



PRS Capsule-October 2023

Key Highlights of PRS

▪ Economy:

- **RBI Releases Circular To Regulate Cross-Border Payment Aggregators**
- **SEBI Revises Framework For Debt Issuance By Large Corporates**
- **Draft Directions On Risk Mitigation Of Outsourced Financial Services Released**

▪ Governance and Social Justice

- **Supreme Court's Verdict On The Same-Sex Marriage Plea**
- **Supreme Court Permits Use Of Donor Gametes For Surrogacy**
- **Guidelines For Equitable And Inclusive Education**
- **Draft Guidelines For Suicide Prevention In Schools**
- **National Turmeric Board**
- **Amendments To Aircraft Rules**
- **Report Of Working Groups On AI**

▪ Biodiversity & Environment

- **Renewable Energy Consumption Obligation For The 2024-30 Period**
- **R&D Roadmap For Green Hydrogen**
- **Rules To Enhance Battery Waste Management Regulations**
- **Rules On Award Of Green Credits To Incentivise Environmental Actions**
- **Draft Rules To Enhance Plastic Waste Management Regulations**
- **Committee Submits Report On Misclassification Of Iron Ore Grades And Other Minerals**

ECONOMY

RBI Circular To Regulate Cross-Border Payment Aggregators

The [Reserve Bank of India \(RBI\)](#) released a circular on the regulation of cross-border [payment aggregators](#) (PA-CB). These entities facilitate online cross-border transactions for the import and export of permissible goods and services. The regulations will apply to nonbank payment aggregators.

▪ **Key Features:**

◦ **Applicability and Scope:**

- **Non-bank payment aggregators** are required to seek **authorization from RBI** by April 30, 2024.
- While awaiting authorization, aggregators can continue their services but must **adhere to the 2020 [Guidelines on Regulation of Payment Aggregators](#)** and Payment Gateways by January 31, 2024.
- Existing non-bank aggregators **failing to apply for authorization** or meet specified requirements **must wind up operations by July 31, 2024.**

◦ **Requirements for Aggregators:**

- Existing non-bank aggregators **must possess a minimum net worth of Rs 15 crore** during the application for authorization, **increasing to Rs 25 crore by March 31, 2026.**

- **New aggregators** are **mandated to maintain** a net worth of **Rs 25 crore** by the third financial year of operations.
- The **value of import and export transactions** processed by **PA-CBs** is **capped at Rs 25 lakh per unit** of goods or services bought/sold.

SEBI Revised Framework For Debt Issuance By Large Corporates

The [Securities and Exchange Board of India \(SEBI\)](#) has recently made **significant revisions** to the framework governing debt issuances by large corporates.

- **Key Changes in SEBI's Framework:**
 - **Threshold Adjustment:**
 - **Large corporates**, as defined by SEBI regulations, are now **required to raise 25%** of their **incremental borrowings** through debt securities issuance.
 - The term "**large corporates**" encompasses **all listed entities (excluding banks)** with an outstanding long-term borrowing of at least Rs 100 crore, among other criteria.
 - The revised framework raises the **threshold for large corporates to Rs 1,000 crore.**
 - **Exclusions from Long-Term Borrowing:**
 - The outstanding long-term borrowing calculation excludes [external commercial borrowings](#) and borrowings between a parent entity and its subsidiaries.
 - **Exclusions from the outstanding long-term borrowing** also include grants or **deposits** received based on central government directives, borrowings arising from interest capitalization, and borrowings for mergers and acquisitions purposes.
 - **Implementation Timeline:**
 - The **revised framework** is set to take **effect from either April 1, 2024, or January 1, 2024**, depending on the financial year followed by the entity.

Draft Directions On Risk Mitigation Of Outsourced Financial Services

The Reserve Bank of India (RBI) has recently unveiled the **draft directions** titled "**Reserve Bank of India (Managing Risks and Code of Conduct in Outsourcing of Financial Services) Directions, 2023**" for public review and comments.

