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GENERAL STUDIES – PAPER II

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FIRST EDITION
2026

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INDIAN ECONOMY

For
UPSC and Civil Services Examinations

First edition

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(For the Civil Services exam Aspirants appearing main (G.S) exam -2026)

Preface:

The Great Transformation and the Path to Viksit Bharat

The narrative of the Indian economy is no longer a story of mere survival or incremental change; it is a profound chronicle of a nation in the midst of a "**Great Transformation.**" This collection of analytical notes traces India's economic odyssey from the restrictive, insular "License-Permit Raj" of the post-independence era to its current emergence as a high-tech, innovation-led global powerhouse.

At the heart of this narration lies the evolution of the Indian state—transitioning from a "Commanding Controller" in 1950 to a "Liberalizer" in 1991, and finally to its modern avatar as a "**Strategic Enabler.**" As India marches toward the vision of **Viksit Bharat @ 2047**, the themes explored in these pages reflect a state that is building "Strategic Indispensability" through Digital Public Infrastructure, world-class physical connectivity, and a structural overhaul of its industrial and agricultural roots.

The text is organized into five thematic pillars:

1. **Macroeconomic Governance:** Assessing how India navigated the 1991 Balance of Payments crisis to build a \$3.9 trillion economy anchored in fiscal fortitude and "Strategic Sobriety."
2. **Infrastructure & Investment:** Analyzing the "Multiplier Effect" of GatiShakti and the shift toward sophisticated PPP models like the Hybrid Annuity Model (HAM).

3. **Industrial Resurgence:** Charting the transition from "Technology Adopter" to "Global Innovator" through the PLI schemes and the National Semiconductor Mission.
4. **Agricultural Transformation:** Moving beyond the Green Revolution's "Cereal Bias" toward nutritional security, digital marketing (e-NAM), and a "Genetic Revolution" in animal rearing.
5. **Inclusive Welfare:** Understanding how the "JAM Trinity" and the National Food Security Act have converted welfare from a discretionary policy into a justiciable right for 81 crore citizens.

In the classical tradition of Indian economic thought—echoing the analytical depth of masters like **Dutt & Sundaram, Uma Kapila & Dr. Agarwal**—this narration views the economy as a "Social Contract." It acknowledges that while the reforms have "enlarged the pie" of national wealth, the ultimate legitimacy of the state lies in **Antyodaya**—the welfare of the last person in the queue.

For the student and the aspirant, these notes are more than a compilation of facts; they are a toolkit for understanding the "**Strategic Maturity**" of a civilization-state. By linking the soil of the farm-gate to the pulses of the digital stack, India is proving that it can run a marathon and a sprint simultaneously. We invite the reader to dive into this journey of an economy that is no longer just "emerging," but is actively shaping the global order for the century to come.

G.S. Paper – 3 (main exclusive)

Topics.

- 1. The Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.**
- 2. Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth:**
- 3. Inclusive growth and issues arising from it:**
- 4. Investment models:**
- 5. Government Budgeting:**
- 6. Infrastructure: Energy, Ports, Roads, Airports, Railways etc:**
- 7. Land reforms in India:**
- 8. Major crops-cropping patterns in various parts of the country,—different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers:**
- 9. Food processing and related industries in India-scope' and significance, location, upstream and downstream requirements, supply chain management:**
- 10. Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System-objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing:**

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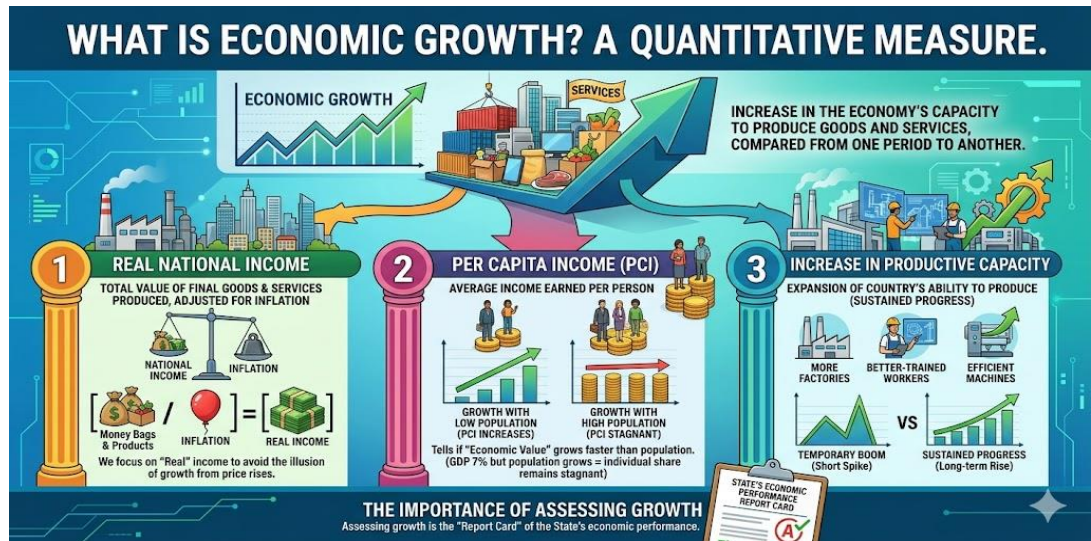
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Section I: Macroeconomics & Governance

I. The Economic Growth



What is Economic Growth?

The **Economic Growth** is a quantitative measure. It is the increase in the capacity of an economy to produce goods and services, compared from one period of time to another. But for our study, we must look closer at the three pillars that define this "theme" of growth:

1. **Real National Income:** This is the total value of all final goods and services produced within the country, adjusted for inflation.

We focus on "Real" income because a rise in prices (inflation) can give the illusion of growth without any actual increase in production.

Real National Income = National Income / inflation.

2. **Per Capita Income (PCI):** This is the average income earned per person. It tells us if the "Economic value" is growing faster than the population.

If the GDP grows at 7% but the population also grows at a high rate, the individual citizen's share remains stagnant.

3. **Increase in Productive Capacity:** True growth happens when a country's ability to produce expands.

This means more factories, better-trained workers, and more efficient machines. It is the difference between a temporary "boom" and sustained progress.

The Importance of Assessing Growth

Assessing growth is the "Report Card" of the State's economic performance.

1. **Poverty Reduction:** In a "Survival Society," growth is the primary ladder. Without an expanding economy, the State cannot generate the tax revenue needed for the "Welfare Shield"—the schools, hospitals, and rations that keep the marginalized afloat.
2. **The Standard of Living:** Higher growth generally leads to higher PCI, which allows families to move from "Survival Mode" to "Aspiration Mode". It allows the Indian youth to dream of a better life than their parents.
3. **Global Standing:** In a globalised world, a high growth rate attracts international capital. It gives India the "Soft Power" to negotiate better trade deals and influence global policy.

Factors of Economic Growth

Long-term growth is not a happy accident; it is the result of a "**Virtuous Cycle**" every factor work together to push the boundary of what a nation can achieve.

1. Investment: The Seed of Success

Investment is the act of sacrificing today's consumption for tomorrow's production. Whether it is a small farmer buying a tractor or a giant corporation building a chip-manufacturing plant, investment is the "seed". As noted in the **Economic Survey 2025-26**, a high **Investment-to-GDP ratio** is the single biggest predictor of a nation like India escaping the "Middle-Income Trap".

2. Technology: The Force Multiplier

Technology allows us to do "more with less". In the 21st century, this is our greatest "Leapfrog" tool. From AI-driven agriculture that saves water to digital payments that end the "Middleman Raj," technology acts as a force multiplier that increases the efficiency of both labour and capital.

3. The Labour Force: From Numbers to Human Capital

India possesses a "Demographic Dividend"—a window until 2041 where the majority of our people are in the productive age group. But labor is only an asset if it is skilled and healthy. If our youth are "Socially Deleted" due to poor education, this dividend becomes a "Demographic Dilemma" of unemployment and unrest.

4. Capital Goods: The Tools of Industry

These are the "machines that make machines". A nation that only exports raw materials is a "Survival Society". A nation that builds its own capital goods—heavy machinery, transport equipment, and advanced tools—is a "Viksit Bharat". They are the physical skeleton of our productive capacity.

5. Infrastructure: The Arteries of Commerce

Infrastructure—roads, ports, electricity, and high-speed data—is the nervous system of growth. It reduces the "Cost of Doing Business". When a farmer can send his produce to a city market without it rotting on a broken road, his income grows and the nation's productivity rises.

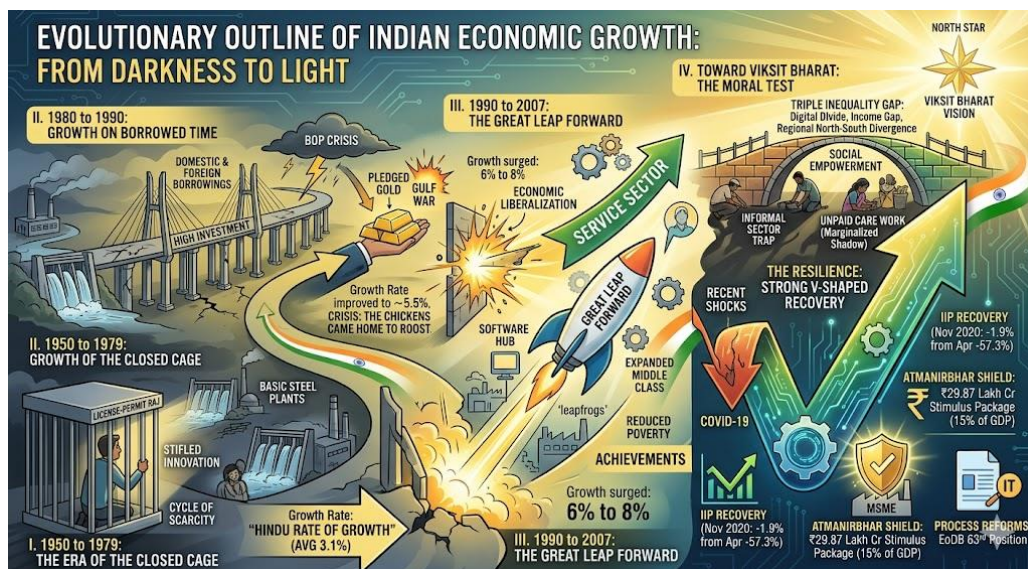
The present drivers of Indian Growth

Economic growth in India is not a single engine; it is a complex machine with several moving parts. According to the recent Survey, the current recovery is being driven by a synergy of private initiative and massive state support.

1. **The Investment Engine (FDI):** Foreign Direct Investment has become a primary financing driver. It is not just about money; it brings productivity, skills, and technology. Even during the pandemic, total FDI equity inflows remained strong, reaching US\$ 49.98 billion in FY20, showing international faith in our trajectory.
2. **The MSME Backbone:** With over 6 crore units, the MSME sector is the economy's skeleton. It employs 11 crore people and contributes nearly 30% to the GDP and half of our exports.
3. **The Startup Success Story:** Startups have emerged as a success story for entrepreneurs who think "out of the box". By late 2020, over 41,000 startups were recognized, creating nearly 4.7 lakh jobs.

4. **Government Capital Expenditure:** The State has moved from being a mere regulator to a catalyst. Enhanced capital expenditure and the Production-Linked Incentive (PLI) scheme, with an expenditure of ₹1.46 lakh crore, are designed to turn India into a global manufacturing hub.

2. Evolution - Indian Economic Growth:



From darkness to light

To understand where we are going, we must look at where we have been. The evolution of Indian growth can be divided into distinct "epochs."

1. 1950 to 1979: The Era of the Closed Cage

In the early decades, India followed a **Planned Economy** model. It was a closed system, wary of the world and focused on self-reliance through heavy industry.

- **The Growth Rate:** This period was marked by the so-called "Hindu Rate of Growth," averaging a mere **3.1%**.
- **The Failure:** The state tried to do everything but ended up stifling innovation through the "License-Permit Raj." While we built dams and steel plants, the individual citizen remained trapped in a cycle of scarcity.

2. 1980 to 1990: Growth on Borrowed Time

In 1980s the government realized that the old model was failing and started a process of "internal liberalization."

- **The Growth Rate:** Growth improved to roughly **5.5%**.
- **The Strategy:** This was driven by a high investment rate, but it was funded by high domestic and foreign borrowings.
- **The Crisis:** By 1990, the chickens came home to roost. The Gulf War and fiscal profligacy led to a massive **Balance of Payments (BOP) Crisis**, forcing India to pledge its gold and open its doors to the world.

3. 1990 to 2007: The Great Leap Forward

The 1991 reforms were a "paradigm shift." India embraced **Economic Liberalization**, moving from a state-led model to a market-linked global based one.

- **The Service Sector Model:** Unlike East Asia, which grew through manufacturing, India attempted a "leapfrogged" model led by service sector.
- **The Growth Rate:** Growth surged to an impressive **6% to 8%**.

- **Achievements:** Poverty rates fell significantly, the middle class expanded, and India became the "software hub" of the world.

The Recent Shocks: Recession and COVID-19

The global financial crisis of 2008 and the subsequent slowdown were significant hurdles, but nothing compared to the shock of 2020. The pandemic of a "once in a century" crisis that impacted the livelihoods of billions.

- **The Sharp Decline:** The industrial sector experienced a massive shock. At the nadir in April 2020, the Index of Industrial Production (IIP) recorded a growth of **(-) 57.3%**.
- **The Informal Crisis:** The MSME sector, being the backbone, was the worst hit during the nationwide lockdown. The shock threatened to "delete" decades of progress in social empowerment.

