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To The Point

by Dhananjay Gautam

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GS Paper 2 – Governance, Social Justice

1 NITI Aayog Champions a High-Quality Data Ecosystem for India's Digital Future

Context: NITI Aayog has unveiled the **third edition of its quarterly insights series *Future Front***, titled **"India's Data Imperative: The Pivot Towards Quality."** This critical document highlights the **increasing urgency for high-quality data** to strengthen **digital governance**, build **public confidence**, and ensure **efficient delivery of government services**.

India's digital revolution—powered by platforms like **UPI, Aadhaar, and Ayushman Bharat**—has achieved unprecedented scale. But as these platforms mature, **data quality** has become not just a technical issue but a **strategic national priority**.

Why High-Quality Data Matters Now More Than Ever:

A single data error—a wrong digit in a bank account or a mismatched name—can result in serious consequences:

- **Disrupted pension payments**
- **Misrouted subsidies**
- **Excessive or duplicated welfare spending**

Such inaccuracies are not just clerical errors—they erode public trust and distort policymaking.

The Cost of Poor Data Management:

1. **Fiscal Leakage:** Welfare schemes suffer **4–7% in annual overspending** due to errors, duplication, and fraudulent entries.
2. **Policy Distortion:** Outdated or inconsistent data causes **misalignment of schemes**, leading to inefficient allocation of resources and delayed interventions.
3. **Erosion of Trust:** When citizens experience **claim rejections** or mismatches in official records, **confidence in public institutions** declines.

Key Structural Challenges Identified:

- **Systemic Design Flaws:** Systems often reward **speed over accuracy**, leading to unreliable outputs.
- **Fragmentation of Data:** Data lives in **isolated silos**, using **incompatible formats**, making integration and coordination difficult.
- **Outdated Legacy Systems:** Many platforms lack features like **validation mechanisms** or **audit trails**.
- **Lack of Accountability:** Absence of clearly defined **data ownership** results in blurred responsibility.
- **Rushed Implementation:** Targets focused on **volume over quality** undermine trust and effectiveness.
- **Low Expectations:** A culture where **80% accuracy** is deemed "acceptable" has led to systemic complacency.

Recommendations: Building a Resilient and Trusted Data Infrastructure:

1. **Institutionalize Data Stewardship:** Designate **data custodians** at national, state, and district levels. Make data quality a **shared responsibility** across programme heads, IT departments, and field workers. A **single point of accountability** must ensure data integrity throughout its lifecycle.
2. **Incentivize Accuracy Over Speed:** Shift focus from just meeting numerical targets to ensuring **accuracy, completeness, and timeliness**. Introduce **error-rate tracking**, and embed data quality metrics into **programme performance reviews**.
3. **Enable True Interoperability:** Ensure systems across government departments can **securely exchange and update data**. This enhances the long-term **value of public data** and is foundational to the success of **AI and analytics applications**.

The Road Ahead: A Cultural and Technological Reset

India needs a **paradigm shift in how data is viewed and managed**. The report urges a transformation from mere data collection to **active data stewardship**. This calls for:

- **Visible leadership commitment** to underscore the importance of clean, trustworthy data
- A **national culture that values data integrity**
- Embedding **data literacy and ethics** into civil services training
- Adoption of **cutting-edge data governance frameworks**, in line with global best practices (like the **EU's Data Governance Act** and **Singapore's Smart Nation initiative**)

Fast Fact:

According to the World Bank, **over 60% of public sector projects globally face challenges due to poor data quality**. India's growing reliance on digital governance makes **data credibility a critical pillar for national development**.

Conclusion: Clean Data is the New Infrastructure

India's development trajectory is increasingly driven by **digital public infrastructure**. But without **accurate, reliable, and interoperable data**, even the most advanced systems risk faltering. **NITI Aayog's call for a high-quality data ecosystem** is timely, urgent, and foundational—not just for efficient governance, but also for fostering **innovation, equity, and public trust** in the digital age.