- **Applicability of the Directions:**
 - The draft directions are **designed to apply to regulated entities**, including commercial banks, non-banking financial companies, and credit information companies.
 - Specifically, these guidelines **aim to address risks associated with activities outsourced by regulated entities**, activities that could significantly impact their business operations.
- **Key Features of the Draft Directions:**
 - **Applicability Criteria:**
 - The directions **focus on material outsourcing arrangements** where certain activities are delegated to third parties. Such arrangements, if disrupted, can impact business operations, reputations, compliance with laws, and consumer welfare.
 - **Outsourced Activities:**
 - **Permissible outsourced activities encompass application processing** (e.g., for loans or credit cards), middle and back-office operations (e.g., electronic funds transfer, custody operations, order processing), and cash management.
 - On the other hand, **core management functions such as policy formulation, sanctions for loans, management of investment portfolios, compliance functions, and internal audits cannot be outsourced.**
 - **Regulation of Outsourced Activities:**
 - **Approval Process:** The draft directions **do not mandate entities to seek approval from the RBI prior to outsourcing activities.**
 - **Supervisory Scrutiny:** However, **outsourced activities will undergo scrutiny** by the appropriate **supervisory authority** (RBI, [NABARD](#), or [NHB](#)).

- **Inventory Requirement:** Entities **must establish an inventory of services** outsourced and evaluate their dependency on third parties.
- **Service Provider Criteria:** Entities need to ensure that the **service provider does not interfere with their activities**, is not owned or controlled by directors or key managerial personnel, and that outsourcing arrangements do not infringe upon consumer rights.
- Regulated entities will be responsible for activities carried out in an outsourcing arrangement.

GOVERNANCE AND SOCIAL JUSTICE

Supreme Court's Verdict On The Same-Sex Marriage Plea

- **Context and Question Before the Court**
 - The focal point of the Supreme Court's deliberation was the **right to marriage for same-sex couples**.
- **Key Question:**
 - Did the [Special Marriage Act of 1954](#) infringe upon the [fundamental rights](#) of equality and liberty by neglecting to recognize marriages among queer couples?
- **Judgement:**
 - **The court in a unanimous decision ruled that there is no fundamental right to marry**, and **same-sex marriages** cannot be inferred from the 1954 Act.
 - **Emphasis on Parliament's original intention:**
 - Providing heterosexual couples of different faiths the option to marry under the 1954 Act.
 - **Marriage being a concurrent subject**, the Court asserted that **enacting laws recognizing same-sex marriage** falls within the purview of Parliament and State Legislatures.
 - In a 3:2 majority decision, the bench ruled that **queer individuals cannot enter into civil unions and adopt children**.
 - **Unanimous agreement** on the **right of transgender people** in heterosexual relationships to marry under existing legal frameworks.
 - **Call for action:** Establishment of a high-powered Committee, chaired by the Cabinet Secretary, to assess the entitlements and rights of queer persons.
 - **Definition clarification:** "[Queer](#)" as an umbrella term for non-heterosexual individuals.

Legal Insights: [Same Sex Marriage](#)

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Supreme Court Permits Use Of Donor Gametes For Surrogacy

In a significant order, the **Supreme Court has granted approval for the utilization of donor gametes in surrogacy**, overturning the **restrictions imposed by the Surrogacy (Regulation) Amendment Rules, 2023**.

- **Reading Down the Surrogacy (Regulation) Amendment Rules, 2023**
 - The Court's decision involved reading down the [Surrogacy \(Regulation\) Amendment Rules, 2023](#), which previously prohibited the use of donor gametes for intending couples.
 - The term "**intending couple**" refers to those facing medical conditions that necessitate the use of surrogacy.
- **Understanding Donor Gametes in Surrogacy**
 - Gametes, the reproductive cells, play a crucial role in surrogacy.
 - **Male gametes, known as sperm**, and female gametes, which are eggs or oocytes, are fundamental components in assisted reproductive technologies.
- **Definition of Surrogacy in Indian Regulations**

- **Surrogacy in India** is **regulated** by the [Surrogacy \(Regulation\) Act, 2021](#), and the Surrogacy (Regulation) Rules, 2022.
- The **Act defines surrogacy** as the practice where a woman gives birth to a child for an intending couple or woman, agreeing to hand over the child after birth.
- **Observations on Medical Conditions and Surrogacy Restrictions**
 - The Rules specify that a **woman may opt for surrogacy in cases of medical conditions**, such as a missing or abnormal uterus.
 - The **Court**, however, **observed that these conditions could extend to situations involving the inability to produce one's own eggs**. The 2023 amendment was deemed contradictory to these provisions.
- **Court's Perspective on Surrogacy Restrictions**
 - The Court emphasized that **restrictions on surrogacy should not contradict a woman's right to avail surrogacy** in circumstances necessitated by medical conditions.
 - The Act mandates a genetic link between the child born through surrogacy and the intending couple.
 - Notably, the Court held that **genetic linkage with the father is sufficient** in cases where surrogacy medically requires the use of donor eggs.