IV. The Resilience: The V-Shaped Recovery

Despite these consequential challenges including the COVID- 19, the Indian economy has shown a resolute push toward recovery. The Economic Survey confirms a **Strong V-Shaped Recovery**.

- **Confirming the IIP Data:** By November 2020, the IIP growth had recovered to **(-) 1.9%** from its April low. More importantly, the "weight of items" recording growth jumped from a tiny 5.87% in April to 46.05% in November.
- **The Atmanirbhar Shield:** The government announced a remedial stimulus package of **₹29.87 lakh crore**, equivalent to 15% of the GDP. This package specifically gave relief and credit support to MSMEs to fight the crisis.

- **Process Reforms:** The recovery is backed by the simplification of age-old rules. Introduction of IT and single-window clearance helped India move to the **63rd position** in the Ease of Doing Business (EoDB) Index.

The trajectory of the Indian economy, from the restrictive "Hindu Rate of Growth" to the current "V-Shaped Recovery," reveals a nation that has mastered the art of survival but is now hungry for success. As we look toward the 2030s, the "Viksit Bharat" vision serves as our North Star, but reaching it requires more than just high-speed GDP.

The "V-shaped" bounce-back confirmed in the IIP data and the massive ₹29.87 lakh crore stimulus are powerful testaments to our resilience. Yet, the true "Moral Test" of our growth lies in bridging the **Triple Inequality Gap**: the digital divide, the income gap, and the regional North-South divergence. We cannot be a global powerhouse if half our workforce remains in the "Marginalized Shadow" of unpaid care work or informal sector trap.

3. The Decadal Evolution of India's Economic Growth.

The Era of "Baseless Growth" (1951–1979)

For nearly three decades after 1951, India followed a model of central planning inspired by the Soviet Union. The focus was on building "temples of modern India"—large dams, steel plants, and heavy industries. While these were necessary for a young nation, the growth they produced was what economists call "baseless" in terms of social impact.

During this period, the economy grew at a slow, steady pace often mocked as the "Hindu Rate of Growth" (not more than 3.5%). However, this growth did not reach the grassroots. Instead of lifting people out of poverty, we saw a **growth of poverty and unemployment**. The population was expanding faster than the economy's ability to create jobs in the formal sector.

Because the focus was on heavy machinery rather than small-scale farming or labour-intensive manufacturing, the average Indian remained stuck in a cycle of subsistence. By the end of the 1970s, despite industrial progress, the fundamental "base" of the economy—its people—remained largely impoverished.

The "Future-less" Growth (1980–1990)

The 1980s saw a shift. The government began to loosen its grip, and growth finally picked up, crossed the 5% mark. It crossed the Hindu Growth rate. On the surface, things looked better, but beneath the hood, the engine was overheating.

This was "**Future-less**" **growth** because it was built on a foundation of sand: **Debt**. To fund development and consumption, the government borrowed heavily, both domestically and from abroad. We were living beyond our means. This decade was characterized by high fiscal deficits and a growing reliance on imported goods without a matching increase in exports.

The inevitable result was the **Balance of Payments (BOP) crisis of 1991**. By 1990, India had no foreign exchange to pay beyond two weeks of imports. We were forced to pledge our gold reserves to London to secure a loan. It was a moment of national humiliation, proving that growth fueled by debt without structural strength, so a crisis.

The Era of "Fragile Growth" (1991–2008)

The 1991 reforms opened our doors to the world. We moved toward "LPG"— Liberalization, Privatization, and Globalization. This triggered a period of **Fragile Growth**.

It was "fragile" because while the private sector flourished, particularly in Information Technology and Services, the economy became highly sensitive to global shocks. The growth was concentrated in urban pockets and specific sectors. Agriculture, which still employed the majority of Indians, was left behind. While the 2000s saw record-breaking growth rates reaching 8% and 9%, the stability of this growth depended heavily on foreign capital inflows. When the global financial crisis hit in 2008, the fragility of our model was exposed as capital fled and growth began to stutter.

The Challenge of "Jobless Growth" (2008–Present)

Since 2008, and especially in the last decade, India has faced its most baffling challenge yet: **Jobless Growth**. The economy is producing more goods and services, the GDP is rising, and we are now the world's fifth-largest economy. Yet, for the young person standing on the street corner, this growth was illusion.

What is Jobless Growth?

Simply put, it is an economic phenomenon where the GDP expands, but the number of jobs does not increase at a proportional rate. In a healthy economy, a 1% increase in GDP should lead to a significant rise in employment. In India, this "employment elasticity" has dwindled to nearly zero. We are seeing factories produce more using machines (automation) and service companies earn more using software, but they aren't hiring more people.

The Key Indicators

1. The PLFS Data: Recent Periodic Labour Force Surveys (PLFS) show that while headline unemployment numbers might fluctuate, the quality of jobs is poor. Many people are "self-employed" not by choice, but because they cannot find a salary-paying job.

2. Youth Unemployment: The most alarming indicator is the high rate of unemployment among educated youth. Millions of graduates apply for a few hundred low-level government positions.

3. Declining Labour Force Participation: Many people, especially women, have simply stopped looking for work because they don't believe jobs exist.

Reasons for Jobless Growth

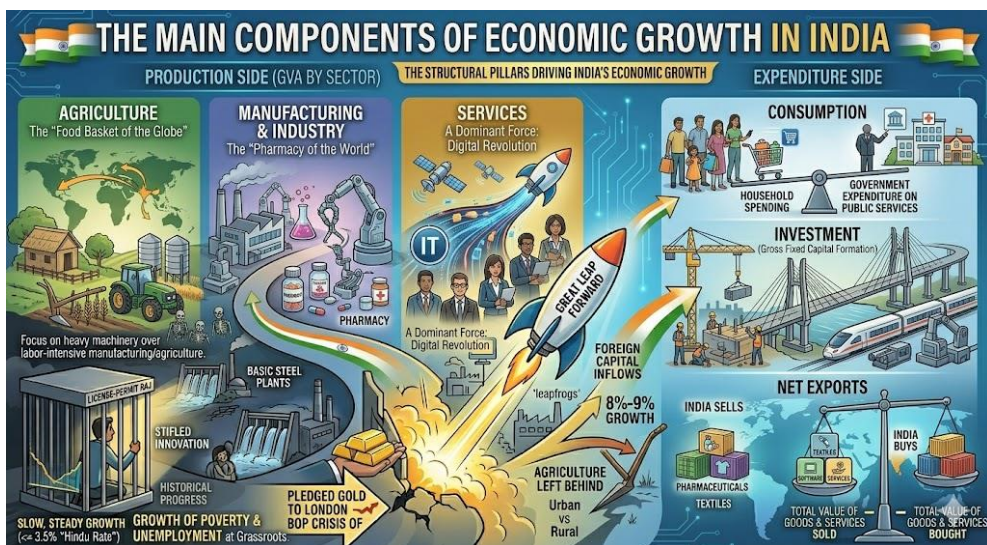
1. **Missing Manufacturing Base:** Unlike China, India skipped the "manufacturing stage" of development. We went straight from agriculture to services, bypassed the manufacturing, . While services (like IT or Banking) generate high value, they don't require the millions of low-skilled workers that factories do.
2. **Automation and Technology:** In the era of "Digital Footprints" and AI, companies are preferring capital-intensive methods over labour-intensive ones. A robot or a software script doesn't ask for a raise or join a union.
3. **Skill Mismatch:** Our education system is producing "degree holders," but our industries need "skilled workers." There is a massive gap between what is taught in a classroom and what is needed in a modern workplace.
4. **The Informal Sector Struggle:** As noted in the "[GDP estimate realignment.pdf](#)", the informal sector accounts for about 44% of our economy. This sector is the biggest employer, but it has been hit hard by structural changes like GST and digitalization, leading to a "formalization" that often replaces many small jobs with a few formal ones.

Conclusion

India's growth story is a tale of shifting shadows. We moved from the slow, poverty-stricken growth of the early years to the debt-ridden growth of the eighties, and finally to the high-speed but fragile growth of the post-reform era. Today, the "GDP pulse" of the nation is strong, as evidenced by the new **2026 GDP estimation framework** which uses GST and digital data to give a more "evidence-based" view of our wealth.

However, as we move toward a \$10 trillion economy, the real test is not just the "Double Deflation" or "SNA 2008" standards mentioned in the "**GDP estimate realignment.**". The real test is whether a young Indian can find a job that pays a living wage. Growth without jobs is like a house without a foundation—it might look grand from the outside, but it cannot sustain the people living within it. We must ensure that the "Vishwa Mitra" (Global Credibility) we seek in our statistics is matched by the reality of prosperity on our streets.

4. India's Economic Growth (2026) - Architecture



The measurement of a nation's wealth is not merely a statistical exercise; it is the "pulse" of its developmental journey. For a rapidly evolving economy like India, capturing the true essence of growth requires moving beyond traditional surveys into the realm of digital realities.

Following the recent update by the Ministry of Statistics and Programme Implementation (MoSPI) in February 2026, India has transitioned its National Accounts base year to 2022-23. This shift provides a modern lens through which we can analyze the components and measurement of our economic progress.

The Main Components of Economic Growth in India

Economic growth in India is driven by several structural pillars that represent the "production" and "expenditure" sides of the economy. These components are essential for understanding where wealth is generated and how it is utilized.

- **Gross Value Added (GVA) by Sector:** This measures the contribution of different sectors like agriculture, industry, and services.
 1. **Agriculture:** Often called the "food basket of the globe," it remains a vital source of livelihood.
 2. **Manufacturing and Industry:** The "pharmacy of the world" represents India's growing role in global supply chains.
 3. **Services:** A dominant force fuelled by the digital revolution, including IT, finance, and professional services.
- **Consumption (Private and Government):** The demand side of the economy, driven by household spending and government expenditure on public services.

- **Investment (Gross Fixed Capital Formation):** This reflects the creation of physical assets like roads, bridges, and machinery, which are necessary for future production.
- **Net Exports:** The difference between what India sells to the world and what it buys.

The New Methodology of Estimating Growth (2026 Framework)

The 2026 framework marks a fundamental departure from "proxy-based" estimates to "evidence-based" statistical governance. The core of this methodology lies in its ability to capture "digital footprints". The changes are

- **New Base Year (2022-23):** The base year has shifted from 2011-12 to 2022-23. This year was chosen because it represents the first "normal" period after the global pandemic, free from the extreme economic fluctuations seen between 2019 and 2021.
- **GST-Based Estimation:** Instead of relying solely on the older MCA-21 corporate database—which was criticized for including inactive or "shell" companies—the new method integrates the Goods and Services Tax (GST) database. This provides a real-time, accurate view of active business transactions.
- **The Double Deflation Method:** Previously, India often adjusted only the price of final products (outputs) for inflation. The new series uses "double deflation," which adjusts both input costs (like raw materials and oil) and output prices separately. This provides a much clearer picture of the actual "value added" in manufacturing and farming.
- **Informal Sector Integration:** To bridge the gap in the informal economy (which makes up roughly 44% of GVA), the government now uses annual direct measures

like the **Annual Survey of Unincorporated Sector Enterprises (ASUSE)** and the **Periodic Labour Force Survey (PLFS)**.

- **Supply and Use Tables (SUT):** To ensure the "books balance," the new framework uses SUTs to match what businesses produce with what people actually consume, reducing the "statistical discrepancies" that previously puzzled economists.

The Necessity of the Revamp

Why was such a massive overhaul required? The "mismeasurement" argument had gained significant ground among global and domestic critics.

- **Correcting the "Shell Company" Bias:** Critics argued that using the MCA-21 database made the corporate sector look larger than it was by including dormant entities. A more precise filter was needed to identify truly active firms.
- **Addressing the Formal-Informal Divide:** Shocks like demonetization and the initial GST rollout caused the formal and informal sectors to grow at different rates. Using formal data as a "proxy" for the informal sector likely led to inaccuracies that needed direct correction.
- **Modernizing Data Sources:** The Indian economy had outgrown its 2011-12 benchmarks. The rise of the digital economy, UPI transactions, and widespread GST filings created a wealth of data that the old system simply could not process.

The Significance of the New Methodology

The transition to the 2022-23 series is not just a technical update; it is a strategic move to bolster India's economic standing on the world stage.

- **Global Credibility (Vishwa Mitra):** By adopting the **UN System of National Accounts (SNA) 2008** standards and using granular price indices (over 260 distinct indices), India aligns itself with the statistical norms of developed G20 countries.
- **Policy Precision:** For institutions like the Reserve Bank of India (RBI) and the Finance Ministry, accurate data is a prerequisite for making sound decisions on interest rates and government spending. A dependable "thermometer" ensures they are not reacting to "hallucinated" growth figures.
- **Attracting Investment:** Foreign investors and rating agencies rely on transparent GDP numbers to assess a country's risk profile. Clearer data builds trust, which is essential for attracting the capital needed to reach a **\$10 trillion economy**.
- **Achieving Developmental Goals:** The integration of "Green Finance" and "Panchamrit" goals into the framework allows the government to track growth alongside environmental sustainability.

Conclusion

The 2026 GDP update transforms the vast complexity of the Indian economy into a structured narrative backed by hard evidence. While measuring a massive informal sector will always remain a challenge, the move toward GST-based data and double deflation brings India closer to global best practices. In the journey toward becoming a global economic powerhouse, having a reliable map is just as important as the speed of the engine.