GS Paper 3 – Economy

2 RBI and Banks Set to Launch Digital Payment Intelligence Platform to Tackle Rising Fraud

Context: In a landmark move to protect the integrity of India's digital financial ecosystem, the **Reserve Bank of India (RBI)** is leading a collaboration between major **public and private sector banks** to develop the **Digital Payment Intelligence Platform (DPIP)**. Positioned as a **Digital Public Infrastructure (DPI)**, the platform aims to revolutionize **fraud detection and prevention** in digital transactions.

What Is Digital Public Infrastructure (DPI)?

- **Digital Public Infrastructure** refers to the **core digital systems**—secure, inclusive, and interoperable—that act as the **backbone for essential public services** such as identity (Aadhaar), payments (UPI), and health (Ayushman Bharat Digital Mission). Just like roads and electricity fueled industrial progress, DPI is powering India's **digital economic transformation**, serving over a **billion users** at scale.

What Is the Digital Payment Intelligence Platform (DPIP)?

- The **DPIP** is being built to enhance **real-time intelligence sharing** among banks, enabling **swift identification and blocking of fraudulent transactions**. The initiative treats **fraud as a shared national risk**, requiring unified action.

The **Reserve Bank Innovation Hub (RBIH)**, in partnership with 5–10 leading banks, is currently piloting the platform using **advanced analytics, AI/ML algorithms**, and secure digital infrastructure. The system is expected to go live within the next few months.

Why Is DPIP Necessary?

India's exponential growth in digital payments has also led to a **surge in financial cybercrime**:

- According to RBI's **FY25 report**, financial frauds **tripled** to 36,014 crore, compared to 12,230 crore in FY24.
- **Public sector banks** bore the brunt in loan and advance frauds (25,667 crore).
- **Private sector banks** reported the **highest number of digital payment frauds**, especially involving **cards and internet transactions**.

As fraudsters use tactics like **phishing, impersonation, stolen credentials**, and **money laundering through mule accounts**, the DPIP aims to create a **cohesive defence mechanism**.

Key Challenges in Combating Digital Payment Fraud:

- **Delayed reporting** of incidents hampers real-time prevention.
- **Victims often delete evidence**, making tracking harder.
- **Banks operate in silos**, leading to **slow, fragmented data sharing**.
- Lack of **uniform standards** across institutions weakens enforcement and traceability.

Government and Regulatory Measures Already in Action:

India has begun laying the groundwork for robust cybersecurity in finance:

- The **Ministry of Home Affairs (MHA)** has launched the **Indian Cyber Crime Coordination Centre (I4C)** and the **National Cyber Crime Reporting Portal**, which has handled over **13.36 lakh complaints** and helped recover nearly **4,386 crore**.

- The **RBI** has rolled out **MuleHunter**, an AI-based tool to detect **money mule networks**.
- The **National Payments Corporation of India (NPCI)** has implemented safeguards like **device binding**, **two-factor authentication**, **UPI transaction limits**, and **AI-driven fraud detection**.
- **Security mandates** have been enforced across banks, ensuring stronger **digital payment controls**.

The Way Forward: Building a Resilient and Trustworthy Ecosystem

Tackling financial fraud in a digital-first economy like India's requires **multilateral collaboration**:

- **Banks, fintechs, regulators, cybersecurity experts**, and **law enforcement agencies** must work in sync.
- Key **preventive strategies** include:
  - **Alerts for multi-device logins**
  - **Disabling screen sharing features on banking apps**
  - **Mandating clear, itemized digital statements**
- Enhanced **cyber awareness campaigns** can empower users to detect and avoid scams.

Did You Know?

India processes **over 13 billion UPI transactions** a month (as of 2025), making it the **world's largest real-time digital payment market**—but also a high-value target for fraud syndicates.