Legal Insights: [Surrogacy and Maternity Leave](#)

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Guidelines For Equitable And Inclusive Education

The **Ministry of Education** has recently unveiled the '[Guidelines and Implementation Framework for Equitable and Inclusive Education](#),' a significant initiative aligned with the [National Education Policy \(NEP\) of 2020](#).

- **Achieving Equitable and Inclusive Education under NEP:**
 - **Universal Access to Early Childhood Care and Education (ECCE):**
 - **Emphasis on anganwadis, pre-schools, and grades one and two.**
 - **Early identification and intervention** for children with disabilities.
 - **Foundational literacy and numeracy** through local languages and play-based activities.
 - **Introduction of ECCE programs** in alternative forms of schooling, especially in tribal areas.
 - Teacher and [Anganwadi worker](#) training through **certified ECCE courses**.
 - **Improving Children's Health and Nutrition:**
 - **Community involvement** in the schooling system.
 - **Curtailing dropout rates** through open and distance learning programs.
- Guidelines for Home-Based Education:
 - Creating a **record of students opting for home-based education** at the district level.
 - **Audits of home-based education** students by a teacher.
 - **Equipping home learning spaces** with **infrastructure** for children with disabilities.
- **Guidelines for Inclusive Schools:**
 - **Flexible** and **socially accommodative** curriculum.
 - Use of **oral, auditory, and tactile aids** in teaching.
 - **Access to speech therapists and psychologists.**
 - Establishment of **Equitable and Inclusive Education Cells** in districts, blocks, school clusters, and schools.
 - Cells responsible for supporting schools with **financial resources and monitoring activities.**

Legal Insights: [Right to Education under Article 21A](#)

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Draft Guidelines For Suicide Prevention In Schools.

The **Department of School Education and Literacy** has recently issued **comprehensive guidelines aimed at preventing suicide within school environments**. These guidelines emphasize the identification of risk factors associated with suicide and provide a strategic action plan for schools to foster a positive atmosphere, enhance capacity for suicide prevention, and offer support to students facing potential risks.

- **School Wellness Team (SWT):**
 - The guidelines advocate for the establishment of a **School Wellness Team (SWT) in every school to assist students identified as being at risk of suicide**. These students are identified through warning signs such as social withdrawal and self-harm discussions.
 - The **SWT**, led by the school principal, **comprises key members**, including the school counselor, representatives from different school levels, a parent representative, and a school medical staff.
 - The team's responsibilities encompass **immediate intervention, creating awareness about mental well-being, and implementing preventive measures**.
- **Capacity Building:**
 - This involves **conducting orientation programs** throughout the academic year to help stakeholders recognize risk factors and warning signs, **utilize mental health resources** effectively, and **provide support during stressful periods**, such as exams.
 - **School counselors** or designated social workers will be **responsible for conducting capacity-building exercises** for parents and teachers.
- **Immediate Response for Students at Risk:**
 - Immediate actions include **approaching the student with care**, engaging in **gentle communication**, actively listening, suggesting communication with a teacher or counselor, and promptly informing the School Wellness Team about the situation.
- **Appraisal:**
 - Periodic analysis is to be done by various stakeholders to ensure the effectiveness of the guidelines.
 - Insights gained from this review process will be utilized to enhance and **refine the existing implementation plan**.

National Turmeric Board constituted

The **Department of Commerce**, recognizing the significance of the turmeric industry in India, has established the [National Turmeric Board](#). This move **aims to enhance the sector's development** and address various aspects crucial to its growth.

- India is the **largest producer, consumer, and exporter** of turmeric in the world.
- **Objectives of the National Turmeric Board:**
 - **Promoting New Product** Development and Value Addition
 - **Facilitating Market Research** in Potential International Markets
 - **Creating and Improving Infrastructure** and Logistics for Turmeric Exports
 - **Promoting Quality Compliance** and Safety Standards
 - **Encouraging Studies**, Clinical Trials, and Research on Turmeric Benefits

Composition of the Board:

The 18-member Board includes:

- **A chairperson appointed by the central government**
- **Four members representing** the Ministries/Departments of Commerce, Agriculture, AYUSH and Pharmaceuticals
- **Three members representing** turmeric-producing states on a rotation basis.
- **Three members** (nominated by the central government) representing turmeric growers.
- The **secretary of the Spices Board**.
- **Membership Tenure and Meeting Frequency:**

- **Maximum Three-Year Term** for **Chairperson and Members**
- **Requirement** of at Least **Two Board Meetings Annually**

Amendments To Aircraft Rules

The [Ministry of Civil Aviation](#) has **recently introduced** noteworthy amendments to the **Aircraft Rules of 1937**, which fall under the **jurisdiction of the Aircraft Act of 1934**.