Previous Year Questions

1. Do you agree that Indian economy has recently experienced V-shaped recovery? Give reasons in support of their answer. [250 Words] [15 Marks] [2021]
2. Explain the difference between computing methodology of India's Gross Domestic Product (GDP) before the year 2015 and after the year 2015. [150 Words] [10 Marks] [2021]
3. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments. [150 Words] [10 Marks] [2019]
4. The nature of economic growth in India in recent times is often described as a jobless growth. Do you agree with this view? Give arguments in favour of your answer. [200 Words][12.5 Marks][2015]
5. Craze for gold in Indian has led to surge in import of gold in recent years and put pressure on balance of payments and external value of rupee. In view of this, examine the merits of Gold Monetization scheme. [200 Words] [12.5 Marks] [2015]
6. Comment on the challenges for inclusive growth which include careless and useless manpower in the Indian context. Suggest measures to be taken for facing these challenges.[200 Words] [12.5Marks] [2016]
7. Capitalism has guided the world economy to unprecedented prosperity. However, it often encourages short-sightedness and contributes to wide disparities between the rich and the poor. In this light, would it be correct to believe and adopt capitalism for bringing inclusive growth in India? Discuss. [200 Words] [12.5 Marks] [2014]

Model Answers

Question 1:

Do you agree that the Indian economy has recently experienced a V-shaped recovery? Give reasons in support of your answer. [250 Words] [15 Marks]

Answer Guidelines & Structure:

- **Introduction (30–40 words):**
 - **Define and Contextualize:** Briefly define a V-shaped recovery (a sharp, rapid economic decline followed by an equally sharp, broad-based rebound). Contextualize it within the "once in a century" economic contraction triggered by the COVID-19 pandemic. State your position clearly matching the official assessment: *Yes, high-frequency macroeconomic indicators confirm a resilient V-shaped recovery path..*
- **Body Paragraph 1: Empirical Evidence Supporting the V-Shaped Rebound (90–100 words):** Provide concrete data indicators from the recovery timeline:
 - **The IIP Trajectory:** Contrast the absolute nadir of the Index of Industrial Production (IIP) at **(-) 57.3%** in April 2020 with its rapid climb back to **(-) 1.9%** by November 2020, signaling an production revival close to pre-pandemic baselines.
 - **Breadth of Recovery:** Highlight the "weight of items" metric. The proportion of industrial goods recording positive growth expanded dramatically from a mere **5.87%** during the height of the lockdown to **46.05%** later in the year, proving the recovery was structural rather than isolated.
 - **External and Dynamic Anchors:** Cite the strong return of **Foreign Direct Investment (FDI)** inflows (e.g., US\$ 30 billion in the first half of FY21) and the explosion of the **Startup ecosystem**, indicating deep international and domestic entrepreneurial confidence.

- **Body Paragraph 2: Underlying Drivers of the Recovery (80–90 words):** Explain *how* this trajectory was achieved:
 - **Fiscal and Credit Shields:** Detail the **Atmanirbhar Bharat Abhiyan**, a comprehensive remedial package totaling **₹29.87 lakh crore** (15% of GDP), which injected vital emergency liquidity and credit pipelines to protect the MSME backbone.
 - **Supply-Side & Process Reforms:** Discuss systemic changes including **Production-Linked Incentive (PLI)** schemes across 10 key sectors, administrative rationalization, and digital single-window clearances that structurally raised India's **Ease of Doing Business** framework.
- **Conclusion / Way Forward (30–40 words):**
 - Conclude that while the technical macro-economic V-shaped recovery stands confirmed, the state must ensure long-term **Distributive Justice**. The ultimate structural success depends on transitioning this momentum into sustainable **Human Capital** accumulation and formal protections for the informal labor force.

Question 2:

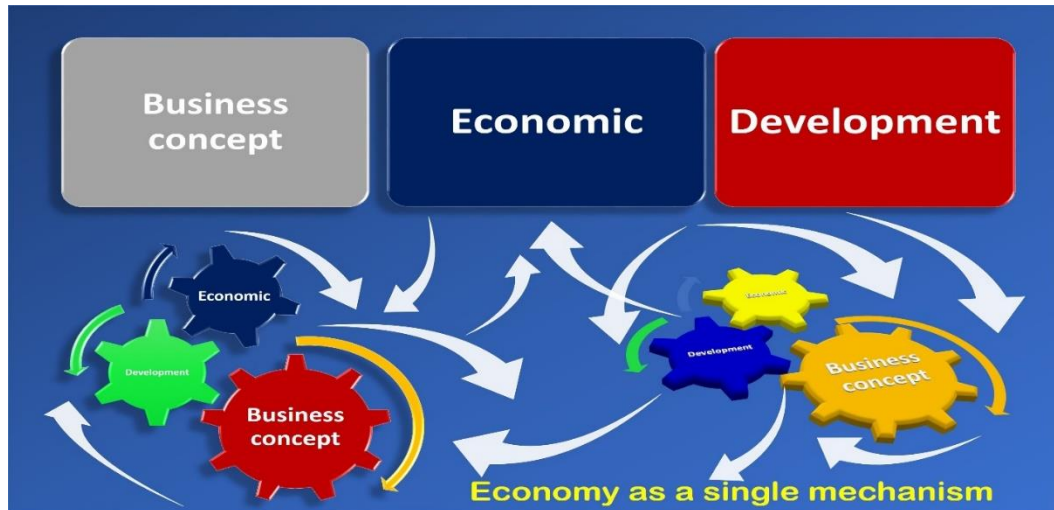
Explain the difference between the computing methodology of India's Gross Domestic Product (GDP) before the year 2015 and after the year 2015. [150 Words] [10 Marks]

Answer Guidelines & Structure:

- **Introduction (20–30 words):**
 - State that in January 2015, the Central Statistics Office (CSO) introduced a revolutionary statistical overhaul in India's National Accounts to align data tracking with international standards (SNA 2008).
- **Body Paragraphs / Comparative Points (90–100 words):** Clearly contrast the old and new methodologies across three critical dimensions:

- **Change in Base Year:** The statistical anchor or baseline price index was updated from the outdated **2004–05** framework to the more modern and representative **2011–12** price structure.
 - **Headline Growth Metrics (Factor Cost vs. Market Prices):** Previously, India’s headline economic growth was measured as **GDP at Factor Cost** (tracking purely the costs incurred by producers). Post-2015, headline GDP shifted strictly to **GDP at Market Prices** (Gross Value Added adjusted for product taxes and subsidies), matching global practices.
 - **Data Source Expansion:** The old methodology relied heavily on outdated sample surveys (like the Annual Survey of Industries). The new model integrated the comprehensive, real-time corporate database of the Ministry of Corporate Affairs (**MCA-21**), capturing unlisted, informal, and dynamic service-sector enterprises much more accurately.
 - **Conclusion (20 words):**
 - Conclude that this computing shift successfully transformed India’s statistical ecosystem from a rigid, production-cost baseline to a modern, market-linked reflection of actual economic value.
-

5. The Economic Development.



Defining Economic Development

Economic development is far more than a mathematical measure of increase in national wealth. It is defined as a **sustained improvement in a society's material well-being**.

While growth focuses on the "pile of goods" a country produces, development focuses on the **quality of life** of the people who live there.

A society is developing when it experiences progress in qualitative indicators such as the **Human Development Index (HDI)**, literacy rates, infant mortality, and gender equality.

Think of the example of an imagined Village settlement: Here, the development isn't just about selling more crops; it is about those sales leading to clean water, affordable healthcare, and schools for children. It is the transformation of a "survivalist" existence into a "flourishing" one.

The Criteria: Growth + Structural Change

True development does not happen in a vacuum. It requires two core ingredients working in tandem: **Economic Growth** and **Institutional/Organisational Change**.

- **The Growth Foundation:** Growth is the "necessary condition". Without an increase in the real output of goods and services, there is no surplus wealth to invest in schools or hospitals. Growth provides the fuel for the engine of development.
- **Structural Transformation:** However, growth alone is insufficient. Development entails a gradual change in the country's **socio-economic structure**. This means shifting from old, inefficient ways of doing business to modern, institutionalized systems. It involves changing how resources are supplied and how organizations are structured to ensure that wealth isn't just created, but is distributed more equitably. How much of growth enabled to attain the Human capabilities. (Prof Amartya Sen)

The Determinants of Development

What decides whether a country will successfully transition from growth to development? Several key factors act as the "long chain of interconnected changes":

- **Capital Formation Rates:** This refers to the rate at which a country builds its physical and financial assets. High capital formation allows for long-term investments in infrastructure that support material progress.
- **Population Size and Composition:** The sheer number of people and their age groups matter. A developing nation must manage its population so that its resources can keep pace with the needs of its citizens.
- **Technology, Skills, and Efficiency:** This is the "human capital" element. Development is driven by the ability of a workforce to use new technology efficiently. It is not enough to have machines; people must have the **skills** to operate them and the **efficiency** to innovate.

- **Institutional Frameworks:** The existence of fair laws, transparent government policies, and organized markets determines if growth will lead to poverty alleviation or merely enrich a few.

Growth vs. Development: A Comparison

To plan effectively, one must distinguish between these two related but distinct concepts:

Basis	Economic Growth	Economic Development
Meaning	Increase in the country's real output of goods and services.	Changes in income and savings plus structural socio-economic changes.
Factors	Focused on components like consumption, government spending, and exports.	Focused on human capital, inequality reduction, and quality of life.
Measurement	Quantitative (GDP growth, Per Capita Income).	Qualitative (HDI, Literacy, Infant Mortality, Gender indexes).
Effect	Brings about quantitative changes in the economy.	Results in both qualitative and quantitative changes.
Relevance	Reflects the growth of national income.	Reflects progress in the quality of human life.

The Significance of Growth & Development

Their importance of Growth and Development lies in their ability to guide **conscious public policy**.

- **The Utility of Growth:** Growth is a vital tool for international financial planning and comparative economics. Because it is **quantifiable**, it allows nations to measure their progress in absolute terms and helps global institutions plan future financial aid or investment.
- **The Necessity of Development:** Growth without development is hollow. Just as individuals must make an effort to increase their income, a nation must make a **conscious effort** to increase its development. High growth with low development eventually leads to a "decline in growth" because a frustrated, unhealthy, or uneducated population cannot sustain an economy in the long run.
- **The Virtuous Cycle:** If growth is used properly for development—by investing in the people—it "re-accelerates growth". It brings a larger portion of the population into the productive economy, creating a cycle of prosperity that feeds itself.

We must view **Economic Development as a subset of Economic Growth**, but with a much broader scope. While growth gives us the "wealth," development ensures that this wealth is for the **benefit of the residents**. In the context of India's journey, we must move beyond the "Hindu rate" or "jobless growth" into a phase where our rising GDP translates directly into the literacy of our daughters, the health of our infants, and the dignity of our workers. Growth is the start, but development is the destination.

The Indicators of Economic Development

Economic development is the "soul" of an economy, whereas growth is merely the "body." To measure it, we move away from simple GDP and look at qualitative indicators

that reflect society's material well-being. These indicators include:

- **Literacy Rate:** A measure of the population's skill and efficiency.
- **Infant Mortality and Life Expectancy:** Mirrors of a nation's healthcare quality and nutritional standards.
- **Gender-Related Indexes:** Because progress is hollow if half the population is left behind.
- **Human Poverty Index (HPI):** Focusing on deprivation rather than just income.

The HDI and Its Different Forms

The HDI, introduced by the UNDP, is a composite statistic that acts as a yardstick for human potential. Over the years, it has evolved into different forms to capture the "hidden" truths of an economy:

- **The Standard HDI:** The classic measure of health, education, and income.
- **Inequality-adjusted HDI (IHDI):** This is the "reality check." It adjusts the HDI for inequality; if inequality is high, the IHDI falls significantly below the standard HDI.
- **Gender Development Index (GDI):** Measures the gap between men and women in development achievements.
- **Multidimensional Poverty Index (MPI):** Identifies overlapping deprivations at the household level.

The Three Components of HDI

The HDI is built on three essential pillars, each representing a different dimension of human possibility:

1. **A Long and Healthy Life:** Measured by **life expectancy at birth**. For India, this reached a record 72 years in 2023, thanks to schemes like *Ayushman Bharat* and *Poshan Abhiyaan*.
2. **Knowledge:** Measured by **mean years of schooling** and **expected years of schooling**. India has seen children's expected time in school rise to 13 years, though the quality of learning remains a challenge.
3. **A Decent Standard of Living:** Measured by **Gross National Income (GNI) per capita** based on Purchasing Power Parity (PPP). India's GNI per capita has risen over fourfold since 1990 to USD 9,046.

The Significance of HDI

Why do we care about a rank? Because HDI is the bridge between growth and development.

- **Policy Precision:** It helps the government identify whether "national income growth" is translating into "quality of life".
- **Global Credibility:** International institutions use this data for financial planning and assessing a country's risk.
- **Quantifiability:** It turns complex social changes into a number that can be tracked and compared across 193 nations.

The Global Human Development Report 2025

The 2025 report, titled "**A Matter of Choice: People and Possibilities in the Age of AI**," highlights a world at a crossroads.

- **Stalled Progress:** Global development is slowing down. The gap between the richest and poorest nations is widening.

- **The AI Frontier:** Artificial Intelligence is the new driver of development. While 60% of people believe AI will create jobs, half fear it will replace their current roles.
- **Top and Bottom:** Iceland leads the world (0.972), while South Sudan remains at the bottom (0.388).

India and the HDI of 2025

India's performance in the 2025 report is a story of "steady strides" hampered by "deep gaps".