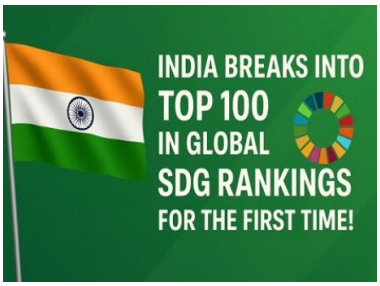
Conclusion: A Secure Digital Future Is Built on Shared Responsibility

The **Digital Payment Intelligence Platform (DPIP)** marks a critical step in **fortifying India's financial digital landscape**. With **real-time intelligence**, **collaborative frameworks**, and **AI-led monitoring**, India is setting a global example of how digital infrastructure can be both **inclusive and secure**.

GS Paper 3 – Sustainable Development

3 India Enters Top 100 in Global SDG Index – A New Milestone in Sustainable Growth

Context: India has marked a historic achievement by breaking into the **Top 100 in the Global Sustainable Development Goals (SDG) Index**, securing the **99th rank out of 167 nations** in the latest **Sustainable Development Report (SDR)**. This represents a major leap from its **109th position in 2024**, reflecting **India's growing commitment to inclusive and sustainable growth** under the **UN's Agenda 2030**.



Understanding the SDG Index and the Global Goals:

The **Sustainable Development Goals (SDGs)** are a set of **17 global goals and 169 targets**, adopted by **193 UN Member States in 2015** during the 70th session of the UN General Assembly. These goals aim to address the most pressing global challenges, including:

- **Poverty and hunger**
- **Inequality and gender discrimination**
- **Climate change and biodiversity loss**
- **Access to education, healthcare, clean water, and energy**
- **Peace, justice, and strong institutions**

The **SDG Index**, developed by the UN Sustainable Development Solutions Network, assesses countries' performance on these goals annually, offering a data-driven roadmap for global progress.

India's Progress: A Steady Climb

India has steadily improved its ranking in recent years:

- **2021:** Rank 120
- **2022:** Rank 121
- **2023:** Rank 112
- **2024:** Rank 109
- **2025: Rank 99** (Score: **67**)

This progress highlights India's efforts in improving **healthcare access**, **digital connectivity**, and **infrastructure development**, alongside targeted action on **clean energy**, **education**, and **financial inclusion** through flagship initiatives such as:

- **Ayushman Bharat** (Health)
- **Jal Jeevan Mission** (Clean Water)
- **PM-KUSUM** (Renewable Energy)
- **Beti Bachao Beti Padhao** (Gender Equality)
- **PMGSY** and **Digital India** (Infrastructure & Digital Inclusion)

SDG Performance: A Global Snapshot

- **Top performers** in the 2025 Index are **Finland**, **Sweden**, and **Denmark**, continuing to lead in climate action, education, and governance.
- **19 of the top 20 countries** are from Europe.

- **East and South Asia** have emerged as the **fastest-progressing regions** since 2015, driven by rapid improvements in **socioeconomic indicators**.

Among India's neighbours:

- **China:** Rank 49 (**Score: 74.4**)
- **Bhutan:** Rank 74 (**70.5**)
- **Nepal:** Rank 85 (**68.6**)
- **Bangladesh:** Rank 114 (**63.9**)
- **Pakistan:** Rank 140 (**57.0**)
- **Sri Lanka:** Rank 93
- **Maldives:** Rank 53

The Global SDG Landscape: Progress Still Off Track

Despite individual gains, global SDG progress is **lagging severely**:

- Only **17% of SDG targets are on track** to be achieved by 2030.
- Major setbacks include:
  - **Rising obesity rates** (SDG 2)
  - **Decline in press freedom** (SDG 16)
  - **Biodiversity loss** as seen in the **Red List Index** (SDG 15)
  - **Corruption concerns** and **governance regression** (SDG 16)

Yet, **positive trends** are observed in:

- **SDG 3:** Decline in under-5 and neonatal mortality
- **SDG 7:** Increased access to electricity in rural areas
- **SDG 9:** Growth in mobile broadband usage and internet penetration

Financing and Multilateralism: A Critical Bottleneck

The report underlines that **around 50% of the global population** resides in countries **lacking adequate fiscal capacity** to finance sustainable development.