- **Licensing of Aviation Personnel:**

- Under the amended rules, the **Ministry emphasizes** the licensing of various aviation personnel, encompassing pilots, air traffic controllers, and aircraft maintenance engineers.

- **Key Amendments:**

The **amendments** bring about **significant changes, addressing crucial aspects of aviation operations**.

- **Extension of License Validity:**

- The **license duration for airline transport pilots and commercial pilots** has been **extended from five to 10 years**.

- Moreover, the **validation of foreign licenses** for **operating aircraft** is no longer applicable.

- **Display of False Lights:**

- Another key amendment focuses on the **display of lights in proximity to aerodromes**, aiming to prevent confusion with aeronautical ground lights or beacons.
- The **amended Rules increase the radius** where such lights are prohibited from **five kilometres to around nine kilometres (five nautical miles)**.
- The **period to extinguish such lights** after notice is served has been **reduced from seven days to 24 hours**.
- It also specifies that **such lights will include lantern lights, wish kites, and laser lights**.

Report Of Working Groups On AI

The **Ministry of Electronics and Information Technology** in India has taken **significant steps in advancing [Artificial Intelligence \(AI\)](#)** through the **establishment of seven working groups**.

These groups **focus on key aspects** such as **government data management, startups ecosystem development, centers of excellence, skill development, computational infrastructure, and chipsets for AI**.

- **Working Group Recommendations:**

- **Government Data Management:**

- **NDMO should be established as an executive agency** with defined functions, including the development of processes, standards, and guidelines for data handling by government entities.
- **Previously, The Draft National Data Governance Policy**, was released in 2022, which proposed the **creation of the India Dataset Platform and the National Data Management Office (NDMO)**.

- **Infrastructure:**

- **Strategic Locations:** The working group on computational infrastructure recommends the **establishment of state-of-the-art facilities** at five locations in India.
- **Service Delivery Model: Infrastructure** should be offered as a service, with transparent pricing models.
- **Private-Sector Involvement: Encouraging private-sector investment** in AI-based infrastructure through incentives like tax breaks, subsidies, and public-private partnerships.

- **Skill Development:**

- **Education Integration:** The working group on skills recommends the **integration of AI-related education** from the secondary school level onward.
- **Curriculum Enhancement: Recognizing the rapid pace of technological development**, the group suggests a central curriculum repository for selecting model curricula.
- **Faculty Quality Improvement: Addressing concerns about faculty quality**, the recommendations include training and upskilling programs, along with mechanisms for faculty-industry internships.

Legal Insights: [Position of Artificial Intelligence under Copyright Law](#)

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BIODIVERSITY AND ENVIRONMENT

Renewable Energy Consumption Obligation Notified For The 2024-30 Period

- The **Ministry of Power** has unveiled the **Renewable Energy Consumption Obligation for 2024-2030**, as mandated by the **2001 Energy Conservation Act**, specifying minimum requirements for renewable energy consumption during this period.
- **Empowerment under the Energy Conservation Act**
 - Issued under the authority of the [Energy Conservation Act, 2001](#), the notification **empowers the central government** to enforce a minimum consumption of energy from non-fossil sources.
 - This obligation can be **fulfilled either through direct consumption or by acquiring renewable energy certificates**, issued to entities surpassing their allocated targets.
- **Key Features of the Notification**
 - **Applicability**
 - The obligation **extends to specific categories**, including electricity distribution licensees, open access consumers, captive users, and designated consumers encompassing industries like mining, transport, and commercial buildings.
 - Open access consumers directly procure power from generators, while captive users generate electricity for self-consumption.
- **Changes in Renewable Purchase Obligation (RPO)**
 - **Effective from April 1, 2024**, the [Renewable Purchase Obligation \(RPO\)](#) for distribution licensees, as defined in the Electricity Act of 2003, will **cease to exist**.
 - This alteration in policy signifies a **shift in focus from RPO to the Renewable Energy Consumption Obligation**.
- **Impact on Open Access Consumers and Captive Users**
 - For open-access consumers and captive users, the **consumption obligation applies to the extent of their energy consumption** from sources other than distribution licensees.
 - Notably, they are **exempt from source-specific targets**, providing flexibility in meeting their renewable energy consumption goals.