- **The Rank:** India is ranked **130th** out of 193 countries. This is an improvement from 133rd in 2022.
- **The Category:** With an HDI value of **0.685**, India is in the "Medium Human Development" category but is knocking on the door of "High Human Development" (0.700).
- **The Regional Context:** We trail behind China (78th) and Sri Lanka (89th) but remain ahead of Pakistan (168th).
- **The AI Leader:** India is emerging as a global AI hub, with the highest self-reported AI skills penetration and a growing number of researchers staying in the country.
- **The Inequality Trap:** This is India's biggest hurdle. **Inequality reduces India's HDI by 30.7%.** This loss is one of the highest in the region, largely due to gender disparities and wealth concentration.

Conclusion

India is no longer a country struggling with "baseless growth." We have the wealth, and we have the technology. The 2025 HDR makes it clear that our future depends on a **"human-centered AI policy"** and a head-on confrontation with inequality. As the report

suggests, inclusion is not just a moral choice; it is a strategic necessity for a USD 10 trillion economy. We must ensure that the "digital footprints" we leave behind lead toward a better life for every Indian, not just a higher rank on a global list.

As we move toward **Viksit Bharat**, we must recognize that "Economic Growth is a subset of Economic Development". Having a higher GDP is meaningless if our "Human Development achievements" are eroded by a 30.7% loss due to inequality and gender disparities.

Previous Year Questions

1. Distinguish between the Human Development Index (HDI) and the Inequality-adjusted Human Development Index (IHDI) with special reference to India. Why is the IHDI considered a better indicator of inclusive growth? (150w) **[2025]**
2. Distinguish between 'care economy' and 'monetized economy'. How can care economy be brought into monetized economy through women empowerment? [250 Words] [15 Marks] [2023]
3. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments. [150 Words] [10 Marks] [2019]

Answering Guidelines

I. Introduction (Approx. 30–40 words)

- **Objective:** Define the core divergence between the two indices immediately.

- **Key Concept:** Introduce the **Human Development Index (HDI)** as an aggregate measure of a nation's average achievements in health, knowledge, and standard of living.
- **The Pivot:** Introduce the **Inequality-adjusted Human Development Index (IHDI)** as the diagnostic tool that adjusts these averages to reflect internal distribution, capturing the reality of development as experienced by the citizen.

II. Body Paragraph 1: Structural Distinctions with Special Reference to India (Approx. 90–100 words)

- **The Statistical Blindspot:** Explain that the HDI operates on an assumption of perfect equality, smoothing over internal polarization.
- **The "Inequality Discount" in India:** Detail how India's transition into a global digital and economic power coexists with a stark "**inequality discount**." When India's HDI is adjusted for inequality to calculate the IHDI, its score drops significantly.
- **Dimension-Specific Realities:**
 - *Health & Standard of Living:* Explain that the drop highlights the uneven distribution of wealth and healthcare, exposing the gap between industrialized urban growth and rural informality.
 - *Education:* The discount reflects the rigid digital divide and systemic access barriers embedded in the traditional social stratification.

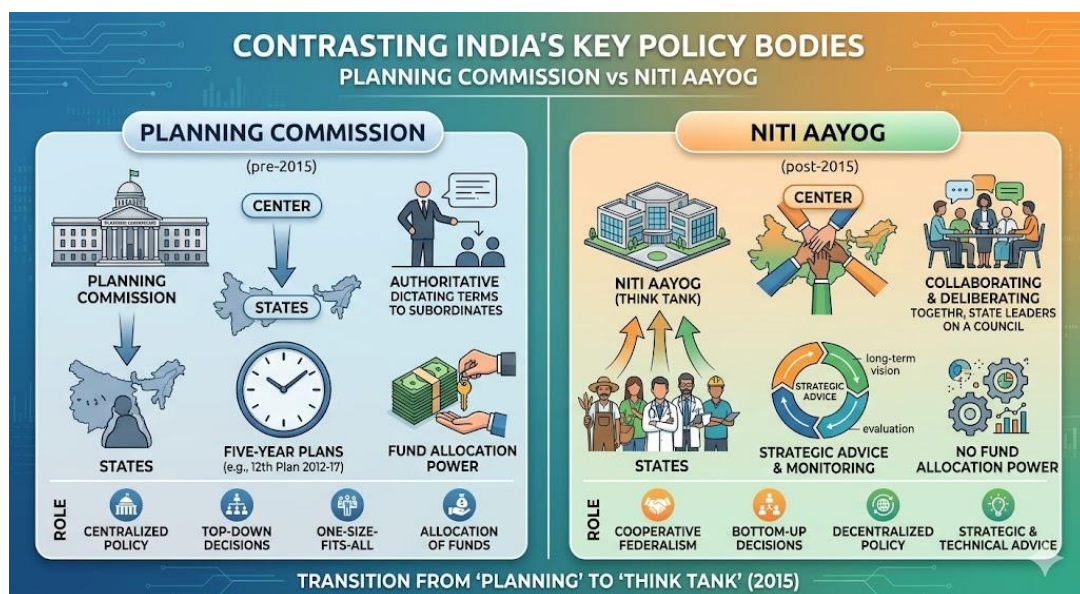
III. Body Paragraph 2: Why IHDI is a Superior Indicator of Inclusive Growth (Approx. 80–90 words)

- **From Potential to Reality:** While the HDI tracks aggregate macroeconomic potential, the IHDI evaluates structural inclusivity. It effectively applies the "**Person in the Last Row**" test to national statistics.
- **Capturing Multi-Dimensional Deprivation:** Inclusive growth cannot be measured purely by Per Capita Income expansion. The IHDI mathematically factors in the distribution of health and education, exposing whether the "economic pie" is truly being shared or concentrated within elite enclaves.
- **Policy Calibration:** It shifts the state's role from merely expanding the economy to fixing the "leaky pipes" of implementation, steering governance toward targeted social engineering and empowerment.

IV. Conclusion (Approx. 30 words)

- **Synthesize the Vision:** Conclude that the IHDI moves the definition of progress away from aggregate wealth toward distributive justice. For an aspiring **Viksit Bharat**, the IHDI serves as a vital moral compass, ensuring that economic growth translates into genuine human development for all.

6. Planning and NITI Aayog.



The story of India's economic journey is a long, winding road that began with a deep-seated belief in "planning." For decades, we looked to the state as the architect of our future, drafting meticulous Five-Year Plans to transform a post-colonial nation into a modern industrial power. However, as the world changed, so did our approach. Today, the old command-and-control planning has given way to a more fluid, collaborative model under **NITI Aayog**.

The analysis of how planning in India evolved from the socialist dreams of the 1950s to

the digital cooperative federalism of the present.

The History of Planning in India

While official planning began in 1951, the intellectual groundwork was laid much earlier. Even before independence, visionaries were debating how to retrieve India from the poverty trap.

- **The Early Blueprints:** In 1938, the Indian National Congress set up the **National Planning Committee**. This was followed by several proposals in 1944-45, including the **Bombay Plan** (by industrialists), the **Gandhian Plan**, and the **People's Plan**.
- **The Birth of the Planning Commission:** In March 1950, the Government of India established the Planning Commission. Its mandate was simple yet massive: assess the country's resources and formulate plans for their most effective and balanced utilization to raise the standard of living.
- **The Soviet Influence:** Our first Prime Minister, Jawaharlal Nehru, was deeply influenced by the Soviet model of centralized Five-Year Plans (FYPs). From 1951 to 2017, India launched twelve such plans, interspersed with "Plan Holidays" during times of war or economic crisis.

Achievements and Significance of the Planning Era

The era of Five-Year Plans was not just about numbers; it was about building a nation from scratch. Some important achievements are

- **Industrial Foundations:** The **Second Plan (Mahalanobis Plan)** shifted focus toward heavy and basic industries, creating the "temples of modern India"—our steel plants and power projects.

- **The Green Revolution:** During the "Plan Holidays" (1966–69), a new agricultural strategy involving high-yielding varieties of seeds and fertilizers was implemented, eventually making India self-sufficient in food.
- **Breaking the "Hindu Rate of Growth":** For decades, India grew at a slow pace of about 3.5%. The **Seventh and Eighth Plans** finally broke this cycle, with the Eighth Plan (1992-97) achieving a record 6.8% growth following the 1991 reforms.
- **Poverty and Literacy:** Over sixty years, planning helped reduce the headcount ratio of poverty and significantly increased life expectancy and literacy rates.

NITI Aayog: The New Architect

On January 1, 2015, the Planning Commission was replaced by the **NITI Aayog (National Institution for Transforming India)**. This wasn't just a name change; it was a fundamental shift in philosophy.

Objectives and Necessity

The old Planning Commission followed a "top-down" approach, where the Center told the States what to do. NITI Aayog was born out of the necessity to move toward **Cooperative Federalism**—the idea that "strong States make a strong nation". Its primary objective is to foster a genuine partnership with states, replacing the one-way flow of policy with a continuous dialogue.

The Structure and Function

NITI Aayog serves as the government's "Think Tank."

- **Structure:** It is headed by the **Prime Minister** (Chairperson) and includes a Governing Council comprising all State Chief Ministers and Lt. Governors of Union Territories.
- **Functions:** Unlike the old body, NITI Aayog does not allocate funds; that power now rests with the Ministry of Finance. Instead, it focuses on strategic and long-term policy frameworks, monitoring and evaluating programs, and acting as a platform for resolving inter-sectoral and inter-departmental issues.

How NITI Aayog Differs from the Planning Commission.

Feature	Planning Commission (Old)	NITI Aayog (New)
Approach	Top-down (Center to States).	Bottom-up (Cooperative Federalism).
Financial Power	Had the power to allocate plan funds to states.	No power to allocate funds; serves as a think tank only.
Role of States	States participated as "spectators" in the NDC.	States are equal partners in the Governing Council.
Nature of Planning	Often prescriptive and centralized.	Proactive, consultative, and "indicative".

Achievements of NITI Aayog So Far

In its relatively short life, NITI Aayog has changed the way India thinks and progress towards development:

- **Competitive Federalism:** Through indices like the **Sustainable Development Goals (SDG) India Index** and the Health Index, it has encouraged states to compete with each other to improve social outcomes.
- **Aspirational Districts Program:** This flagship initiative focuses on transforming the 112 most under-developed districts in India by monitoring progress in real-time.
- **Atal Innovation Mission (AIM):** It has fostered a culture of innovation across schools and colleges by setting up thousands of "Atal Tinkering Labs."
- **Policy Reforms:** It played a key role in the rationalization of **Centrally Sponsored Schemes (CSS)**, giving states more flexibility in how they spend development money.

Conclusion

The transition from the Planning Commission to NITI Aayog reflects India's evolution from a fledgling, state-led economy to a vibrant, market-oriented global player. While the Five-Year Plans built our physical foundations, NITI Aayog is building our **institutional capabilities**.

In this new era, planning is no longer an "open process" of imposing targets from Delhi. It is a democratic political process where the Centre and States work as a single team. As the subtitle of the Twelfth Plan suggested—"Faster, Sustainable, and More Inclusive Growth"—the goal remains the same, but the path we take is now more collaborative and data-driven than ever before.

Previous Year Questions

1. How are the principles followed by NITI Aayog different from those followed by the erstwhile planning commission in India? [250 Words] [15 marks] [2018]

Answering Guidelines & Structural Blueprint

For this 15-mark question from General Studies Paper 3 (Indian Economy and Governance), your answer must clearly contrast the philosophical and operational paradigms of the two institutions.

Using the structural toolkit, structure your answer into the following distinct sections:

I. Introduction (Approx. 30–40 words)

- **Objective:** Define the historical transition and structural shift between the two bodies.
- **Key Guidelines:**
 - Identify the **erstwhile Planning Commission** as a top-down administrative body functioning in a highly centralized economy.
 - Introduce **NITI Aayog** (National Institution for Transforming India) as a modern policy think tank launched to act as a catalyst for a **Viksit Bharat**.
 - State the core evolutionary difference: *A shift from a command-and-control directive model to an inclusive, consultative framework.*

II. Body Paragraph: Core Principles of Divergence (Approx. 150–160 words)

Use a well-structured comparative format to directly highlight the shifting paradigms across critical pillars:

- **Top-Down vs. Bottom-Up Approach (Decentralization):**
 - *Planning Commission:* Followed a rigid "**One-Size-Fits-All**" command model, where plans were conceived in New Delhi and imposed uniformly on diverse states.
 - *NITI Aayog:* Operates as a "**Salad Bowl**" of **regional aspirations**, formulating strategies from the village level up to the national mandate.
- **Centralization vs. Cooperative Federalism:**

- *Planning Commission*: Functioned as a bureaucratic gatekeeper, with states acting as passive recipients of central financial allocations.
- *NITI Aayog*: Acts as an institutional bridge promoting **Cooperative and Competitive Federalism**, giving Chief Ministers an equal voice at the Governing Council table.
- **Financial Allocations vs. Think-Tank Mandate:**
 - *Planning Commission*: Possessed the sweeping power to allocate central plan funds and discretionary grants to states, often creating fiscal friction.
 - *NITI Aayog*: Stripped of all financial allocation powers (which now rest entirely with the Ministry of Finance); it functions purely as an **information utility** and strategic advisor.
- **Role of the Market and Stakeholders:**
 - *Planning Commission*: Primed the state as the sole economic driver, often viewing market-linked initiatives with skepticism.
 - *NITI Aayog*: Fosters a collaborative ecosystem by integrating the **State, Market, and Civil Society**, championing grassroots capitalism and digital ecosystems like the **JAM Trinity**.