Key concerns:

- **Global public goods** like climate protection, peacekeeping, and pandemic preparedness remain **severely underfunded**.
- The **UN-Based Multilateralism Index** ranks **Barbados 1st**—signifying its strong commitment to global cooperation.
- The **United States ranks last**, due to decisions such as:
  - **Withdrawal from the Paris Climate Agreement**
  - **Exit from the WHO**
  - **Opposition to SDG frameworks**

The report calls for an **overhaul of the Global Financial Architecture (GFA)**, advocating reforms to give **developing nations fair access to capital** and **align global financing flows** with SDG priorities.

Why the SDGs Matter:

The **SDGs** are not legally binding but act as **international moral obligations**, helping governments shape **national policies**, **reallocate resources**, and **measure impact**. They form a **universal framework**—applicable to **developed, developing, and least-developed nations alike**.

A Path Forward for India and the World:

India's leap into the **Top 100** is encouraging, but sustained momentum will require:

- Greater **state-level alignment** with national SDG targets
- Expansion of **green finance**, especially in climate resilience and clean energy
- More robust **data collection and monitoring mechanisms**
- **Public-private partnerships** to scale up innovation and impact
- Strengthening **gender equity**, **local governance**, and **climate adaptation**

Did You Know?

India's **SDG localization efforts** through tools like the **SDG India Index by NITI Aayog** and **State Indicator Frameworks** are helping **state governments align development goals with global benchmarks**—a model now being studied by other nations.

Conclusion: A Milestone Achieved, A Mission Ahead

India's entry into the **Top 100 of the Global SDG Index** marks a turning point in its development journey. As the world approaches the **2030 deadline**, the focus must shift from commitments to **concrete actions, cross-sector collaboration**, and **equitable global financing**.

GS Paper 3 – Environment and Ecology

4 Kappatagudda Wildlife Sanctuary Declared Eco-Sensitive Zone by Centre

Context: In a major conservation milestone, the **Union Government has officially notified the Eco-Sensitive Zone (ESZ)** around the **Kappatagudda Wildlife Sanctuary**, ending a ten-year-long movement aimed at safeguarding this **ecologically rich and culturally significant landscape** in **northern Karnataka**. This move is expected to bolster environmental protection measures and regulate unsustainable activities around the sanctuary, ensuring long-term preservation of its fragile ecosystems.

A Jewel of the Deccan: About Kappatagudda Wildlife Sanctuary

Located in the **Gadag district** of Karnataka, the **Kappatagudda Wildlife Sanctuary** spans over **244.15 square kilometers**. Known for its unique ecological and historical richness, the sanctuary is often referred to as the **"Western Ghats of North Karnataka"** due to its rich **biodiversity** and **scenic hillscapes**.

A Landscape Steeped in History:

Kappatagudda is not only a haven for wildlife but also a treasure trove of **ancient heritage**. The area is dotted with the **ruins of temples, forts, and monastic complexes**, dating back to powerful dynasties such as the **Chalukyas** and **Rashtrakutas**.

Architectural highlights include:

- **Kappatagudda Jain Basadi**
- **Brahma Jinalaya**
- **Trikuteshwara Temple**
- **Dambala Temple**

These monuments reflect the **region's rich religious diversity**, as well as its **exceptional craftsmanship**, with intricate carvings and inscriptions that narrate tales from a glorious past.

Ecological Richness: Flora and Fauna

Flora:

The sanctuary is characterized by **dry deciduous forests**, **scrublands**, **grasslands**, and **riverine habitats**. It is home to **over 400 species of medicinal plants**, making it a **botanical hotspot**, particularly valuable for **traditional medicine and ethnobotany**.

Fauna:

Kappatagudda supports a wide range of wildlife:

- **Large carnivores** like **gray wolves**, **striped hyenas**, **leopards**, and **golden jackals**
- **Smaller predators** such as **jungle cats**, **rusty-spotted cats**, **Indian gray mongooses**, **ruddy mongooses**, **common palm civets**, and **small Indian civets**

The sanctuary plays a vital role in conserving the **dry-zone carnivore population**, many of which are under threat in other parts of India due to **habitat loss and fragmentation**.

