NEXT IAS

DAILY NEWS ANALYSIS

7th JULY 2025

DAILY NEWS ANALYSIS

Top News Articles:

- National Biobank
- World Bank Report
- Falling Household Savings
- National Commission for Minorities
- GM Crops

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What else should we decode? Drop your picks in the comments!

NATIONAL BIO-BANK

Ministry of Science & Technology

Azadi Ka Amrit Mahotsav

Dr. Jitendra Singh Inaugurates 'National Biobank' and India's own Longitudinal Population Data study at CSIR-IGIB

Personalised Treatment Regimens to Be Reality in future, Says the Minister

CSIR-IGIB Advances Indigenous CRISPR Trials on Sickle Cell Anaemia, Anti-Microbial Resistance, Liver Fibrosis and Rare Disorders

Posted On: 06 JUL 2025 5:58PM by PIB Delhi

Union Minister of State (Independent Charge) for Science & Technology and Vice President of CSIR, Dr. Jitendra Singh, inaugurated the state-of-the-art Phenome India "National Biobank" at the CSIR-Institute of Genomics and Integrative Biology (IGIB) in the capital today.

The newly launched facility marks a significant stride towards building India's own longitudinal health database and enabling personalised treatment regimens in future.

Backdrop: Inauguration of 'National Biobank' at CSIR-IGIB

Relevance: GS 3/Science and Technology

About the news

Recently, Union Minister of State (Independent Charge) for Science & Technology and Vice President of CSIR, Dr. Jitendra Singh, inaugurated the state-of-the-art **Phenome India "National Biobank**" at the CSIR-Institute of Genomics and Integrative Biology (IGIB) in New Delhi.

National Bio-bank

- It will serve as the backbone of a **nationwide cohort study,** collecting comprehensive **genomic, lifestyle, and clinical data** from 10,000 individuals across India.
    - A cohort study is a type of longitudinal research that follows a **group of people (a cohort) over time** to observe how certain characteristics or exposures relate to the development of specific health outcomes

National Bio-bank

Significance:

- **Personalized Healthcare:** Treatment regimens tailored to a person's genetic makeup, lifestyle, and environment.
- **Capturing India's Unique Diversity:** Modelled after the **UK Biobank,** but adapted for India's **geographic, ethnic, and socio-economic diversity.**
    - E.g., Despite appearing lean, many Indians have a **high prevalence of central obesity**, with excess fat around the waist. Biobank is crucial in decoding such complex health conditions.
- **Disease Diagnosis and Treatment:** Supports **early diagnosis** and **therapeutic targeting** for complex diseases such a Diabetes, Cancer, Cardiovascular ailments, Rare genetic disorders, etc.
- **Driving Innovation:** Generates **high-resolution data** critical for AI-powered diagnostics, Gene-guided therapies, etc.
- **Self-Reliance in Healthcare Data:** Reduces reliance on foreign datasets and creates a robust, **India-centric research ecosystem**.

Phenome India Project

- **Capturing India's Unique Diversity:** Modelled after the **UK Biobank,** but
- Also known as Phenome India-CSIR Health Cohort Knowledgebase **(PI-CHeCK)**, is a flagship initiative by the **Council of Scientific and Industrial Research** (CSIR) in India.
- Focused on developing **India-specific risk prediction models** for cardio-metabolic diseases (e.g., type 2 diabetes and obesity).
- To create a **comprehensive phenome database** tailored to the Indian population, promoting a **Predictive, Personalised, Participatory, and Preventive** (P4) healthcare model.
- Involves a **longitudinal health** monitoring study of nearly **10,000 participants,** collecting extensive data on lifestyle, dietary habits, body composition, and molecular factors.
    - **Longitudinal health monitoring** involves tracking an individual's health data over an extended period, often through repeated observations, to understand health trends, disease progression, and treatment effectiveness.

Other major Genomics Projects in India

IndiGen Programme

- **Launched by CSIR in 2019**, this project sequenced the whole genomes of over **1,000 Indian individuals**.
- To **create a reference Indian genome** and assess **genetic variations** in the population.
- Supports **personalized medicine**, especially in identifying **drug responses and disease risk factors**.
- Part of the efforts to develop **India-specific genetic databases**.

Other major Genomics Projects in India

GenomeIndia Project

- Coordinated by the **Department of Biotechnology (DBT)** in collaboration with over **20 academic and research institutions**.
- To **sequence the genomes of 10,000 Indians** from diverse ethnic groups to map **genetic diversity**.
- Aims to improve disease understanding and inform **public health and clinical strategies**.
- Will support **India-specific genetic diagnostics and therapies**.

CSIR-IGIB

- CSIR Institute of Genomics and Integrative Biology (CSIR-IGIB) is a scientific research institute devoted primarily to **biological research.**
- It is a part of the Council of Scientific and Industrial Research (CSIR), India.

Role in genomics over the past two decades.

- It was the **first Indian institute** to begin **human genome decoding** when sequencing tools were practically non-existent.
- Developed **300+ genetic diagnostics** for **rare disorders**
- Contributed extensively to **COVID-19 genome sequencing**
- Launched **India's first drug genome project**

Current research includes:

- **Women-centric studies** and **breast cancer genomics**
- **Indigenous CRISPR therapies** for **sickle cell disease**
- New frontiers like **space biology** and **AI-based pilot fitness testing** with the **Indian Air Force**.

