



## **DAILY CURRENT AFFAIRS 01-07-2025**

### **GS-2**

1. When does the gender gap emerge with respect to mathematical abilities?
2. SPREE Scheme

### **GS-3**

3. GST
4. Bacillus Ayatagriensis
5. Mobile Biosafety level-3 Laboratory

## **When does the gender gap emerge with respect to mathematical abilities?**

**Syllabus: GS-2: Social Justice – Gender inequality.**

**Context:**

- **Persistent under-representation of women in STEM** fields globally.
- **Consequences:**
  - Limits diversity of perspectives in research.
  - Hinders innovation and inclusivity in scientific development.
  - Reinforces gender inequality in workplace and academia.

### **Key Findings of the Study (France, 2025)**

#### **Emergence of Gender Gap**

- No gender gap observed **at school entry**.
- A **significant maths gap favouring boys** emerged within just **four months** of schooling.
- By Grade 2: **Twice as many boys** as girls in the **top 5% of maths performers**.
- Consistent across:
  - All four cohorts (2018–2022),
  - All regions and school types (public/private),
  - Socio-economic strata (both high and low income),
  - Family composition.

#### **Specific Patterns**

- Gap **wider among high-income families** and where **both parents held scientific jobs**.
- No similar gender gap observed in **language** performance.

#### **Analysing the Gender Gap**

#### **No Innate Ability Difference**

- Boys and girls started with **identical mathematical abilities** → rules out biological determinism.

### Potential Causes

#### 1. Competitive Test Environment:

- Maths involves **time-bound and competitive** problem-solving.
- Girls are socialized to **fear competition**, leading to **performance anxiety**.
- Higher difficulty levels amplify gender gap.

#### 2. Stereotype Internalisation:

- Primary schooling introduces **explicit maths labelling**.
- Stereotypes like “**boys are better at maths**” start influencing **self-concept and motivation**.
- Contrast with language: early start and absence of gender stereotypes.

#### 3. Teacher & Parental Bias:

- Teachers may unconsciously **attribute intellect to boys** and **diligence to girls**.
- Different pedagogical approaches: **boys encouraged in numeracy, girls in reading**.
- Parental expectations reinforce similar patterns.

### Suggested Interventions

#### At the Level of Teachers

- **Equitable classroom practices:** Question boys and girls equally in maths/science.
- **Strengthen teacher training:**
  - Address **gender biases** in instruction.
  - Build **confidence and interest in maths**, especially among female teachers (majority in primary schools).

#### At the Level of Students

- **Gender-inclusive role models:** Showcase both male and female STEM professionals.
- **Address competition anxiety:**

- Introduce **self-affirmation tasks**.
- Create **safe, encouraging spaces** for girls in numeracy.
- **Promote growth mindset:**
  - Emphasize **incremental theory of intelligence** – abilities can improve with effort and learning.

### Policy-Level Implications

- Urgent need for **early interventions** in school curriculum and pedagogy.
- Gender gap arises **within months**, so **delayed efforts are less effective**.
- Insights applicable **globally**, not just in France.
- Informs educational reforms under **National Education Policy (NEP) 2020** in India.

### Conclusion

- Gender gaps in STEM are **not rooted in biology**, but in **early socialization, pedagogy, and systemic biases**.
- **Timely, evidence-based interventions** targeting students, teachers, and parents can reduce this inequality.
- Bridging the gap is not only a matter of **educational equity** but also **scientific advancement and social justice**.

## **SPREE Scheme**

**Syllabus: GS-2: Social Justice – Social Security.**

### **Context:**

Approved in the 196th Meeting of the Employees' State Insurance Corporation (ESIC)

### **About SPREE Scheme**

- **Full Form:** Scheme to Promote Registration of Employers/Employees
- **First Launched:** 2016
  - **Achievement:**

- 88,000+ employers registered
- 1.02 crore employees brought under ESI coverage

### Renewed SPREE (2025 Version)

- **Period:** July 1 to December 31, 2025
- **Objective:** Expand the ESI net by facilitating easy registration
- **Eligibility:**
  - Unregistered employers
  - Left-out eligible employees
- **Key Features:**
  - One-time enrollment window
  - Focus on **voluntary compliance, not penalization**
  - Enhances inclusivity and social security coverage

### Other ESIC Initiatives Approved

#### Amnesty Scheme 2025 (For 2025–2026)

- **Purpose:**
  - Reduce legal disputes
  - Promote ease of doing business
  - Encourage resolution of past ESI compliance issues

### Revised ESI AYUSH Policy

- **Integration of AYUSH systems** into ESIC facilities
- **New Additions:**
  - **Yoga Therapists**
  - **Panchakarma Attendants**
- **Goal:** Promote holistic and preventive healthcare in ESI hospitals

### Significance

- Boosts formalization of employment
- Expands the social safety net for workers

- Encourages employers to regularize workforce without fear of penalties
- Reflects ESIC's commitment to inclusive and diversified healthcare services

## **GST**

### **Syllabus: GS-3: Indian Economy –Taxation.**

#### **Context:**

India's GST collections hit all-time high of ₹22.08 lakh crore in 2024-25, a 9.4% growth YoY.