III. Conclusion & Way Forward (Approx. 40–50 words)

- **Objective:** Synthesize the overarching significance of the shift.
 - **Key Guidelines:**
 - Conclude that NITI Aayog represents a structural evolution from a *policeman* of state finances to a *partner* in national development.
 - Emphasize that in a highly competitive global economy, replacing rigid bureaucratic control with agile, data-driven governance is the only viable path to unlocking India's true demographic dividend and achieving long-term inclusive growth
-

7. The Mobilisation of Resources.



Defining Resource Mobilisation

The mobilisation is the bridge between a "resource" and an "outcome." It involves the

systematic gathering of various assets and directing them toward specific developmental targets. Whether it is building a highway or launching a satellite, the first step is always the same: identifying what we have and figuring out how to bring it all together for the public good.

The Three Pillars of Resources

To mobilise effectively, we must first understand the three distinct types of resources that form the backbone of the Indian economy.

I. Natural Resources

These are the gifts of nature—the land, minerals, water, and forests. In India's planning history, the "efficient exploitation of the resources of the country" has always been a primary objective. However, as we move toward "Sustainable and More Inclusive Growth," the focus has shifted from mere extraction to responsible management.

II. Man-Made Resources (Financial Capital)

This is the "grease" that keeps the economic engine turning. It exists in several forms:

- **Debt Instruments:** Borrowing money through bonds or loans that must be repaid with interest.
- **Equity Instruments:** Raising capital by selling shares or ownership in a venture.
- **Grants and Subsidies:** Direct financial support from the government to lower costs for the common man or to encourage specific industries, such as the "targeted subsidies" mentioned in the Twelfth Plan.

III. Human Resources

Perhaps the most important resource of the 21st century. It is not just about population size, but the **quality** of that population. This includes:

- **Skills and Knowledge:** The "human capital" developed through improved education and health.
- **Technology:** The "efficiency" that allows us to produce more with less. India is currently leveraging this through AI to enhance productivity in healthcare and agriculture.

The Agents of Mobilisation

Who does the work of gathering these resources? In a modern economy like India's, there are three main actors:

1. **The Government:** Through policy and planning, the government determines priorities and allocates resources for the "balanced utilisation" of the country's wealth.
2. **Financial Intermediaries:** These are the "middlemen" like banks and insurance companies that take the small savings of individuals and lend them to large projects.
3. **The Market:** The stock exchange and private investors who direct capital toward the most efficient and profitable businesses.

Why Is Mobilisation Necessary?

For a welfare state like India, resource mobilisation is the only way to move from a "Medium" to a "High" level of human development. It serves three critical needs:

1. **Diversification:** We cannot rely solely on agriculture. Mobilising resources allows us to build a manufacturing base and a thriving services sector.
2. **Self-Reliance:** As highlighted in the **Third Five-Year Plan**, the goal was to make India a "self-reliant and self-generating economy". By using our own resources, we reduce our vulnerability to global shocks.
3. **Development:** True development—improving life expectancy, literacy, and per capita income—requires a "long chain of interconnected changes" that only sustained mobilisation can provide.

Sources of Resource Mobilisation

Where does the money and material actually come from? We can divide these into two broad streams: Private and Public.

I. Private Sources

- **Financial Institutions (F.Is):** Private banks and insurance companies that provide the bulk of industrial credit.
- **Cooperatives and Credit Unions:** Vital for rural development, allowing farmers to pool their small resources for collective benefit.
- **Investors (Angel and Venture Capital):** These are the modern fuel for startups, providing "risk capital" to turn innovative ideas into businesses.
- **Banks:** The traditional backbone of the Indian financial system.

II. Public Sources

- **Taxes:** The most significant source. The introduction of the **GST** has been a major reform, helping the government track "digital footprints" and improve tax compliance.

- **Non-Tax Revenues:** Income from government services, dividends from Public Sector Enterprises (PSEs), and interests.
- **Savings and Investments:** Domestic savings are a major pillar of Indian growth, averaging over 33% of GDP during the Eleventh Plan.
- **External Resources:** This includes Foreign Direct Investment (FDI) and "Net Inflow from Abroad," which helps bridge the gap when domestic resources fall short.

The Evolving Nature of Mobilisation

In the early decades, mobilisation was a "top-down" process. The **Planning Commission** determined how every rupee would be spent. However, the **Eighth Five-Year Plan** marked a shift toward "indicative" planning, where the state plays the role of a facilitator for the private sector.

Today, with the creation of **NITI Aayog**, mobilisation has become a partnership between the Center and the States. We are moving away from "proxy-based" estimates to "evidence-based" governance, using tools like GST filings and digital transaction data to see exactly where our resources are and how they are moving.

As we have seen from the **2025 Human Development Report**, growth is a matter of choice. We have the natural resources, we are building the financial capital, and we possess a massive human resource base that is leading the world in AI skills.

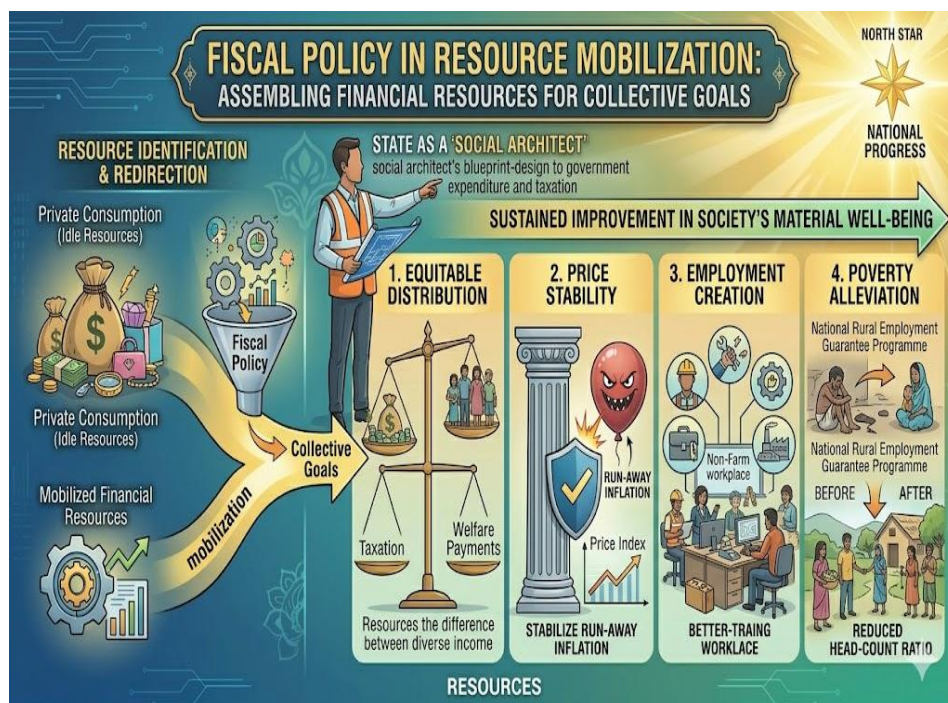
However, the real challenge of mobilisation in India remains **Inclusion**. If 30.7% of our human development potential is lost to inequality, it means our mobilisation is incomplete. We must ensure that the "material well-being" we seek reaches the 135 million Indians who have recently escaped multidimensional poverty.

Mobilisation is not just about "how much" we gather, but "for whom" we gather it. As we

aim for a **\$10 trillion economy**, our success will be measured not just by our fixed investment rate of 35%, but by the "Vishwa Mitra" (global credibility) we gain through a truly developed and equitable society.

8. Fiscal Strategy in Resource mobilisation in India.

When we speak of Fiscal Policy from the perspective of **Resource Mobilization**, we are essentially talking about how the state gathers the "fuel" (capital) and decides which "fires" (sectors) to feed to keep the nation moving.



Defining Fiscal Policy in Resource Mobilization

Fiscal policy is the use of government expenditure and taxation to influence the economy. From a resource mobilization perspective, it is the process of **assembling and**

organizing financial resources for collective goals. It is not just about collecting money; it is about the "sustained improvement in society's material well-being".

The state acts as a "Social Architect." It identifies where resources are lying idle—perhaps in the form of excessive private consumption—and redirects them toward long-term investments like infrastructure, health, and education.

The Objectives of Fiscal Policy

A well-crafted fiscal policy does not just look at the bank balance; it looks at the people.

- **Equitable Distribution:** Growth is hollow if it is "baseless". Fiscal policy aims to ensure more equitable income distribution through progressive taxation and targeted welfare payments.
- **Price Stability:** Inflation is a "hidden tax" on the poor. Fiscal policy helps maintain price stability by managing the demand in the economy, ensuring that growth does not lead to "run-away inflation".
- **Employment Creation:** As we face the challenge of "jobless growth," fiscal policy must prioritize creating work opportunities, especially in the non-farm sector.
- **Poverty Alleviation:** By funding schemes like the *National Rural Employment Guarantee Programme*, fiscal policy directly attacks the "head-count ratio of poverty".

How Fiscal Policy Mobilizes Resources

The government has two main levers to move the mountains of national capital: **Revenue** and **Expenditure**.

I. Through Revenue (The Collection Phase)

The primary goal here is to increase the **ratio of savings in national income**.

- **Collective Saving for Investment:** Taxes are essentially a form of "forced" collective saving. Instead of people spending on luxury goods, the government takes a portion and saves it for public investments.
- **Transfer of Surplus:** Fiscal policy transfers surplus from high-income groups (through taxes) and channels it into national savings. This is vital for "capital formation," which is a key determinant of development.
- **The Digital Shift:** Modern revenue mobilization in India now uses "digital footprints". The **GST** and digital transaction data allow the government to see a more up-to-date and accurate view of the private sector, reducing "statistical pitfalls" and ensuring better tax compliance.

II. Through Expenditure (The Spending Phase)

Once the money is gathered, the way it is spent determines the "material progress" of the nation.

- **Filling the Gap:** The government makes "massive investments in basic and heavy industries" where the private sector might hesitate to enter due to low profits or high risks.
- **The Crowding-In Effect:** Unlike "crowding out" (where government borrowing leaves no money for others), smart public spending creates a "crowding-in" effect. When the state builds a highway or an energy plant, it makes it easier and more profitable for private companies to set up factories. This "re-accelerates growth" and brings a larger population into the development arena.

The History of Fiscal Policy in India's Resource Mobilization

India's fiscal journey has evolved through several distinct phases:

- **The Socialist Influence (1951–1979)::** Under the early Five-Year Plans, the emphasis was on a **growing public sector**. The state was the primary mobilizer, focusing on heavy industries like steel and power. The fiscal policy is of rigidity. However, this often led to "baseless growth," where poverty and unemployment remained high because the "base" of human capital was neglected.
- **The Debt Crisis (1980–1990):** To push growth higher, the government resorted to "fiscal expansion" funded by borrowing. This was "future-less" growth. The rising debt burden and widening budget deficits eventually led to the **Balance of Payments (BOP) crisis** in 1991.
- **Structural Adjustment (1991–2008):** Following reforms, the state's role shifted toward being a "facilitator". Fiscal policy began to emphasize private sector participation and FDI. Growth became "fragile" as it became more dependent on global financial conditions.
- **The Modern Inclusive Shift (2008–Present):** Today, fiscal policy is aimed "Towards Faster and More Inclusive Growth". We are moving from "proxy-based" estimates to "evidence-based" statistical governance, using tools like the **Aadhar platform** for direct cash transfers to ensure welfare payments reach the intended beneficiaries.

Fiscal Consolidation and "Viksit Bharat"

As we aim for a **\$10 trillion economy** and the vision of a developed India (*Viksit Bharat*), the "immediate priority" is **Fiscal Consolidation**.

Fiscal consolidation is the process of reducing the government's fiscal deficit and debt-to-GDP ratio. It is essential for several reasons:

1. **Reviving Sentiment:** High deficits create uncertainty among investors. By committing to a fiscal path (like the target to decline fiscal deficit to 3.0% of GDP), the government builds "global credibility" or *Vishwa Mitra*.
2. **Managing Inflation:** Reducing government borrowing helps the RBI manage "inflationary pressures," ensuring that the "pulse" of the country remains steady.
3. **Sustainable Investment:** Fiscal correction—such as reducing non-targeted subsidies—frees up resources for "long-term increase in investment and savings rate". This is necessary to bring the economy back to its real growth potential.
4. **Inclusion through Efficiency:** With "scarcity of resources," fiscal policy must improve the **efficiency of public expenditure**. This means using technology, like the **Bhashini project** for multilingual communication or AI for detecting fraud in welfare schemes, to ensure every rupee spent contributes to human development.

Conclusion

In the "Age of AI," the choices we make with our fiscal policy are more important than ever. We must confront the reality that **inequality reduces our HDI by 30.7%**. This means that while we are mobilizing finance capital effectively, we are failing to mobilize our "human capital" equitably.

Fiscal policy must move beyond being a tool for "national income growth" and become a tool for "material progress" for the residents of the nation. By maintaining a balance between **fiscal consolidation** and **inclusive spending**, India can ensure that its growth story is not just a "hallucination" of numbers, but a fact backed by the evidence of a better life for all its citizens. Inclusion is no longer optional; it is the strategic priority for the road to 2047.



11. *Journal of the American Medical Association*, 2000; 283: 2689-2696.

Unlike traditional growth models where the distribution is based on "trickle-down" effect, inclusive growth focuses on both the *outcomes* (reducing poverty and inequality) and the *process* (ensuring everyone can participate in and contribute to growth).