Council of Scientific and Industrial Research (CSIR)

- **CSIR** is a premier, contemporary **R&D organization in India**, renowned for its cutting-edge scientific expertise across diverse fields.
- **Funding:** Ministry of Science & Technology
- **Legal Status:** Autonomous body under the **Societies Registration Act, 1860**
- With a **pan-India network** of **37 national laboratories**, **39 outreach centres**.
- **Headquarters:** New Delhi
- **Organizational Structure**
  - **President:** Prime Minister of India (Ex-officio)
  - **Vice President:** Union Minister of Science & Technology

Areas of Work

- Oceanography, geophysics, chemistry, drugs
- Genomics, biotechnology, nanotechnology
- Mining, aeronautics, environmental engineering, IT, and instrumentation

PRACTICE QUESTION

Q1. With reference to the recently inaugurated National Biobank at CSIR-IGIB, consider the following statements:

1. It has been established under the GenomeIndia Project
2. It is designed to replicate the UK Biobank model with adaptation to India's population.
3. It will support personalised healthcare and enable AI-driven diagnostics.

Which of the statements given above is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) All of the above

INDIA BECOMES THE FOURTH ‘MOST EQUAL’ COUNTRY GLOBALLY

Backdrop: Release of World Bank Spring 2025 Poverty and Equity Brief.

Relevance: GS III/ Economics

India is fourth ‘most equal’ country, says World Bank report

Press Trust of India
NEW DELHI

Inequality in India has come down significantly between 2011-12 and 2022-23, making it the fourth-most equal country globally, according to a World Bank report.

This is in addition to a sharp decrease in extreme poverty, which has dropped from 16.2% in 2011-12 to 2.3% in 2022-23, an official release said quoting World Bank data.

The government attributed the reduction in inequality to various initiatives and schemes pursued during the last decade.

The only three countries which have a better Gini Index score, a measure of equality, are the Slovak Republic, Slovenia and Belarus.

“...India’s Gini Index stands at 25.5, making it the fourth most equal country in the world, after the Slovak Republic, Slovenia and Belarus,” the statement said.

Income distribution

The Gini Index helps in understanding how equally income, wealth or consumption is distributed across households or individuals in a country.

India falls into the ‘moderately low’ inequality category, as per the World Bank’s report.

It ranges in value from zero to 100. A score of zero means perfect equality, while a score of 100 means one person has all the income, wealth or consumption and others have none, hence absolute inequality.

The higher the Gini Index, the more unequal a country is.

India’s score is much lower than China’s 35.7 and far lower than the United States, which stands at 41.8.

As per the World Bank’s report, which has released the data for 167 countries, India falls into the “moderately low” inequality category, which includes Gini scores between 25 and 30.

India is only a fraction away from joining the “low inequality” group.

About the news

According to a **World Bank report**, Inequality in India has come down significantly between 2011-12 and 2022-23, making it the fourth-most equal country globally.

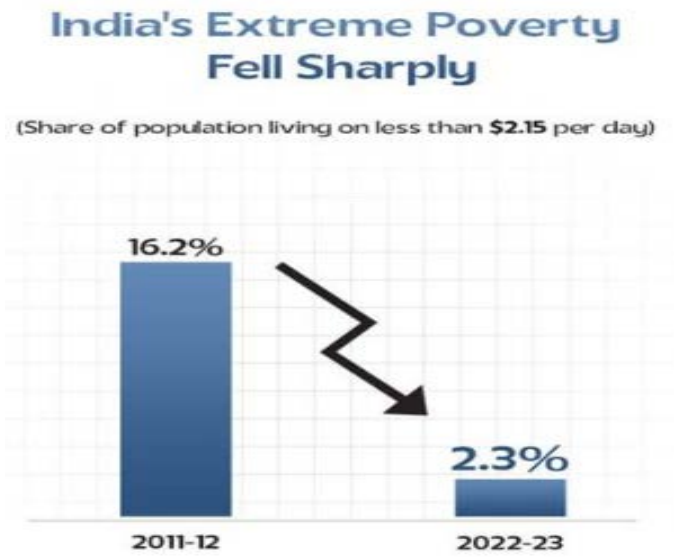
Key Highlights:

- **Gini Index**: A measure of inequality in income, wealth, or consumption (0 = perfect equality, 100 = absolute inequality).
- **India's rank at 4th position:** The only three Countries that have a better Gini Index score are the **Slovak Republic, Slovenia, and Belarus.**
  - It is also more equal than every G7 and G20 country, many of which are considered advanced economies.

Key Highlights:

- **Category**: India(falls into the **"moderately low inequality"** group (Gini score: 25–30), with the potential to enter the “low inequality” category soon.
  - Globally, only **30 countries** fall into the **“moderately low” inequality** category (Gini score between 25–30), including:
    - **Welfare states**: Iceland, Norway, Finland, Belgium
    - **Growing economies**: Poland
    - **Wealthy nations**: United Arab Emirates

- **Poverty Reduction**:



  - **171 million people** lifted out of extreme poverty over the past decade.