R&D Roadmap For Green Hydrogen Released

The **Ministry of New and Renewable Energy** has unveiled a comprehensive Research and Development (R&D) roadmap as part of the [National Green Hydrogen Mission in India](#), aimed at promoting the adoption of green hydrogen and its associated products, such as [green ammonia](#) and green methanol.

- **Focus Areas of the R&D Roadmap:**
 - The roadmap strategically outlines R&D projects across key domains, including green hydrogen production, storage, transport, end-use applications, and safety measures.
 - The **overarching objective is to pioneer advancements in materials, technologies,**

and infrastructure to enhance the efficiency, reliability, and cost-effectiveness of green hydrogen.

- Within each focus area, the **roadmap aims to catalyze innovations** by fostering a collaborative environment between the public and private sectors.
- **Public-Private Partnership Framework:**
 - The roadmap proposes a strong public-private partnership for R&D, emphasizing the creation of a **dedicated fund and attracting venture capital**. It also suggests setting up **centers of excellence for green hydrogen** to foster breakthroughs in the field, aiming for a sustainable and well-funded research environment.
- **Building a Collaborative Network:**
 - **Recognizing the significance of interconnectedness**, the roadmap proposes the formation of a network that bridges industry, academia, and government.
 - This **tripartite collaboration** aims to **streamline the transfer and commercialization of emerging technologies**, ensuring that the innovations cultivated through R&D projects find practical applications in the market.

Rules To Enhance Battery Waste Management Regulations

The Ministry of Environment, Forest and Climate Change has recently notified crucial amendments to the [Battery Waste Management Rules of 2022](#), framed under the [Environment Protection Act of 1986](#).

- **Extended Producer Responsibility (EPR) Implementation:**
 - The **amended Rules have introduced the concept of Extended Producer Responsibility (EPR)** for battery producers. This is a significant step aimed at ensuring the environmentally sound management of batteries.
 - **Inclusion of Producers' Functions:**
 - Under the 2022 Rules, producers were originally tasked with recycling or refurbishing batteries introduced to the market. The **Amendments now broaden this responsibility to include batteries used by producers for their own purposes**.
 - **Targets for Electric Vehicle Batteries:**
 - The **Amendments bring forth mandatory waste battery collection, recycling, or refurbishment targets specifically for electric vehicle batteries**, including those used in three-wheelers like e-rickshaws and e-carts. For example, by 2026-2027, the targets must account for at least 70% of the quantity of batteries placed in the market in 2021-22.
- **EPR Certification Process:**
 - The Amendments also outline a structured EPR certification process, with the [Central Pollution Control Board \(CPCB\)](#) playing a central role.
 - **Weight-Based EPR Certificates:**
 - The **CPCB will issue EPR certificates** based on the weight of processed or refurbished waste batteries. Moreover, the highest and lowest prices for these certificates will be determined by the CPCB.
 - **Cost and Trading Platforms:**
 - The **cost associated with obtaining an EPR certificate** will vary **depending on the size and nature of the business**. The Amendments also pave the way for electronic trading platforms for EPR certificates, facilitating trading between obligated entities as per CPCB guidelines.
 - **Automatic Producer Registration:**
 - **Producers** will be **automatically registered** as waste battery producers if the CPCB does not reject their application within two weeks.
 - **Annual Reporting by CPCB:**
 - The **CPCB will compile an annual report** encompassing EPR targets, recycling activities, and utilization of environmental compensation. Additionally, relevant producer information will be shared with State Pollution Control Boards through an online portal.

Rules On Award Of Green Credits To Incentivise Environmental Actions

The **Ministry of Environment, Forest and Climate Change** has recently **introduced** the [Green Credit Rules of 2023](#), marking a significant step towards establishing a market mechanism that promotes and rewards efforts in environmental protection, preservation, and conservation.

▪ **Key Objectives:**

- Under the **Green Credit Rules**, the **focus is on encouraging voluntary actions** in specific areas, including tree plantation, waste management, sustainable building and infrastructure, and the reduction of air pollution.
- The initiative aims to create a platform where green credits can be earned through these environmentally conscious activities and subsequently traded.