Key Pillars of Inclusive Growth

To achieve true inclusivity, an economy must address several interconnected dimensions:

- **Equal Opportunity:** Ensuring that individuals have access to essential services like education, healthcare, and clean water, regardless of their socio-economic background.
- **Employment Generation:** Creating "productive employment" rather than just low-wage jobs, allowing the workforce to earn a dignified living.
- **Skill Development:** Equipping the labour force with the necessary tools and training to participate in a modern, technology-driven economy.
- **Financial Inclusion:** Providing access to affordable financial services, such as banking, credit, and insurance, especially for marginalized groups and small businesses.
- **Social Protection:** Implementing safety nets (like pensions or food security programs) to protect the vulnerable from economic shocks.

Inclusive Growth vs. Economic Growth

Feature	Economic Growth	Inclusive Growth

Primary Metric	Increase in GDP/National Income.	Reduction in poverty, inequality, and unemployment.
Focus	Productive capacity and output.	Distribution of benefits and equality of opportunity.
Participation	Driven by capital-intensive sectors.	Driven by broad-based participation across sectors.
Sustainability	Often short-term or concentrated.	Long-term and environmentally sustainable.

Significance

Inclusive growth is considered essential for **social stability**. When large portions of a population are left behind while a small elite prospers, it can lead to social unrest, political instability, and a lack of trust in public institutions. By broadening the base of the economy, a nation ensures that its development is resilient and sustainable in the long run.

Evolution of Inclusive Growth in India

The concept has evolved from basic poverty alleviation to a comprehensive empowerment model:

- **Early Focus:** Post-independence, the focus was primarily on survival and basic infrastructure.
- **The 11th and 12th Five-Year Plans:** These were major turning points where "Inclusive Growth" and "Faster, More Inclusive and Sustainable Growth" became official national targets.
- **Current Shift:** Today, India follows a "Sabka Saath, Sabka Vikas" (Together with all, Development for all) philosophy. The emphasis has shifted toward leveraging digital public infrastructure (DPI) and AI to provide personalized learning and financial services to the last mile.

Salient Features of Inclusive Growth

1. Skill Development and Human Capital

- Employability depends on health, vocational training, and modern skills to capture the "demographic dividend".
- India faces a "skill mismatch" where conventionally educated youth often lack the specific skills needed by modern industry.
- Lifelong learning is now considered essential to prevent workers from becoming obsolete as technology changes.

2. Financial and Banking Inclusion

- It ensures marginalized populations have affordable access to banking, credit, and insurance.
- Tools like the Unified Payments Interface (UPI) and Aadhaar-linked accounts have brought millions into the formal economy.

- Access to formal credit helps small businesses (MSMEs) grow, creating a "virtuous cycle" of economic progress.

3. Technological Advancement

- The "Fourth Industrial Revolution" can either bridge or widen inequality; India uses it as a bridge.
- Digital India initiatives ensure that technology improves agriculture (agro-value chains), health delivery, and governance.
- AI is increasingly used to democratize education through adaptive learning platforms.

4. Sustainable Development and Social Justice

- Growth must be environmentally sustainable to protect the resources required by future generations.
- It seeks "good governance" to reduce corruption and inefficiency in public service delivery.
- A "gender-conscious society" is a core element, aiming to increase female labor force participation by reducing barriers like the "Pink Tax" on mobility.

Necessity of Inclusive Growth for India

1. **Demographic Realities:** With a massive working-age population peaking around 2030, India must create quality jobs to avoid "growing old before growing rich".
2. **Social Stability:** Growth that excludes large groups can lead to social unrest and a breakdown of trust in institutions.

3. **Human Development Index (HDI):** Inequality currently reduces India's potential HDI score by approximately 30.7%.
4. **Economic Resilience:** A broad-based economy where millions of people have purchasing power is more resilient to global shocks than one dependent on a small elite.

By focusing on these elements, India aims to transition from a medium to a high human development category, ensuring that every citizen is a partner in the nation's progress.

Inclusive Growth Strategy of the Government of India

Inclusive growth in India is defined not just by the pace of growth, but by its ability to reduce poverty and provide equal opportunities to all segments of society, particularly the marginalized. The current strategy emphasizes **Social Inclusion** and "Social Justice" as essential enablers of economic progress.

Key Strategies:

1. **Banking Inclusion:** The **Pradhan Mantri Jan Dhan Yojana (PMJDY)** remains the bedrock of financial inclusion, bringing millions into the formal banking system. This has been further strengthened by the **Unified Lending Interface (ULI)**, designed to ease credit constraints for small borrowers and MSMEs.
2. **Social Security Coverage:** The government has expanded the social safety net through schemes like the **Unified Pension Scheme (UPS)** and insurance covers like **PMJJBY** and **PMSBY**. The **Code on Social Security (2020)** aims to extend these benefits to the gig and platform workforce, marking a major step toward formalizing non-traditional employment.

3. **Infrastructure Connectivity:** Strategic focus on "Future-ready Digital Infrastructure" and physical connectivity (Roads, Railways, and Airways) is reducing logistics costs and integrating rural markets with the global value chain. The **PM Gati Shakti Master Plan** is a key driver in optimizing these routes.
4. **Affordability of Basic Needs:** Targeted interventions ensure the poor have access to essentials. This includes:
 - **Food Security:** Free food grains for approximately 78.9 crore beneficiaries under **PMGKAY**.
 - **Housing and Sanitation:** Continued momentum under **PMAY** and **Swachh Bharat Mission (SBM)**.
 - **Water Access:** The **Jal Jeevan Mission (JJM)** has significantly increased the status of tap water supply in rural homes.
5. **Formalisation:** Technology is being used to pull the informal sector into the formal fold. Tools like **GST** and the **e-Way Bill system** have deepened economic formalization.

Challenges to Inclusive Growth

Despite strong momentum, several structural and governance-related hurdles remain that could limit the reach of inclusive growth.

1. Governance and Administrative Deficits

- **Process vs. Purpose:** There is a subtle danger of institutions mistaking "procedure for purpose," where following rules becomes more important than achieving the actual developmental outcome.

- **State Capacity:** While the Union government has maintained fiscal discipline, several States face rising **revenue deficits** due to unconditional cash transfers, which risk crowding out essential capital investments in health and education.

2. Manpower and Skill Deficit

- **Employability Gap:** While the labor force participation rate (LFPR) is stabilizing, there remains a disconnect between classroom learning and career requirements.
- **Skill Ecosystem:** There is a critical need for a "Future-ready workforce" through better industry-academia integration and a focus on vocational education to address the skill deficit in emerging sectors like AI and Advanced Manufacturing.

3. Capital Deficit

- **High Cost of Capital:** India's high cost of capital is a structural outcome of being a savings-deficient economy that runs current account deficits. This makes investment more expensive for domestic firms compared to global peers.
- **MSME Credit Gap:** Small-value credit remains a challenge for unincorporated manufacturing enterprises, which are vital for mass employment.

Key Schemes of Inclusive Growth

The government utilizes "Mission-mode" platforms to drive social progress and ensure that the fruits of economic growth reach every citizen. Below is the organized list of key schemes for inclusive growth:

A. Financial and Digital Inclusion

1. **PM Jan Dhan Yojana:** Provides universal banking access to the unbanked, serving as the foundation for financial empowerment.
2. **Digital Public Infrastructure (DPI):** Utilizes the "JAM Trinity" (Jan Dhan, Aadhaar, and Mobile) to ensure leakage-free **Direct Benefit Transfers (DBT)** and reduce transaction costs.
3. **Unified Lending Interface (ULI):** Designed to ease credit constraints for small borrowers and MSMEs by streamlining the lending process.

B. Livelihood and Poverty Alleviation

1. **DAY-NRLM:** Empowers rural communities by supporting Self-Help Groups (SHGs) and aims to transform members into "Lakhpatti Didis" through sustainable income activities.
2. **VB-G RAM G:** Replaced MGNREGA in 2025, this mission focuses on providing guaranteed employment while creating productive, permanent assets in rural areas.

C. Healthcare and Social Security

1. **Ayushman Bharat (AB PM-JAY):** The world's largest public health insurance scheme, focusing on providing secondary and tertiary care hospitalization.
2. **Social Security Codes:** New reforms designed to extend insurance and pension benefits to the gig and platform workforce.

D. 4. Infrastructure and Connectivity

1. **Smart Cities & Smart Villages:** Programs aimed at integrating modern technology and sustainable infrastructure to bridge the developmental gap between urban and rural sectors.

2. **Jal Jeevan Mission (JJM):** Ensures the provision of safe and adequate drinking water through individual household tap connections.
3. **PM Awas Yojana (PMAY):** Focuses on providing affordable housing with basic amenities like water, sanitation, and electricity.

Inclusive Growth in the Budget 2026-27

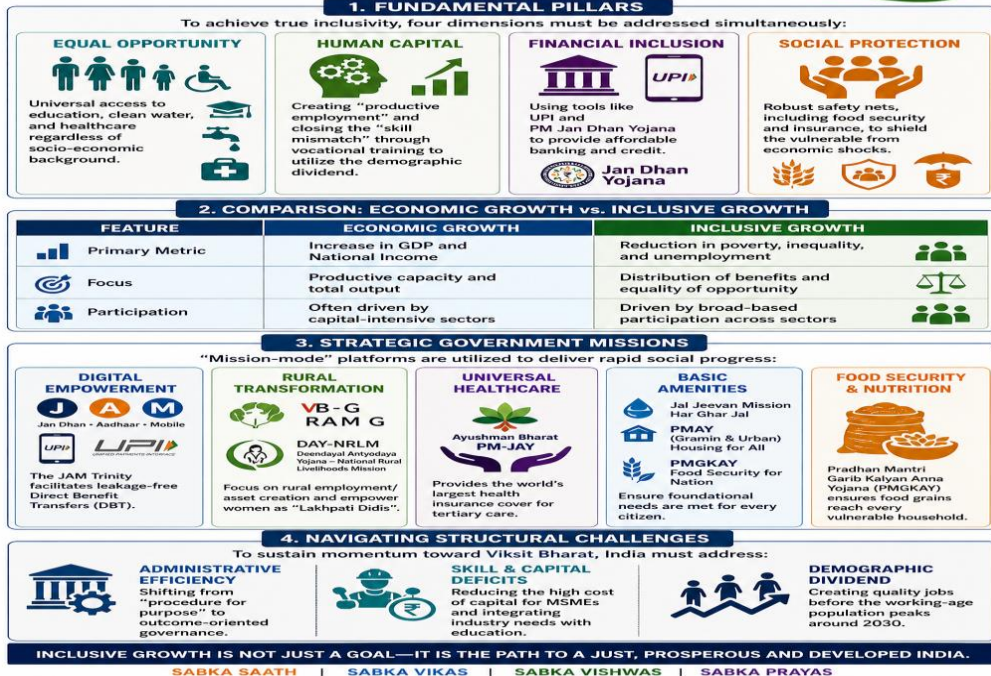
The fiscal strategy for **FY27** continues to anchor stability while pushing the growth frontier.

1. **Potential Growth:** The Survey revises India's medium-term potential growth rate to **7.0%**, up from 6.5%, citing the compounding effect of sustained structural reforms.
 2. **Fiscal Consolidation:** The government is on a path to reduce the Union fiscal deficit to **4.4%** in FY26, with a long-term goal of reaching a debt-to-GDP ratio of $50 \pm 1\%$.
 3. **Tax Relief:** Significant tax breaks were implemented for households in the 2026 budget to boost real purchasing power and support private consumption.
 4. **Strategic Sobriety:** For 2026, the policy stance is one of "strategic sobriety"—prioritizing shock absorption and domestic growth maximization to navigate global trade uncertainties and tariff pressures.
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10. Indias Strategy of Inclusive Growth

INDIA'S STRATEGY FOR INCLUSIVE GROWTH

India's strategy for inclusive growth aims to bridge the gap between economic expansion and social justice, ensuring that the fruits of progress are accessible to all, particularly the marginalized.



1. Primary Government Documents (The Statutory Sources)

- Union Budget 2026-27 (Key Features & Speech):** The primary source for the fiscal deficit target of **4.4%**, the concept of "**Strategic Sobriety**," and the introduction of the **Unified Lending Interface (ULI)**.
- Economic Survey 2025-26:** The foundation for the revised **7.0% medium-term potential growth rate** and the analysis of India's debt-to-GDP goals ($\$50 \pm 1\%$).
- NITI Aayog Strategy Documents:** Specifically those detailing the transition from MGNREGA to the **VB-G RAM G (2025)** and the mission to create "**Lakhpati Didis**" under the DAY-NRLM framework.

- **Ministry of Finance Implementation Reports:** Documents detailing the success and saturation levels of the **Jal Jeevan Mission**, **PM Awas Yojana**, and the **JAM Trinity** for Direct Benefit Transfers (DBT).

2. Statutory Reforms & Legal Frameworks

- **The Code on Social Security (2020):** Referenced for the inclusion of the **gig and platform workforce** into the formal social safety net.
- **GSTN & E-Way Bill Databases:** Utilized to support the narrative on the **formalization of the Indian economy** and the reduction of the informal-formal divide.
- **Digital Public Infrastructure (DPI) Blueprints:** Technical and policy briefs on the **"India Stack"** and how it facilitates "last-mile" delivery and inclusive banking.

3. International Frameworks & Reports

- **UNDP Global Human Development Report 2025:** The source for the specific statistic that **inequality reduces India's potential HDI score by 30.7%**.
- **Sustainable Development Goals (SDG) India Index (NITI Aayog):** The benchmark used to measure "Competitive Federalism" and sectoral progress in health, education, and sanitation.

4. Foundational Academic Narratives (The "Dutt & Sundaram" Style)

- **Five-Year Plan Epochs:** The classification of the **11th and 12th Five-Year Plans** as the formal starting points for the "Inclusive Growth" mandate.
- **Amartya Sen's "Development as Freedom":** The theoretical underpinning for focusing on "Capabilities" (education and health) rather than just "Income."