Key Highlights:

Contributing Factors:

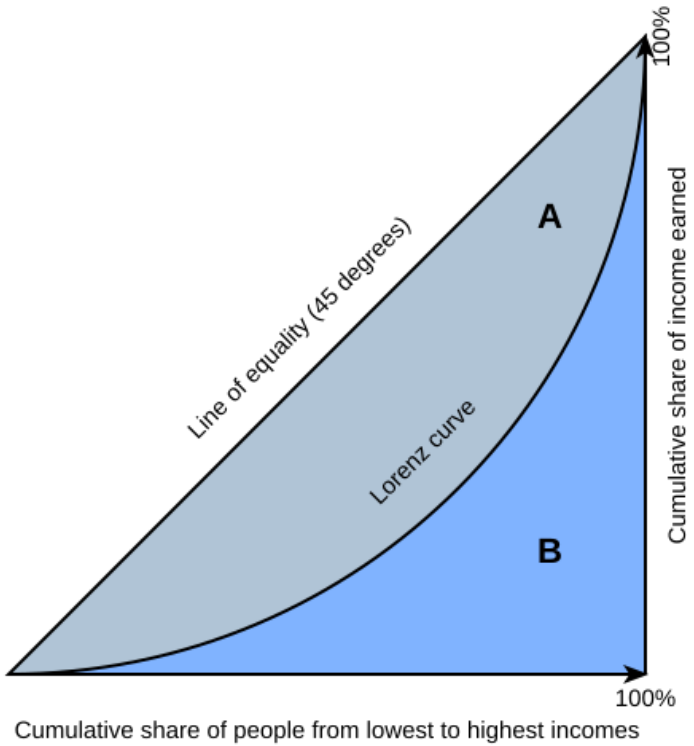
- Effective implementation of **welfare and financial inclusion schemes**:
  - PM Jan Dhan Yojana
  - Direct Benefit Transfers (DBT)
  - Ayushman Bharat
  - Stand-Up India
  - PM Vishwakarma Yojana
- Focused initiatives have ensured broader access to **banking, healthcare, food, and livelihood opportunities**.

World Bank's Poverty and Equity Briefs (PEBs)

- The **PEBs** provide concise, data-driven updates on **poverty, shared prosperity, and inequality** trends across over 100 developing countries.
- Released **twice a year** during the **World Bank and IMF Spring and Annual Meetings**, they aim to keep **poverty reduction** high on the global agenda.
- Data includes:
  - **Poverty rates and headcounts** at:
    - National poverty line
    - International thresholds: $2.15 (extreme), $3.65 (lower-middle-income), $6.85 (upper-middle-income)
  - **Gini Index** for inequality
  - **Multidimensional poverty indicators** (e.g., education, basic services)

Lorenz curve

- It is a graphical representation of **income or wealth distribution** within a population.
- It visualizes the cumulative share of income or wealth held by different percentiles of the population.
- Graphically Gini Index can be explained by the Lorenz curve



PRACTICE QUESTION

Q2. With reference to the Poverty and Equity Briefs (PEBs) recently seen in the news, consider the following statements:

1. PEBs are released by the World Bank to track progress on Poverty and equality.
2. As per the latest data, though poverty shows a declining trend, inequality in India has increased over the last decade.
3. India is more unequal than every G7 country.

Which of the statements given above is/are correct?

(a) 1 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) All of the above

CONCERN OVER FALLING HOUSEHOLD SAVINGS IN INDIA - WHAT CAN BE DONE

Concern over falling household savings in India - what can be done

Fostering financial resilience requires micro-savings initiatives, customised micro-savings products for rural and urban needs, providing tax benefits or government-backed guarantees and revamping post-office savings schemes and initiatives like the Kisan Vikas Patra or Public Provident Fund

NEWS ANALYSIS

Manoranjan Sharma

India has historically been a high-saving economy with conservative and security-conscious households. The country's gross domestic savings rate fell from 34.6% of GDP in 2011-12 to 29.7% in 2022-23 – the lowest in four decades – owing to increased consumption, rising inflation, and financialisation of savings.

Household net savings, which historically constituted 60% of aggregate gross domestic savings, fell secularly.

These savings were mainly in physical assets such as gold and real estate, driven by cultural preferences, lack of financial literacy, and limited access to financial products.

The decline in household savings has been extensively debated.

"Fisher dynamics" show an increase in interest rates and a reduction in nominal income growth rate of households.

The transforming economic landscape necessitated a recourse to riskier investment avenues like equities and mutual funds. This changing asset mix favouring financial assets potentially hampers domestic capital formation and overall economic growth, and, therefore, needs a tweaked policy response.

Big drop: Gross domestic savings rate fell to 29.7% in 2022-23. GETTYIMAGES/ISTOCK

Structural changes

• Household financial savings as a percentage of GDP fell from 11.5% in 2020-21 to 5.1% in 2022-23 (RBI).

• Concurrently, household liabilities rose, primarily due to increased borrowing for consumption, education, and housing.

• Equity is an increasingly important asset class, as reflected in a marked shift towards mutual funds, insurance, equities, and pensions, supported by digitisation and financial inclusion. The contribution to systematic investment plans (SIP) zoomed 8.5-fold, from ₹3,122 crore in April 2016 to ₹26,632 crore in April 2025.

• The Covid-19 pandemic led to a temporary spike in savings due to forced reductions in consumption during lockdowns, but this reversed as economic activity resumed.

Net household financial savings sharply rebounded to 7.3% of GDP in the first half of FY25, as against 3.7% last year, as household liabilities like personal loans fell to 4.7% of GDP from 6.9%, alongside the RBI's tougher lending norms for personal loans, gold loans, and loans to non-banking financial companies (NBFCs) to maintain financial stability and protect both the banking sector and consumers from the risks stemming from high levels of unsecured debt.

Household liabilities reached a 17-year high of 6.4% of GDP in FY24, just below the 6.6% record in FY07, due to shifting consumption patterns, changing investment preferences for higher-risk, higher-return equities and mutual funds, the Covid-19 impact on savings behaviour, and altered spending habits.