Why the ESZ Notification Matters:

The **Eco-Sensitive Zone** status brings a **protective buffer** around the sanctuary, restricting **industrial activities, mining, and deforestation**, which could threaten its delicate balance. It also ensures:

- Regulation of **urban expansion**

- Promotion of **sustainable development**
- Enhanced **community participation** in eco-tourism and conservation

Did You Know?

Kappatagudda is one of the few sanctuaries in India where **arid and semi-arid ecosystems** coexist with **high levels of endemic plant species**, making it a **priority area** for both **conservationists** and **heritage scholars**.

Conclusion: Protecting a Living Legacy

The declaration of the **Eco-Sensitive Zone** around **Kappatagudda Wildlife Sanctuary** is not just an environmental victory—it is a step toward preserving a **living legacy** where **nature, culture, and history** are deeply intertwined. This sanctuary is now poised to become a **model for conservation-linked tourism**, **biodiversity research**, and **heritage revival**, ensuring its value is passed on to future generations.

GS Paper 1 – Geography

5 Alaska's Iliamna Volcano Shows Signs of Activity After Long Dormancy

Context: The **Iliamna Volcano** in **southwest Alaska** has recently drawn attention from geologists and disaster monitoring agencies following a series of **earthquakes** detected near its slopes and **satellite images** hinting at renewed underground activity. Though currently classified as **dormant**, these developments have fueled speculation that the **snow-cloaked stratovolcano may be reawakening** after nearly a century and a half of silence.

About Iliamna Volcano: Alaska's Icy Giant

Nestled in the **Chigmit Mountains**, within the boundaries of **Lake Clark National Park and Preserve**, **Mount Iliamna** towers at **10,016 feet (3,053 meters)** above **Cook Inlet**, making it one of the most prominent peaks in the region.

Classified as a **stratovolcano**, Iliamna is known for its **steep profile**, **ice-covered flanks**, and the presence of **multiple peaks** forming a rugged **5-kilometer-long ridgeline**. Its structure includes:

- **Andesite lava flows**
- **Pyroclastic deposits**
- A foundation of **Jurassic-era granite**

The summit and upper slopes are heavily **glaciated**, with **numerous glaciers**, including the **Umbrella Glacier**, radiating from the peak. Over time, **large avalanches** have deposited significant debris, especially along the volcano's **southwestern flank**.

Though the last confirmed eruption dates back to **1876**, Iliamna has displayed intermittent signs of geothermal activity, including **fumarolic steam emissions** and **minor seismic activity**, indicating a **persistent but low-level magmatic heat source**.

What Makes Stratovolcanoes Unique?

Stratovolcanoes, also called **composite volcanoes**, are among the **most powerful and dangerous types** of volcanoes on Earth. Unlike broad, gently sloping **shield volcanoes**, stratovolcanoes are:

- **Tall and conical**
- Built up through alternating layers of **lava flows**, **ash**, and **rock fragments**
- Frequently associated with **explosive eruptions**

They typically form in **subduction zones**—where one tectonic plate dives beneath another—and are prevalent along the **Pacific Ring of Fire**, the world's most volcanically active region.

Key characteristics of stratovolcanoes:

- Primarily erupt **andesitic or dacitic magma**, which is **cooler and more viscous than basalt**
- Viscosity traps volcanic gases, building **high internal pressure** that can lead to **violent eruptions**
- Their summits often feature a **small crater**, which may contain a **lava dome**, **glacial ice**, or a **volcanic lake** during dormant phases

Stratovolcanoes make up around **60% of Earth's volcanoes**, and include world-famous peaks like **Mount Fuji (Japan)**, **Mount Vesuvius (Italy)**, **Mount St. Helens (USA)**, and **Mount Krakatoa (Indonesia)**.

What's Happening at Iliamna?