▪ **Methodology:**

- **Development of Thresholds and Benchmarks:**
 - **Each environmental activity** will have **defined thresholds** and benchmarks for the issuance of green credits.
- **Quantifiable Factors:**
 - The **value of green credits** will be **determined** based on **quantifiable factors**, such as resource requirements, scale, and scope, reflecting the environmental impact of the actions.
- **Steering Committee:**
 - **Governance Oversight:** A dedicated Steering Committee will be established to oversee the entire program.
 - The **committee will comprise representatives from specific ministries**, domain experts, industry associations, and other stakeholders involved in environmental initiatives.
- **Implementing Agency:**
 - **Role of IC-FRE:** The **Indian Council of Forestry Research and Education (IC-FRE)** is designated as the **implementing agency**.
 - IC-FRE will be **responsible for developing guidelines, processes, and procedures** for the award and trading of green credits.
 - The agency will **maintain a comprehensive green credit registry** containing information on issuance, transfer, and acquisition of green credits.
 - **IC-FRE will accredit entities as Accredited Green Credit Verifiers**, tasked with conducting verifications for the grant of green credits.

Draft Rules To Enhance Plastic Waste Management Regulations

The **Ministry of Environment, Forest and Climate Change** has recently unveiled a draft amendment to the [Plastic Waste Management Rules of 2016](#), which are established under the [Environment Protection Act of 1986](#).

▪ **Regulatory Framework:**

- The **Rules delineate specific responsibilities for producers and manufacturers of plastic**, encompassing aspects such as collection of used multi-layered plastic and obtaining valid registrations from Central/State Pollution Control Boards prior to production.

▪ **Key features of the Draft Rules:**

- The **Draft Rules aim to modernize and strengthen regulatory measures**, focusing on **key areas such as extended producer responsibility (EPR)**, pre-consumer plastic waste management, and the utilization of compostable and biodegradable plastics.
 - **Centralized Registration:**
 - Manufacturers are **mandated to register on a centralized online portal** to engage in the sale, provision, or arrangement of plastic as raw material.
 - **Extended Producer Responsibility (EPR) Obligations:**
 - The **Draft Rules extend EPR obligations to manufacturers and importers of plastic raw materials**, encompassing micro and small enterprises.
 - To prevent the mingling of plastic waste with solid waste, **obligated entities can establish schemes**, such as a deposit refund system, allowing consumers to receive a refundable deposit for returning their plastic waste.

- **Management of Compostable and Biodegradable Plastics:**
 - Manufacturers of these plastics **must report on the quantity introduced to the market and the pre-consumer waste generated.**
 - The **Bureau of Indian Standards** will **prescribe distinct color/markings** for these plastics, and each item must bear labeling indicating the time and site required for biodegradation.
- **Role of Local Authorities:**
 - **Local bodies and [Panchayati Raj Institutions](#)** at the district level are **assigned multiple duties**, including assessing plastic waste management infrastructure, projecting the generation of plastic waste, and formulating and implementing bylaws.

Committee Submits Report On Misclassification Of Iron Ore Grades And Other Minerals

The Ministry of Mines has established a **committee, chaired by Dr. Veena Kumari Dermal, to investigate the 'misclassification of grades of iron ore and other minerals.'** The committee's report, submitted on October 4, 2023, emphasizes the impact of misreporting on mineral grades, misrepresentation of production data, and illegal transportation of minerals on state revenues.

- **System for Mineral Sampling and Analysis:**
 - The committee highlights the **dominance of major iron ore-producing states** (Odisha, Chhattisgarh, Jharkhand, and Karnataka) in India's iron-ore production, constituting approximately 96%.
 - Recommendations include the **implementation of an IT-enabled system** to minimize human intervention, technology suitable for both large and small mines, and a streamlined system to reduce sampling time.
- **Transportation of Minerals:**
 - The committee proposes the **use of GPS-enabled vehicles** equipped with RFID tags in mining operations to uniquely identify and record vehicle information, including number, time, and tonnage.
 - Additionally, the committee recommends the **incorporation of CCTV systems at mining locations** and the application of geo-fencing to mine boundaries, unloading points, internal transportation routes, and other critical areas for enhanced detection of unusual activities.
- **Blockchain for Accounting:**
 - The committee recommends the **adoption of [blockchain technology](#) in the mining sector**, proposing a **pilot project for high-value minerals** like gold, copper, and zinc.
 - Blockchain is suggested to **provide a transparent and secure database for tracking the value and supply chain of minerals**, addressing existing inefficiencies.