Rural-urban divide

Household investments in equities and mutual funds nearly doubled from ₹1.02 trillion to ₹2.02 trillion between FY21 and FY23. While wealth creation is welcome, concerns emerge, as low-income households are more vulnerable to financial shocks and the risk-reward trade-off. Fostering financial resilience requires micro-savings initiatives, customised micro-savings products for rural and urban needs, providing tax benefits or government-backed guarantees and revamping post-office savings schemes and initiatives like the Kisan Vikas Patra or Public Provident Fund.

While the share of financial savings in total savings declined from 40.3% in 2019-20 to 28.5% in 2023-24, the share of physical savings rose from 59.7% to 71.5% during this period. Deposits, which accounted for 58% of savings in FY12, shrank to 37% in FY23. The share of household savings in provident and pension funds rose significantly from 10% in FY12 to 23% in FY24. Urban households generally have higher financial literacy and better access to banking, resulting in higher savings via financial instruments.

Roadmap ahead

With a young population, rising incomes, and increasing digital penetration, India can channelise household savings into productive avenues.

This calls for policy reforms, including simplifying tax structures by rationalising capital gains and savings-related tax policies to encourage participation in financial markets; strengthening regulatory oversight to ensure that mutual funds, insurance, and digital lending platforms operate transparently and are investor-friendly; and expanding the coverage of formal retirement schemes by making the National Pension Scheme (NPS) universal, auto-enrolling informal workers, and incentivising employers to contribute to boost retirement savings.

Tech innovations

A further boost can come from fintech start-ups that offer user-friendly savings tools, AI-based financial advice, and micro-investing platforms for small savers. Blockchain and smart contracts can be used to enhance the transparency and efficiency of saving products such as recurring deposits and peer-to-peer lending.

Institutional support

The country should explore developing a national strategy on household savings with clear targets and a coordinated approach across Ministries. To bridge the urban-rural gap, programmes should be tailored to address the unique savings challenges of rural India, including seasonal income, low literacy, and social norms.

Behavioural nudges

Behavioural economics suggests that people are more likely to save if savings options are made default (for example, opt-out pension schemes).

(The writer is Chief Economist, Infomerics Ratings)

Backdrop: The country's gross domestic savings rate fell to the lowest in four decades.
Relevance: GS 3- Economy

About the news

Trend: Decline in Household Savings

- **Gross Domestic Savings Rate**: Fell from **34.6% in 2011-12** to **29.7% in 2022-23** — lowest in four decades.
- **Household Financial Savings**: Dropped from **11.5% of GDP in 2020–21** to **5.1% in 2022–23**.

Reasons:

- Rising **inflation** and **consumption**.
- Shift from physical to **financial assets**.
- Increase in **household liabilities** (loans for consumption, housing, education).
- Shift to **riskier investments** (equities, mutual funds).
- **Covid-19** initially led to a spike in savings, later reversed.

Current Composition of Savings

- **Financial v/s Physical**:
  - Financial savings share dropped from **40.3% (2019-20)** to **28.5% (2023-24)**.
  - Physical savings rose from **59.7% to 71.5%** during the same period.

    - Physical assets are tangible items with a visible and measurable presence, such as real estate or machinery.
    - In contrast, financial assets are intangible and represent ownership claims or contractual rights, like stocks or bonds, which exist primarily as legal documents or digital records.
- **Deposits**: Share in total savings fell from **58% (FY12)** to **37% (FY23)**.
- **Provident/Pension Funds**: Increased from **10% (FY12)** to **23% (FY24)**.
- **Equities/Mutual Funds**: Household investments nearly doubled from **₹1.02 trillion (FY21)** to **₹2.02 trillion (FY23)**.
- **SIP(systematic investment plans) Contributions**: Jumped 8.5x from **₹3,122 crore (Apr 2016)** to **₹26,632 crore (Apr 2025)**.

Rural-Urban Divide

- Urban households: Higher **financial literacy** and **access to formal banking**.
- Rural households: More prone to **income volatility**, lower access to formal savings tools.

Concerns

- Falling savings affects **domestic capital formation** and **long-term economic growth**.
- Increased exposure to riskier financial products raises **vulnerability to financial shocks**.

Policy Recommendations

Micro-Savings Initiatives

- Launch **customized rural-urban savings products**.
- Offer **tax incentives** and **government-backed guarantees**.
- Revamp traditional schemes like **Kisan Vikas Patra**, **Public Provident Fund**, and **post office savings**.

Tax and Regulatory Reforms

- Rationalize **capital gains and savings-related tax policies**.
- Improve regulatory oversight of **mutual funds, insurance, and fintech platforms**.

Expand Retirement Coverage

- Make **NPS universal** and auto-enroll **informal workers**.
- Provide **incentives for employer contributions**.

Policy Recommendations

Technology & Fintech

- Encourage fintech for:
  - **Micro-investing platforms**.
  - **AI-based financial advice**.
  - Use of **blockchain and smart contracts** for transparency in savings tools.

Behavioural Interventions

- Use **default settings** (e.g., opt-out pension schemes) to nudge savings behaviour.

Institutional & Strategic Support

- Develop a **National Strategy on Household Savings**.
- Ensure **inter-ministerial coordination**.
- Design **rural-specific programmes** addressing seasonal incomes, low literacy, and social norms.

PRACTICE QUESTION

Q3. Which of the following are probable reasons for the decline in household savings in India in recent years?