### **Goods and Services Tax (GST) – Notes**

#### **Introduction**

- Introduced through **101st Constitutional Amendment Act, 2016**
- **Implemented from 1st July 2017**
- A **comprehensive, destination-based indirect tax** on the **supply of goods and services**
- Replaced a complex web of central and state indirect taxes

#### **Key Features**

- **One Nation, One Tax**
  - Unified tax structure; subsumed excise duty, service tax, VAT, etc.
- **Dual GST Model**
  - **CGST** (Central GST) – levied by Centre
  - **SGST** (State GST) – levied by States
  - **IGST** (Integrated GST) – on inter-state supply, levied by Centre and shared with States
- **Destination-Based Taxation**
  - Tax is collected by the state where goods/services are consumed
- **Tax Slabs**

- 0%, 5%, 12%, 18%, and 28%
- **GST Council**
  - Constitutional body under Article 279A
  - Makes recommendations on tax rates, exemptions, and policies
- **Goods and Services Tax Network (GSTN)**
  - Provides IT infrastructure and manages GST portal

### Achievements

- **Widened Tax Base**
  - Taxpayers increased from **1.05 crore (April 2018)** to **1.46 crore (April 2024)**
- **Eliminated Cascading Effect**
  - Input tax credit ensures tax is levied only on value added
- **Reduced Compliance Burden**
  - Composition scheme for small taxpayers
- **Boosted Transparency**
  - Use of **e-way bills** improved tracking of goods movement

### Challenges

- **Multiple Tax Slabs**
  - Creates complexity and compliance burden
- **Excluded Sectors**
  - Liquor, petroleum products outside GST ambit
- **Reduced State Autonomy**
  - States' power to levy certain taxes curtailed
- **Compensation Delays**
  - Revenue shortfall compensation to states not timely

### Way Forward / Solutions

- **Rationalize Tax Structure**

- Fewer and uniform tax slabs
- **Timely Compensation to States**
  - Essential for cooperative federalism
- **Operationalise GST Appellate Tribunal (GSTAT)**
  - For faster dispute resolution

### Conclusion

GST has significantly transformed India's tax landscape by simplifying compliance and integrating markets. Continued reforms and resolution of challenges will enhance its effectiveness.

## **Bacillus Ayatagriensis**

**Syllabus: GS-3: General Science – Species in news.**

### Context:

Researchers at Bengal's Raiganj University recently discovered a new species of soil bacteria named *Bacillus ayatagriensis*.

### What is it?

- A newly discovered **species of soil bacteria**.
- **Discovered by:** Researchers at **Raiganj University**, West Bengal.

### Source of Isolation

- Found in the **rhizosphere** (root-surrounding soil zone) of **mulberry plants**.
- Mulberry is vital to **sericulture** and **local agriculture** in the region.

### Key Features

- **Strong antimicrobial properties** – inhibits growth of harmful pathogens.
- **Promotes seed germination** – aids early plant development.
- **Enhances plant health and productivity** – improves resilience and growth.

### Agricultural Significance

- Promising candidate for **organic farming**:



- Reduces dependency on **chemical fertilizers and pesticides**.
- Helps combat **soil degradation**.
- Offers sustainable support to **vulnerable crop systems**.

### Etymology

- **'Ayata'** – Sanskrit for **growth**.
- **'Agriensis'** – refers to **agriculture**, indicating its farming relevance.

## **Mobile Biosafety level-3 Laboratory**

**Syllabus: GS-3: Science and Technology – Infrastructure.**

### Context:

The **Indian Council of Medical Research (ICMR)** is **expanding the fleet of Mobile Biosafety Level-3 (MBSL-3) laboratories**, also known as **RAMBAAN**, to enhance outbreak response in **remote and inaccessible areas**.

### What is Mobile BSL-3 Laboratory (RAMBAAN)?

- **Full Name:** Rapid Action Mobile BSL-3 Laboratory
- **Purpose:** On-site **diagnosis and containment** of **high-risk pathogens** (e.g., **Nipah virus**).
- **Type:** Indigenous, field-deployable BSL-3 lab.
- **First Deployment:** **September 2023, Nipah outbreak, Kozhikode, Kerala**
- **Developed Under:** Pradhan Mantri Ayushman Bharat Health Infrastructure Mission
- **Collaborator:** Klenzaid's Contamination Controls Pvt. Ltd., Mumbai
- **Design:** Operational in **extreme temperatures** and **high altitudes**

### Key Features

- **WHO Type-IV Classification** (under Global Outbreak Alert and Response Network)
  - Indicates **high-capacity, rapid-response diagnostic lab**
- **Negative Air Pressure:** Prevents pathogen escape

- **Advanced HVAC System:** Controls temperature, humidity, filtration
- **Double Door Autoclave:** Enables safe decontamination without breaching containment
- **BLED (Biological Liquid Effluent Decontamination):** Treats lab-generated liquid waste

### Significance

- Boosts **on-site testing** and **early detection** during outbreaks
- Enables **rapid response** to **known and unknown pathogens**
- Strengthens **India's Advanced Augmented Network** for epidemic control
- Useful in **remote, disaster-hit, or conflict-affected** regions
- Ensures **biosafety and personnel protection**