- **Classical Sectoral Analysis:** The discussion on the "**Skill Mismatch**" and the "**Missing Middle**" (labor-intensive manufacturing) typical of structural-historical Indian economic narratives.

5. Sectoral & Thematic References

- **Ministry of Skill Development & Entrepreneurship (MSDE) Reports:** Data on the employability gap and the necessity of **Lifelong Learning** in the age of AI.
- **National Health Authority (NHA) Briefs:** Updates on the **Ayushman Bharat** (AB PM-JAY) coverage and secondary/tertiary care hospitalization trends.
- **Ministry of Consumer Affairs Reports:** Statistics regarding the **PMGKAY** and food security for 78.9 crore beneficiaries.

Suggested Further Reading for Civil Services Preparation:

To master the "Inclusive Growth" theme, students should focus on the "**Social Infrastructure, Employment and Human Development**" chapter of the *Economic Survey 2025-26* and the **NITI Aayog's "Viksit Bharat @ 2047"** vision document, which outlines the road from "Survival" to "Empowerment."

Previous Year Question

Q. Examine the pattern and trend of public expenditure on social services in the post-reforms period in India. To what extent this has been in consonance with achieving the objective of inclusive growth? **[2024]**

Q.1) Is inclusive growth possible under market economy? State the significance of financial

inclusion in achieving economic growth in India.[150 Words] [10 Marks] [2022]

Q.2) Explain intra-generational and inter-generational issues of equity from the perspective of inclusive growth and sustainable development. [150 Words] [10 Marks] [2020]

Q.3) It is argued that the strategy of inclusive growth is intended to meet the objectives of inclusiveness and sustainability together. Comment on this statement. [250 Words] [15 marks][2019]

Q.4)“Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)”. Comment on the progress made in India in this regard. [150 Words] [10 Marks] [2018]

Q.5) What are the salient features of ‘inclusive growth’? Has India been experiencing such a growth process? Analyze and suggest measures for inclusive growth. [250 Words] [15 marks] [2017]

Q.6) Pradhan Mantri Jan-Dhan Yojana (PMJDY) is necessary for bringing unbanked to the institutional fiancé fold. Do you agree with this for financial inclusion of the poorer section of the Indian society? Give arguments to justify your opinion. [200 Words] [12.5 Marks] [2016]

Q.7) What are ‘Smart Cities’? examine their relevance for urban development in India. Will it increase rural-urban differences? Give arguments for ‘Smart Villages’ in the light of PURA and RURBAN Mission. [200 Words] [12.5 Marks] [2016]

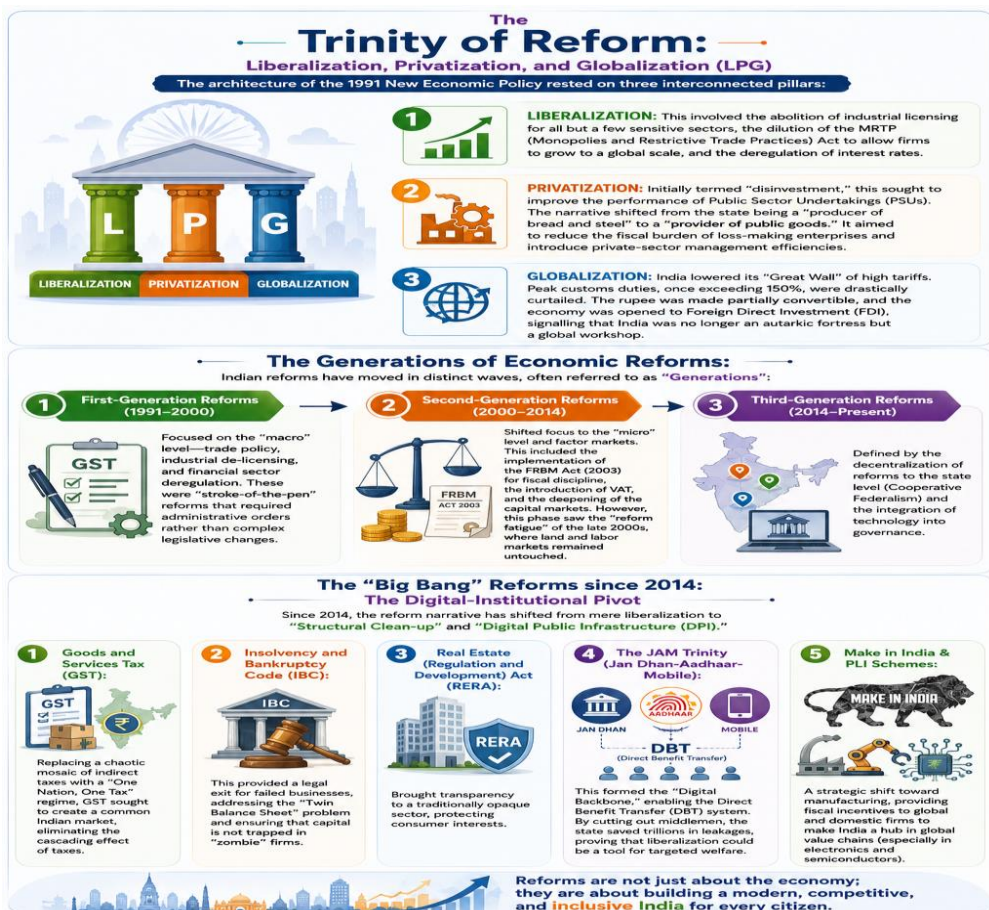
Q.8) Comment on the challenges for inclusive growth which include careless and useless manpower inthe Indian context. Suggest measures to be taken for facing these challenges.[200 Words] [12.5Marks] [2016]

Q.9) Capitalism has guided the world economy to unprecedented prosperity. However, it often encourages short-sightedness and contributes to wide disparities between the rich

and the poor. In this light, would it be correct to believe and adopt capitalism for bringing inclusive growth in India? Discuss. [200 Words] [12.5 Marks] [2014]

Section –II – Economic Liberalisation

I. India's Economic Liberalisation & its impact



The Concept of Economic Liberalization: Unshackling the Caged Tiger

In the Indian context, economic liberalization signifies the systemic withdrawal of the state from being the "commanding heights" of the economy to enable the market forces. It is not merely the reduction of taxes but the fundamental dismantling of the **"License-Permit-Quota Raj."** Historically, the Indian state functioned as a wary gatekeeper, where every industrial expansion, product diversification, or foreign collaboration required the strict approval of a centralized bureaucracy.

Liberalization sought to transform this role from being a regulator into a facilitator, replacing administrative discretion with the "invisible hand" of the market to drive efficiency, innovation, and consumer sovereignty.

The Genesis: The 1991 Balance of Payments (BOP) Crisis

The transition was not a product of ideological evolution but of a desperate fiscal necessity. By June 1991, India stood at the precipice of a sovereign default. The nation's foreign exchange reserves had plummeted to a meagre **\$1.2 billion**, barely enough to finance two weeks of essential imports like oil and life-saving medicines.

The crisis was further exasperated by a "twin deficit" problem—persistent fiscal profligacy in the decade 1980s and a widening current account deficit. The external shock of the **Gulf War**, which led to a spike in oil prices and a sharp decline in remittances from Indian workers in West Asia, acted as the final blow.

With the airlifting of 47 tonnes of gold to the Bank of England as collateral for a loan, the "Hindu Rate of Growth" era was forcibly closed. Under the aegis of the IMF and World Bank's "Structural Adjustment Program," India adopted a new era of the LPG paradigm.

The Trinity of Reform: Liberalization, Privatization, and Globalization (LPG)

The architecture of the 1991 New Economic Policy rested on three interconnected pillars:

1. **Liberalization:** This involved the abolition of industrial licensing for all but a few sensitive sectors, the dilution of the **MRTTP (Monopolies and Restrictive Trade Practices) Act** to allow firms to grow to a global scale, and the deregulation of interest rates.
2. **Privatization:** Initially termed "disinvestment," this sought to improve the performance of Public Sector Undertakings (PSUs). The narrative shifted from the state being a "producer of bread and steel" to a "provider of public goods." It aimed to reduce the fiscal burden of loss-making enterprises and introduce private-sector management efficiencies.
3. **Globalization:** India lowered its "Great Wall" of high tariffs. Peak customs duties, once exceeding 150%, were drastically curtailed. The rupee was made partially convertible, and the economy was opened to **Foreign Direct Investment (FDI)**, signalling that India was no longer an autarkic fortress but a global workshop.

The Generations of Economic Reforms:

Indian reforms have moved in distinct waves, often referred to as "Generations":

1. **First-Generation Reforms (1991–2000):** Focused on the "macro" level—trade policy, industrial de-licensing, and financial sector deregulation. These were "stroke-of-the-pen" reforms that required administrative orders rather than complex legislative changes.
2. **Second-Generation Reforms (2000–2014):** Shifted focus to the "micro" level and factor markets. This included the implementation of the **FRBM Act (2003)** for fiscal discipline, the introduction of VAT, and the deepening of the capital markets. However, this phase saw the "reform fatigue" of the late 2000s, where land and labor markets remained untouched.

3. **Third-Generation Reforms (2014–Present):** Defined by the decentralization of reforms to the state level (Cooperative Federalism) and the integration of technology into governance.

The "Big Bang" Reforms since 2014: The Digital-Institutional Pivot

Since 2014, the reform narrative has shifted from mere liberalization to **"Structural Clean-up"** and **"Digital Public Infrastructure (DPI)."**

1. **Goods and Services Tax (GST):** Replacing a chaotic mosaic of indirect taxes with a "One Nation, One Tax" regime, GST sought to create a common Indian market, eliminating the cascading effect of taxes.
2. **Insolvency and Bankruptcy Code (IBC):** This provided a legal exit for failed businesses, addressing the "Twin Balance Sheet" problem and ensuring that capital is not trapped in "zombie" firms.
3. **Real Estate (Regulation and Development) Act (RERA):** Brought transparency to a traditionally opaque sector, protecting consumer interests.
4. **The JAM Trinity (Jan Dhan-Aadhaar-Mobile):** This formed the "Digital Backbone," enabling the **Direct Benefit Transfer (DBT)** system. By cutting out middlemen, the state saved trillions in leakages, proving that liberalization could be a tool for targeted welfare.
5. **Make in India & PLI Schemes:** A strategic shift toward manufacturing, providing fiscal incentives to global and domestic firms to make India a hub in global value chains (especially in electronics and semiconductors).

Conclusion: The Balanced Judgment

To view the 1991 reforms holistically, the tradition is to recognize that economic policy is a social contract. The reforms successfully "enlarged the pie," but the challenge of "equitable distribution" remains an unfinished agenda.

Liberalization was never a destination; it was a corrective mechanism to unlock the latent energy of a civilization. As India navigates the complexities of the 21st-century global order—marked by de-globalization and AI disruptions—the state must continue to evolve.

It must move away from being a "Factory Manager" and become a robust **"Regulatory Enabler"** that ensures market competition while providing a high-tech safety net for the vulnerable.

The "Great Transformation" started in a crisis of insolvency; its next phase must be driven by a vision of inclusivity and sovereign strength. India's economic odyssey is a testament to the fact that while markets are efficient servants, the welfare of the last person (Antyodaya) remains the only legitimate master of the state.

Macro-Economic Impact: The Statistical Transformation

The impact of these cumulative reforms has been staggering. India's GDP, which was approximately **\$270 billion in 1991**, has soared to **\$3.9 trillion (2024)**, making it the 5th largest economy.

1. **FDI Inflows:** From a trickle of \$133 million in 1991, India attracted over **\$70-80 billion** annually in recent years, reflecting global confidence.
2. **Forex Reserves:** From a near-zero state, India now sits on a comfortable cushion of over **\$650 billion**, providing a sovereign shield against external shocks.

3. **Poverty Reduction:** According to the UNDP and NITI Aayog, millions have been lifted out of multidimensional poverty post-reforms. The expansion of the middle class has turned India into one of the world's largest consumer markets.

The Transformation Effected: From Scarcity to Abundance

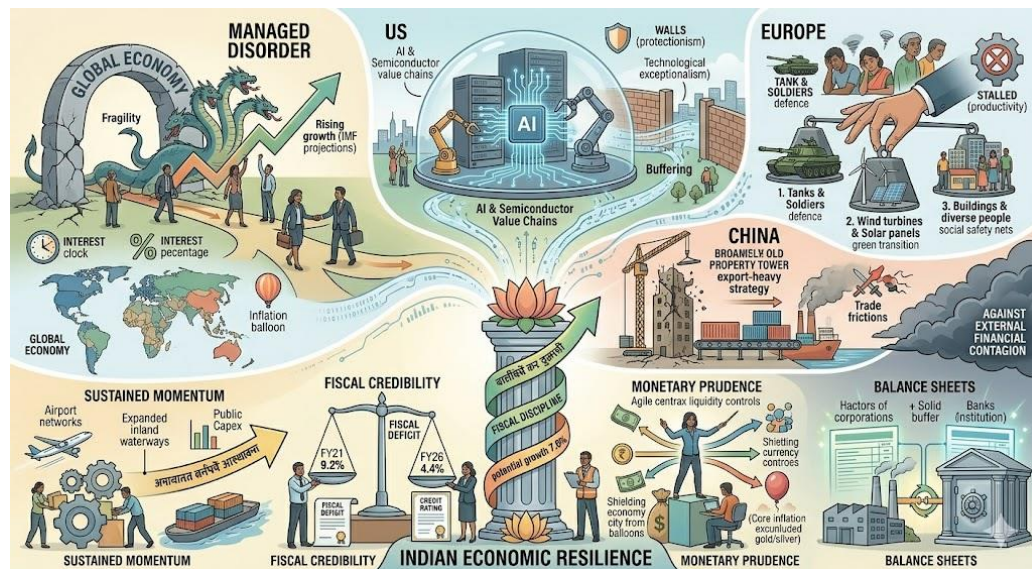
The qualitative transformation of the Indian psyche is perhaps the greatest reform. The pre-1991 "culture of scarcity"—symbolized by decades-long waiting lists for a telephone or a scooter—has been replaced by a "culture of choice." The Indian entrepreneur is no longer a "licence-seeker" but a "disruptor."