1. Rising inflation and increased household consumption
2. Increase in household liabilities such as loans for consumption and housing
3. Shift towards riskier financial instruments like equities and mutual funds

Select the correct answer using the code below:

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

MINORITIES PANEL WITHOUT CHAIRPERSON SINCE APRIL

Minorities panel without Chairperson since April

Ishita Mishra
NEW DELHI

The National Commission for Minorities (NCM), set up with the vision to safeguard and protect the interests of minority communities in India, is awaiting the appointment of a head and members since the retirement in April of its previous Chairperson and member Iqbal Singh Lalpura.

Five members of the commission, including the Chairperson, have retired since December 2024, with no new appointments made so far.

The NCM, which works under the Ministry of Minority Affairs and has quasi-judicial powers, should have seven members, including the Chairperson and the Vice-Chairperson. The National Commission of Minorities Act, 1992 mandates the appointment of one member from each of the six minority communities – Muslim, Christian, Sikh, Buddhist, Parsi, and Jain.

Iqbal Singh Lalpura, previous Chairperson, retired in April.

This is not the first time that there has been a delay in filling vacancies at the NCM. In 2017, the commission remained without a Chairperson and several members for months. In 2021, the Delhi High Court asked the Union government to fill up vacant posts in the NCM.

"I never fully subscribed the utility of these bodies," former NCM Chairperson Tahir Mahmood, who authored *Minorities Commission (1978-2015): Minor Role in Major Affairs*, after his tenure ended in 1999, told *The Hindu*.

The condition of Muslims and Christians remained as it had been before the establishment of the commission, he said in the book, terming the NCM a "showpiece"; a "stopgap placement for faithful politicians"; and a "post retirement centre for committed bureaucrats".

Positions in the commission have long been occupied by people with connections to ruling parties, a former NCM member, who did not wish to be named, said.

"The last NCM Chairperson was Iqbal Singh Lalpura, who contested the Punjab Assembly election on BJP ticket. Prior to that, the post was held by BJP leader Mukhtar Abbas Naqvi, who was also the Minister of Minority Affairs," the former member said.

Mr. Naqvi declined to comment on the delay in appointments and said the NCM continued to function even in the absence of a Chairperson and some members. "Obviously, when there is a Chairperson, and there are members, the efficiency gets enhanced," Mr. Naqvi said.

The positions in the NCM should be filled soon, Mr. Lalpura said, questioning the tenure of the Congress government at the Centre, which, according to him, had declared the NCM Chairperson's post "void" by selecting a Prime Minister from the minority community (the late Dr. Manmohan Singh).

The delayed appointments at the NCM have impacted the National Commission for Minority Educational Institutions (NCMEI), a quasi-judicial body that aims to safeguard the educational rights of minorities. The NCMEI is also an advisory body to the Union government on minority educational institutions.

The NCMEI, which works under the Ministry of Education, should have three members, and a Chairperson of at least the rank of a retired judge from a High Court.

The NCMEI has been functioning with a single working member, Sahid Akhtar, for about two years after its previous Chairperson, Justice Narender Kumar Jain (retd), completed his tenure in September 2023.

'Not a priority'

The BJP government had shown its disregard for human rights and minority rights organisations, including the NCM and the NCMEI, since 2014, John Dayal, a human rights activist and former member of the National Integration Council, said.

"The long delay in appointing a new Commission with a Chairperson and members clearly shows that the welfare of religious minorities is not high on the list of priorities of the government," Mr. Dayal said, adding that the absence of these commissions is gravely felt at a time when hate speech and hate crime are at their peak, as assiduously documented by Christian and Muslim human rights groups.

Backdrop: National Commission for Minorities is awaiting the appointment of a head and members since the retirement in April of its previous Chairperson and member.

Relevance: GS 2 - Statutory Bodies

About the news

- Five members of the commission, including the Chairperson, have retired since December 2024, with no new appointments made so far.

National Commission for Minorities (NCM)

- **Mandate**: Established to safeguard the rights and interests of minority communities in India.
- **Structure**: Should have **7 members**, including Chairperson, Vice-Chairperson and 5 members..
- Appointed by the Central Government from persons of eminence, ability, and integrity.
- **Tenure: 3 years**
- **Minority Representation**: The NCM Act, 1992 mandates representation from each of the six notified minority communities:
  - Muslim
  - Christian
  - Sikh
  - Buddhist
  - Parsi
  - Jain
- **Jurisdiction**: Functions under the **Ministry of Minority Affairs** and has **quasi-judicial powers**.

National Commission for Minorities (NCM)

Genesis of the NCM

- **1978:** Minorities Commission set up under the Ministry of Home Affairs.
- **1984:** Shifted to Ministry of Welfare; **linguistic minorities excluded (1988).**
- **1992:** Became a statutory body via **National Commission for Minorities Act.**
- **1993:** First statutory NCM constituted; **5 communities** (Muslims, Christians, Sikhs, Buddhists, Parsis) notified as minorities.
- **2014: Jains** added as the 6th minority community.

Key Functions

- Monitor development & constitutional safeguards for minorities.
- Review implementation of **PM's 15-Point Programme.**
- Investigate **communal riots** (e.g., 2011 Bharatpur, 2012 Assam clashes).
- Recommend measures for effective minority welfare.
- Address **complaints of rights deprivation.**
- **Observe Minorities Rights Day on 18th December** annually.

National Commission for Minorities (NCM)

Current Status

- All five members, including the Chairperson **Iqbal Singh Lalpura**, have **retired since December 2024**.
- No new appointments have been made.
- The Commission is **currently headless and non-functional**.

Previous Instances of Delay

- **2017**: Commission remained **vacant for months**.
- **2021**: Delhi High Court directed the **Centre to fill vacant posts**.