Recent observations indicate:

- A **spike in shallow earthquakes** beneath the volcano
- **Satellite thermal imagery** revealing heat anomalies near the summit
- Continuous **fumarolic activity** suggesting sub-surface movement of magma or steam

While these signs do **not yet confirm an imminent eruption**, they are being **closely monitored** by the **Alaska Volcano Observatory (AVO)**. The current **alert level remains normal**, but any further changes in seismic or gas emissions could prompt elevated warnings.

Did You Know?

Despite being **covered in ice year-round**, Iliamna is not classified as a "glacier-covered volcano" because of its **consistent geothermal emissions**, which prevent the formation of permanent ice domes at its summit.

Conclusion: A Watchful Eye on a Sleeping Giant

The Iliamna Volcano, dormant for nearly **150 years**, is once again on scientists' radar. While it may not erupt tomorrow, the recent uptick in activity is a **reminder of the unpredictable nature of stratovolcanoes**, especially those within the **volatile Pacific Ring of Fire**.

GS Paper 3 – Science and Technology

6 India Boosts Indigenous Battery Recycling with Advanced Black Mass Recovery Technology

Context: In a significant push towards **self-reliance in clean energy technologies**, the **Technology Development Board (TDB)** under the **Department of Science & Technology (DST), Government of India**, has extended **financial support** for the **commercial deployment** of **indigenously developed Black Mass Recovery Technology**. This innovation marks a key step toward a **circular economy in battery manufacturing** and helps reduce India's dependence on imported battery raw materials.

What Is Black Mass Recovery Technology?

The **Black Mass Recovery Technology** is an advanced solution designed to **extract high-purity metals—lithium**, **cobalt**, **nickel**, and **manganese**—from **end-of-life lithium-ion batteries** (Li-ion batteries).

This **dual-mode process (wet and dry)** enables a **high separation efficiency**, with **recovery rates ranging from 97% to 99%**. It covers the entire value chain, including:

- **Battery collection**
- **Shredding**
- **Metal leaching**
- **Downstream purification**

The **technology is completely indigenous and patented**, offering a **cost-effective alternative** to foreign recycling technologies, and strengthens India's positioning in the **global green energy market**.

Why Is It Important?

- **Reduces Imports**: India heavily depends on imports for **critical battery minerals**. This technology recycles these **valuable resources from within the country**, reducing external dependency.
- **Supports E-Mobility & Energy Storage**: The extracted materials meet **global battery-grade standards** and can be reused in manufacturing batteries for **electric vehicles (EVs)**, **renewable energy storage**, and **consumer electronics**.
- **Environmental Sustainability**: It promotes **eco-friendly resource recovery**, reducing the need for new mining and the **carbon footprint** associated with it.

What Is "Black Mass"?

"**Black Mass**" refers to the **dark, granular material** that remains after used lithium-ion batteries are shredded during the **recycling process**. This substance contains a **rich mix of valuable metals**, including:

- **Lithium**
- **Cobalt**
- **Nickel**
- **Manganese**
- **Graphite**

These metals are **critical for the production of new batteries**, especially in the era of **electrification and clean energy transition**.

Did You Know?

According to the International Energy Agency (IEA), global demand for **lithium is expected to grow more than 40 times** by 2040. **Efficient recycling technologies** like Black Mass Recovery will be vital to meet this demand sustainably.

India's Leap Toward a Greener Tomorrow:

By supporting the **commercial rollout of black mass recovery**, India is laying the groundwork for a **self-sufficient, circular battery ecosystem**. It not only addresses the rising need for **battery recycling infrastructure** but also aligns with national missions such as:

- **National Electric Mobility Mission Plan (NEMMP)**
- **FAME India Scheme**
- **National Mission on Critical and Strategic Minerals**

This innovation holds the potential to **transform waste into wealth**—fueling India's vision of becoming a **global hub for green technology and sustainable manufacturing**.

Black Mass Recovery isn't just about recycling batteries—it's about powering India's energy future, responsibly and indigenously.