strategic deterrence capabilities**. By leveraging cutting-edge technology and fostering seamless inter-service collaboration, the Indian Armed Forces are well-prepared to address emerging challenges and secure the nation's strategic interests.

GS Paper 2 – Governance

6 Punjab and Haryana Dispute Over New Assembly Building in Chandigarh

Context: The **long-standing conflict** between Punjab and Haryana over the shared capital, Chandigarh, has reignited due to Haryana's proposal to build a **new Assembly building** in the Union Territory.

Background of the Dispute:

1. **Chandigarh as Shared Capital**:
   - Since the **1966 bifurcation of Punjab** under the **Punjab Reorganization Act**, Chandigarh has served as the **shared capital** of Punjab and Haryana.
   - It is directly administered by the **Central Government** as a **Union Territory**.
2. **Recent Development**:
   - The **Central Government** reportedly allocated **10 acres** in Chandigarh for Haryana's Assembly building.
   - Punjab has strongly opposed this decision, asserting its constitutional and historical rights over Chandigarh.
3. **Haryana's Stand**: Haryana asserts its legal right to Chandigarh as part of the 1966 bifurcation agreement and has urged Punjab to avoid politicizing the issue.

Chandigarh: A Union Territory with Dual Role

1. **Union Territory Governance**:
   - Chandigarh is governed under **Article 239** of the Indian Constitution, placing it under **Central administration**.
   - The **Governor of Punjab** also serves as the **Administrator of Chandigarh**, linking it administratively to Punjab.
2. **Punjab's Claim**:
   - Chandigarh was originally developed as Punjab's capital after Partition in **1947**.
   - Punjab argues its exclusive claim, citing constitutional and historical precedents.
3. **Haryana's Claim**:
   - Haryana retains its right to share Chandigarh as per the 1966 agreement.
   - It also operates its legislative and administrative functions from the city.

Associated Issue: Sutlej-Yamuna Link (SYL) Canal Controversy:

1. **SYL Canal Overview**:
   - The **214-km-long canal** is meant to share **Ravi and Beas river waters** between Punjab and Haryana.
   - Haryana has completed its portion, but Punjab has stalled construction for over three decades.
2. **Water Sharing Dispute**:
   - Punjab opposes diverting water to Haryana, citing ecological concerns and water scarcity.
   - Haryana seeks its rightful share as agreed during the bifurcation.
3. **Legal Framework**:
   - While **water resources** fall under the **State List**, the Parliament has authority over **inter-state rivers** under the **Union List**.

Rivers Involved:

1. **Sutlej River**:
   - Origin: **Lake La'nga**, Tibet.
   - Flows through Himachal Pradesh, Punjab, and forms part of the **India-Pakistan border**.
   - Tributaries: **Beas, Ravi, Chenab, Jhelum**.
2. **Yamuna River**:
   - Origin: **Yamunotri Glacier**, Uttarakhand.
   - Confluence with Ganges at **Sangam** in Prayagraj, Uttar Pradesh.
   - Major Tributaries: **Chambal, Sindh, Betwa, Ken**.

Conclusion:

The dual disputes over Chandigarh's administrative control and the SYL canal underscore the **complexity of inter-state issues** post-bifurcation. Resolution requires:

- **Collaborative dialogue** between Punjab, Haryana, and the Central Government.
- A **balanced approach** to address resource sharing, constitutional rights, and administrative needs.