National Commission for Minorities (NCM)

Criticism and Concerns

- **Tahir Mahmood** (former NCM Chairperson):
  - Called NCM a **“showpiece”**, a **“stopgap placement”**, and a **“post-retirement centre”**.
  - Argued that the **situation of minorities** remained unchanged since NCM’s creation.
- **Allegations of Political Appointments**:
  - Positions often filled by individuals with **links to ruling parties**.
- Delay in appointments shows that **minority welfare is not a priority**.

National Commission for Minorities (NCM)

Impact on Other Bodies

- **National Commission for Minority Educational Institutions (NCMEI)**:
  - The delayed appointments at the NCM have impacted (NCMEI).
  - A quasi-judicial body that aims to safeguard the educational rights of minorities.
  - The NCMEI is also an advisory body to the Union government on minority educational institutions.
  - Should have 3 members, including a Chairperson (a retired High Court judge).
  - Functions under the **Ministry of Education** and advises the government.
  - **Currently operating with only one working member** since September 2023.

PRACTICE QUESTION

Q4. Which of the following statements regarding the National Commission for Minorities (NCM) is/are correct?

1. It is a statutory body established under the NCM Act, 1992.
2. It functions under the Ministry of Home Affairs.
3. The Commission must include at least one member from each of the six notified minority communities.

Select the correct answer using the code below:

(a) 1 and 3 only

(b) 2 only

(c) 1, 2, and 3 only

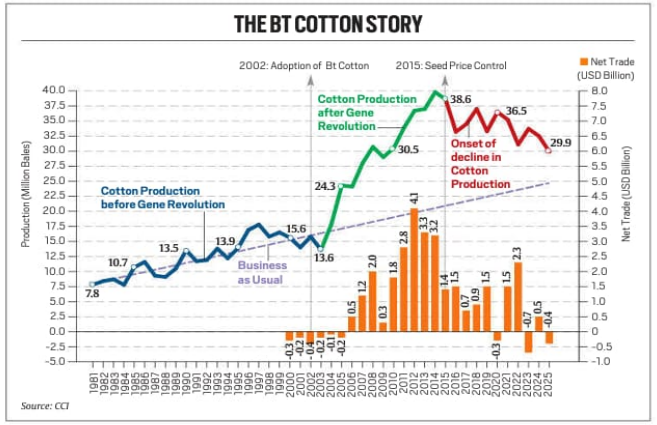
(d) 1, and 3

GM Crops - Fields of the Future

Fields of the future

Agriculture's prospects depend on embracing gene technology. Innovators and adopters will hold the key

BY ASHOK GULATI AND RITIKA JUNEJA



AS THE JULY 9 deadline approaches, US negotiators are turning up the heat, urging India to open its agriculture market to genetically modified (GM) crops. Finance Minister Nirmala Sitharaman has declared agriculture and dairy as sacrosanct "red lines," warning that accepting GM imports could jeopardise both farmers' livelihoods and food safety. Meanwhile, global GM crop adoption has skyrocketed since 1996. As of 2023, over 200 million hectares of GM soybean, maize, canola, and more are in cultivation across 76 countries. India's refusal to budge can become a major challenge in sealing the trade deal.

The only crop that is GM in India is cotton. It was Atal Bihari Vajpayee's government in 2002 when this bold decision to allow Bt cotton was taken. Today, more than 90 per cent of India's cotton area is under Bt cotton, and its seed is fed to cattle. So, in a way, a GM crop is already in our food system. The cotton seed oil is consumed by humans, although some scientists suggest that the oil does not carry the protein that the seed has. Earlier, even poultry feed, such as soya and corn, was also imported — this was GM. So, one thing is clear — it would be wrong to claim that GM food has not been in our food chain. It has been there for quite some time, mainly through cattle or poultry feed.

Vajpayee envisioned that science could transform agriculture. He extended the original slogan of "Jai Jawan, Jai Kisan" (salutation to the soldier and the farmer), given by Lal Bahadur Shastri, to include "Jai Vigyan" (salutation to science). The results were dramatic. Cotton production surged from 13.6 million bales in 2002–03 to 39.8 million bales in 2013–14 — a phenomenal 193 per cent growth. Productivity shot up by 87 per cent (from 302 kg/ha to 566 kg/ha), and cultivated area expanded by 56 per cent, with Bt cotton dominating. Farmers' incomes soared, and Gujarat even witnessed an agrarian boom — the state averaged over 8 per cent annual growth in agri GDP. By then, India had become the world's second-largest cotton producer after China and the second-largest exporter after the US, hitting $4.1 billion of net exports during 2011-12.

Since 2015, however, India's cotton story has hit a roadblock. Productivity gains have not only flattened but even dipped. The yield has slumped from 566 kg/ha in 2013-14 to around 436 kg/ha in 2023-24 — far below the global average of approximately 770 kg/ha, and way behind China's nearly 1,945 kg/ha and Brazil's around 1,839 kg/ha. This decline is commensurate with a roughly 2 per cent average annual drop in cotton production since 2015, driven largely by pest outbreaks like pink bollworm and whiteflies, tangled regulations, and a prohibition on next-generation cotton seeds such as herbicide-tolerant (HT) Bt cotton.

HT-Bt cotton, engineered to survive glyphosate spraying, never received official clearance in India —trials by Mahyco-Monsanto were suspended over a decade ago, and no approval has followed. Despite this, the seeds have leaked into farms across Gujarat, Maharashtra, Telangana, Andhra Pradesh, and Punjab. Industry bodies and surveys estimate that illegal HT-Bt covers 15–25 per cent of cotton acreage. This illegal spread reflects farmers' desperate response to technology and pest attacks. Yet, because these seeds are unregulated, farmers risk crop failure with no recourse, and legitimate seed suppliers are undercut by a shadow economy that harvests their brand names without accountability. The rise of illicit HT-Bt cotton underscores a deep disconnect between regulation and reality. While the government blocks commercialisation citing ecological and health concerns, the seeds continue to spread — unchecked and untested.

Since 2015, government intervention in private seed contracts has emerged as a major challenge to innovation in India's cotton sector. The Cotton Seed Price Control Order (SPCO) of 2015 slashed Bt cotton seed royalties dramatically, rendering research and development unappealing. By 2018, trait fees had shrunk to a mere Rs 39 per packet — far too low to entice biotech firms to invest in new seed technologies. In 2016, additional regulations mandated that GM trait licensors transfer technology within 30 days and capped trait fees at 10 per cent of MSP for five years, with further annual cuts thereafter. By 2020, these restrictions tightened even further, deterring global biotech players from engaging in India's cotton industry.

India was poised to lead the gene revolution and serve as a major seed exporter to Asia and Africa. However, policy inertia — from 2003 to 2021—driven by activist and ideological opposition, deprived farmers of potential gains. Consequently, cotton exports began to decline after 2011-12, and by 2024-25, India turned into a net importer of raw cotton, with net imports valued at $0.4 billion.

The issue of GM crops goes far beyond Bt cotton. Approval for Bt brinjal and GM mustard (DMH 11), developed at Delhi University by Deepak Pental's team, remains on hold. These crops cleared in principle by the Genetic Engineering Appraisal Committee (GEAC) haven't received full commercial green light. Bt brinjal has been under moratorium since 2009, while GM mustard got conditional environmental release in 2022—but commercialisation has stalled pending further regulatory checks and potentially a Supreme Court ruling. By muzzling trait monetisation and hindering technology transfer, India's rigid regulatory posture has stalled crop innovation, forced reliance on imports, and squandered a chance to lead the gene revolution.

So, what should be done? The need of the hour is a strong, science-led political leadership. The future of agriculture belongs to technology adopters and innovators. Prime Minister Modi's slogan — "Jai Anusandhan" (hail innovation) — is inspiring and is backed by an ambitious Rs 1 lakh crore RDI (Research, Development and Innovation) fund. But real progress needs commercial deployment of advanced biotech: Ht Bt cotton, Bt brinjal, GM mustard, and even GM soy and corn. From plate to plough, India's future depends on embracing gene technology. As Vajpayee often said, what IT (information technology) is for India, BT (biotechnology) is for Bharat. It can bring prosperity in rural areas.

Prime Minister Modi's slogan — 'Jai Anusandhan' (hail innovation) — is inspiring and is backed by an ambitious Rs 1 lakh crore RDI (Research, Development and Innovation) fund. But real progress needs commercial deployment of advanced biotech: Ht Bt cotton, Bt brinjal, GM mustard, and even GM soy and corn.

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Backdrop: Rising debate on GM crops in India amid Trade Deal negotiations with the US

Relevance: GS 3/Agriculture

About the news

As the **July 9 deadline** nears, **U.S. negotiators are pressuring India** to open its agriculture market to **genetically modified (GM) crops**. However, **Finance Minister Nirmala Sitharaman** has firmly stated that **agriculture and dairy are “red lines”**, cautioning that allowing GM imports could **threaten farmers’ livelihoods and compromise food safety**.

Arguments for encouraging GM crops in India

Replicating the success of GM Cotton in India

- India approved **Bt cotton** (genetically modified to resist bollworm) in **2002**. It became **India's first and only commercial GM crop**.

Key Achievements:

- **Rapid Adoption:** Bt cotton now covers **over 90%** of India's total cotton area.
- **Surge in Production:** Cotton output rose from **13.6 million bales in 2002–03** to **39.8 million bales in 2013–14** - a **193% increase**.
- **Improved Productivity:** Yield increased by **87%**, from **302 kg/ha to 566 kg/ha** during the same period.
- **Rise in Farmer Incomes:** Farmers saw higher profits due to lower pesticide use and higher yields. E.g., Gujarat experienced over **8% annual agri-GDP growth**.

Combating Pests and Reducing Pesticide Use

- Indian farmers face heavy **losses from pests** like the **pink bollworm, whitefli**es, and pod borers.
- GM crops (e.g., **Bt brinjal**) are engineered to resist such pests, **reducing the need for harmful chemical pesticides**, which are expensive and environmentally damaging.

Arguments for encouraging GM crops in India

Addressing Climate Change and Abiotic Stress

- **Climate-resilient GM crops** (tolerant to drought, salinity, or heat) can help farmers **cope with changing weather patterns**.
- GM technology can also enable **early maturing crops**, which are crucial for water-scarce regions.

Enhancing Nutritional Value

- **Bio-fortified GM crops** (like Golden Rice rich in Vitamin A or protein-enriched maize) can help combat **malnutrition and hidden hunger**, especially in rural India.

Reducing Import Dependence

- India is a **major importer of edible oils and pulses**.
- GM variants of **soybean, mustard, and pulses** could **boost domestic production**, reduce the import bill, and enhance food security.

Arguments for encouraging GM crops in India

Encouraging Agri-Innovation

- The adoption of GM crops would **attract R&D investment** in Indian biotechnology.
- It could position India as a **seed exporter and agri-tech leader** for other developing nations in Asia and Africa.

Competing Globally

- As of 2023, over **200 million hectares** of GM soybean, maize, canola, and more are in cultivation across **76 countries.**
- If India lags, it risks being **excluded from high-tech agri trade networks** and **losing competitiveness**.

Arguments for encouraging GM crops in India

GM Crops have already entered the Indian food Chain:

- **Case of Bt Cotton**
  - **Cottonseed oil,** derived from GM cotton, is widely consumed as an edible oil by humans.
  - **Cottonseed meal** is used in **cattle feed,** indirectly introducing GM material into the milk and meat chain.
- **GM Imports for Feed**
  - India has imported **GM soy and GM corn** for poultry and livestock feed in the past.
  - These imports affect the food system indirectly via animal products.

Challenges Faced by GM Crops in India

- **Regulatory Hurdles**
  - **Lengthy and opaque approval process** by the Genetic Engineering Appraisal Committee (GEAC)
    - **E.g.,** Bt Brinjal and GM mustard (DMH 11) cleared in principle by the GEAC, haven't received full commercial green light.
  - **Lack of clear guidelines** and coordination between regulatory bodies.
- **Activist and Ideological Opposition**
  - Strong resistance from **environmental groups, civil society, and farmer organizations**.
  - Concerns over **ecological safety, corporate control**, and **seed sovereignty**.
- **Policy Inconsistency**
  - Mixed signals from policymakers - encouragement for innovation on one hand, and **restrictions on GM technology** on the other.
  - **Bt cotton** is allowed, yet **other GM crops remain blocked** despite scientific clearance.

Challenges Faced by GM Crops in India

- **Illegal Cultivation**
  - Unapproved GM seeds like **HT-Bt cotton** are grown illegally in multiple states.
  - Covers **15–25% of cotton acreage**, leading to a **shadow seed economy** and **unregulated spread**.
- **Weak Seed IPR and Pricing Laws**
  - The **Cotton Seed Price Control Order (2015)** capped trait fees, making **biotech R&D unattractive**.
  - Seed companies face **pricing controls**, discouraging investment in new GM technologies.
- **Farmer Vulnerability**
  - Lack of awareness about GM crops' **benefits and risks**.
  - In cases of crop failure (e.g., pest resistance), farmers have **no legal support or compensation**.

Challenges Faced by GM Crops in India

- **Trade and International Pressure**
  - India faces **global pressure** (e.g., from the U.S.) to open its market to GM imports.
  - However, **resistance to GM food imports** continues due to concerns over **food safety and livelihood impacts**.
- **Low Public Awareness and Misinformation**
  - **Lack of scientific communication** and outreach to the public.
  - Myths and fears around GM crops lead to **hesitancy among consumers and farmers**.
- **Limited Research Support**
  - **Public sector GM research** (e.g., at universities) lacks funding and fast-track approval.
- **Private R&D** discouraged due to regulatory and pricing uncertainty.

Suggestive Measures

- **Reform the Regulatory Framework**
  - **Streamline and fast-track approvals** for GM crops through a time-bound, transparent process.
  - Strengthen the **GEAC** with scientific autonomy.
  - Create a **single-window clearance** system for biotech innovations.
- **Promote Science-Based Decision Making**
  - Ensure decisions are based on **scientific evidence**, not ideology or activism.
  - Involve **independent scientists, agri-economists, and farmers** in regulatory and policy decisions.
- **Legalise and Regulate Proven GM Crops**
  - Approve commercially-tested crops like **Bt brinjal, GM mustard**, and **HT-Bt cotton** under strict biosafety protocols.
  - Monitor post-release performance and environmental impact transparently.

Suggestive Measures

- **Strengthen Intellectual Property Rights (IPR) & Seed Policy**
  - Revise the **Seed Price Control Order** to ensure fair trait fees for biotech companies.
  - Protect **innovation and investment** by ensuring **IPR enforcement**.
- **Crack Down on Illegal GM Seeds**
  - Take strict action against the **unauthorised sale and cultivation** of GM seeds.
  - Build a **robust seed certification and enforcement system**.
  - Provide **affordable legal alternatives** to prevent black market growth.
- **Public Awareness and Farmer Education**
  - Run **awareness campaigns** on the **benefits and risks** of GM crops.
  - Train farmers in **safe usage, crop management, and resistance prevention**.
  -

Suggestive Measures

- **Encourage Public Sector R&D**
  - **Increase funding to agricultural universities and research institutions (e.g., ICAR, IARI).**
  - Incentivise **homegrown GM research** in crops relevant to Indian diets — pulses, oilseeds, and millets.
- **Ensure Labeling and Traceability**
  - Introduce **mandatory labelling** for GM food products to ensure **consumer choice** and **transparency**.
  - Develop systems for **tracking GM material** in the food chain.
- **International Alignment**
  - Align India's policies with **global biosafety protocols** (e.g., Cartagena Protocol).
  - Participate in **global dialogues** to ensure trade access and knowledge exchange.

Conclusion

India needs **science-led leadership** to realise the promise of ***"Jai Anusandhan"***. True progress requires **commercial adoption of GM crops** like Bt brinjal, GM mustard, and HT-Bt cotton. As Vajpayee said, **biotech for Bharat** can drive rural prosperity, just as IT transformed urban India. The future of agriculture lies in **embracing gene technology — from plate to plough**.

PRACTICE QUESTION

Q. In light of rising global pressure and the domestic success of Bt cotton, critically analyse the challenges and opportunities in mainstreaming GM crops in India. Also, suggest measures to addresse biosafety, food security, and innovation. ***(250 words)***