However, this growth has a "**dualistic**" character. While the "New Economy" (IT, FinTech, E-commerce) is world-class, the "Old Economy" (agriculture and traditional manufacturing) continues to grapple with low productivity. The services-led growth model has skipped the intensive manufacturing phase that characterized the rise of East Asian tigers, leading to the challenge of "jobless growth."

Way Forward: The journey that started in 1990 and move towards the "**Viksit Bharat @ 2047**" requires tackling the "hard" reforms:

1. **Labour and Land:** Consolidation of labour codes and digitizing land records are essential to lower the cost of doing business.
 2. **Human Capital:** Liberalization in the "soft" sectors—education and health—is needed to ensure that the demographic dividend does not become a demographic disaster.
 3. **Energy Transition:** Integrating globalization with "Green Growth" by becoming a leader in green hydrogen and solar energy.
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2. Indian Economy resilience in the 21st century world.



The Global Economic Landscape:

As we are navigating the mid-2020s, the global economy presents a study in contrast—a facade of stable aggregated growth masking deep-seated structural fragilities. The "New Normal" is no longer defined by the low-inflation, low-interest-rate environment of the previous decade, but by a "managed disorder." While the International Monetary Fund (IMF) has stabilized its growth projections for 2025-26 at approximately 3.2% to 3.3%, this stability is precariously perched.

The defining feature of the current era is the **divergence of macroeconomic trajectories**. The United States continues to exhibit a "technological exceptionalism," driven by massive investments in Artificial Intelligence (AI) and semiconductor value chains, which has acted as a buffer against the dampening effects of trade protectionism.

Conversely, Europe grapples with stagnant productivity and the fiscal "trilemma" of 1. Increasing defence spending, 2. Funding the green transition, and 3. Maintaining social safety nets. Meanwhile, the Chinese economy faces a structural slowdown, transitioning from a property-led investment model to an export-heavy strategy that is triggering fresh trade frictions globally.

The Resurgence of Global Headwinds: The Era of "Economic Statecraft".

The primary challenge to India's economic ambitions is the shift from a rules-based multilateral order to one dominated by **Economic Statecraft**. We are witnessing trend of the weaponizing the economic interdependence, where trade and finance are no longer just instruments of prosperity but tools of strategic coercion.

1. **Economic Nationalism and the "Tariff Wall":** The imposition of reciprocal and penal tariffs, particularly by the United States, signifies a retreat from globalization. This "New Protectionism" is not merely about protecting domestic jobs but is rooted in a desire for technological and supply-chain sovereignty.
2. **The "Global Sticks" of Regulation:** Beyond traditional tariffs, non-tariff barriers like the EU's **Carbon Border Adjustment Mechanism (CBAM)** and stringent **Quality Control Orders (QCOs)** act as "regulatory sticks." These measures, often under the guise of environmental or safety standards, impose a "tax" on emerging economies like India that are still in their energy-intensive phase of industrialization.
3. **Geopolitical Uncertainty and the Strategic Power Gap:** Geopolitical competition has moved from the periphery to the center of economic planning. The "Strategic Power Gap," as identified by the Lowy Institute, highlights a paradox: despite being the fastest-growing major economy, India's strategic influence often lags its economic weight due to external headwinds and internal factor-market rigidities.

4. **The Fragile Recovery:** Global growth is currently "savings-deficient." High sovereign debt levels and elevated long-term bond yields in Advanced Economies (AEs) have made capital expensive. For a country like India, which relies on foreign capital to bridge its current account gap, this translates into a "risk premium" that keeps the cost of capital high for domestic entrepreneurs.

Global Tailwinds: Navigating the Shifts in Globalization

Despite the prevailing gloom, the restructuring of the global order offers unique "tailwinds" for a proactive state. The transition from "Efficiency-First" to "Resilience-First" supply chains has opened new doors:

1. **Friend-shoring and China-Plus-One:** As Western democracies seek to "de-risk" their supply chains from concentrated geographies, India has emerged as a primary beneficiary of "friend-shoring." The relocation of high-value manufacturing—electronics, pharmaceuticals, and specialized chemicals—into the Indian ecosystem is a structural shift, not a cyclical one.
2. **Integration into Global Value Chains (GVCs):** The recent conclusion of Free Trade Agreements (FTAs), such as the one with the European Union, marks India's readiness to integrate with global technological frontiers. By lowering barriers for intermediate goods, India is positioning itself as a hub for "assembly-and-export," moving gradually toward high-end value addition.
3. **Digital Public Infrastructure (DPI) as a Global Export:** India's success in building a low-cost, scalable digital backbone (Aadhaar, UPI, AgriStack) has created a new category of "Soft Power." By exporting this template, India is building a community of interest that enhances its strategic indispensability.

Indian Economic Resilience: In the midst of Odds

India's performance in 2025-26 stands out as a "stellar anomaly." While the global system experienced episodic shocks, India's macroeconomic fundamentals remained robust, characterized by:

1. **Sustained Growth Momentum:** India has revised its potential growth rate upward to **7.0%**. This is not merely a statistical bounce-back but is supported by the doubling of the airport network, the expansion of inland waterways, and a massive push in public capital expenditure (Capex).
2. **Fiscal Credibility:** The government's success in reducing the fiscal deficit from 9.2% in FY21 to 4.8% in FY25, with a target of 4.4% for FY26, has earned it rare credit rating upgrades. This fiscal discipline, amidst global profligacy, is a cornerstone of India's resilience.
3. **Monetary Prudence:** While core inflation (excluding volatile gold and silver) has remained subdued, the central bank's agile management of liquidity has ensured that credit growth remains respectable without overheating the economy.
4. **Corporate & Bank Balance Sheets:** Unlike the 2008 crisis, the current growth phase is supported by the "Twin Strength" of healthy bank balance sheets and deleveraged corporate sectors, providing a strong buffer against external financial contagion.

Challenges and Calibrations:

The road to **Viksit Bharat @ 2047** is not a simple linear progression. It requires what the Economic Survey calls "strategic sobriety"—the ability to run a marathon with the intensity of a sprint.

1. **The Paradox of the Rupee:** Despite strong fundamentals, the Indian Rupee has "punched below its weight" due to the drying up of global capital flows. The

challenge is to generate enough foreign exchange through *merchandise exports* rather than just services, as goods-based ecosystems are more durable anchors for currency stability.

2. **The Cost of Capital:** Capital remains expensive in India. To durably lower interest rates, India must move from being a "savings-deficient" economy to a "surplus-generating" one. This requires a massive shift in productivity and an expansion of the domestic manufacturing base.
3. **Factor Market Reforms:** The transition from "stroke-of-the-pen" reforms to "process-reforms" is critical. This involves the notification of the four labor codes, relaxing green cover norms based on polluting potential (rather than a blanket 33% mandate), and streamlining state-level bureaucracies.
4. **Managing the General Government Deficit:** While the Union Government has consolidated its finances, "fiscal populism" in certain states—characterized by unconditional cash transfers at the cost of capital formation—poses a risk. Investors increasingly look at the "General Government" (Union + States) deficit, and local indiscipline can raise sovereign borrowing costs.

Way Forward: Toward the Entrepreneurial State

The "New Normal" demands that the Indian state evolve into an **Entrepreneurial State**.

This does not mean the state should run businesses, but rather that it should:

1. **Structure Risk:** Facilitate high-stakes sectors like Green Hydrogen and Semiconductors through mission-mode platforms.
2. **Ensure Supply Security:** Diversify payment systems and trade routes to protect against the "weaponization" of finance.

3. **Bridge the Skill-Industry Gap:** Align education and health outcomes with the needs of a 21st-century workforce to prevent the demographic dividend from turning into a liability.

Conclusion: The Choice of Śreya

In the timeless tradition of Indian economic thought, we face a choice between *Preya* (fleeting comfort) and *Śreya* (the enduring good). Settling for "negotiated shelter" through high protectionist walls is the path of *Preya*—it offers short-term relief but taxes downstream exports and efficiency. Embracing global competition, investing in innovation, and building strategic buffers is the path of *Śreya*.

India's macroeconomic success in 2025 has proved that the "Caged Tiger" is now a "Strategic Power." However, in a world that no longer rewards success with stability, India must manufacture its own stability. By aligning the State, the private sector, and households toward the scale of effort required, India can convert global headwinds into tailwinds. The task is unavoidable; the moment for strategic indispensability has arrived.

Previous Year Question

1. What are the challenges before the Indian economy when the world is moving away from free trade and multilateralism to protectionism and bilateralism? How can these challenges be met? (150w) [2025]

2. What is the status of digitalization in the Indian economy? Examine the problems faced in this regard and suggest improvements [2023]
 3. Examine the impact of liberalization on companies owned by Indians. Are they competing with the MNCs satisfactorily? Discuss. [200 Words] [10 Marks] [2013]
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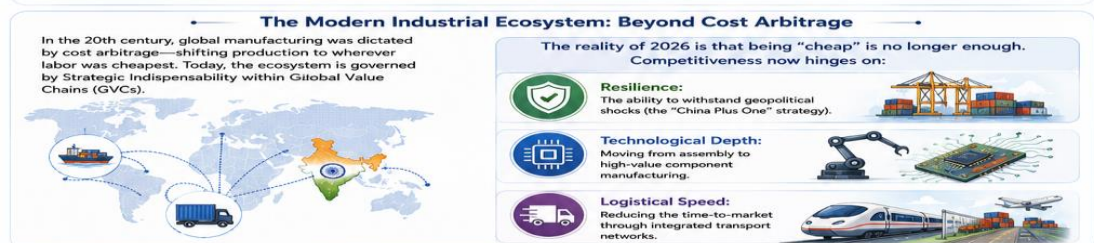
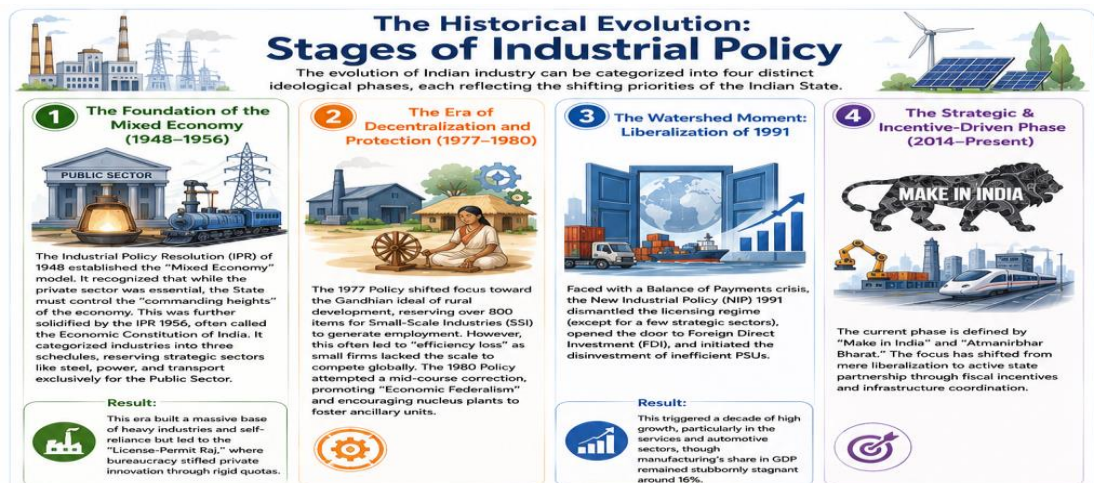
Section –III – Industrial Transformation.

1. The Structural Transformation of Indian Industry: (1956 – 2026)

From State Mandates to Global Value Chains

The narrative of India's industrial journey is a profound chronicle of a nation transitioning from the "License-Permit Raj"—characterized by protective barriers and state-led command—to a modern, globally integrated manufacturing powerhouse. As we stand in 2026, the industrial sector is no longer just a provider of mass-market goods but is evolving into a high-tech, innovation-led engine that seeks "strategic indispensability" in the global order.

The Historical Evolution: Stages of Industrial Policy



The evolution of Indian industry can be categorized into four distinct ideological phases, each reflecting the shifting priorities of the Indian State.

1. The Foundation of the Mixed Economy (1948–1956) The **Industrial Policy Resolution (IPR) of 1948** established the "Mixed Economy" model. It recognized that while the private sector was essential, the State must control the "commanding heights" of the economy. This was further solidified by the **IPR 1956**, often called the *Economic Constitution of India*. It categorized industries into three schedules, reserving strategic sectors like steel, power, and transport exclusively for the Public Sector.

- *Result:* This era built a massive base of heavy industries and self-reliance but led to the "License-Permit Raj," where bureaucracy stifled private innovation through rigid quotas.

2. The Era of Decentralization and Protection (1977–1980) The **1977 Policy** shifted focus toward the Gandhian ideal of rural development, reserving over 800 items for Small-Scale Industries (SSI) to generate employment. However, this often led to "efficiency loss" as small firms lacked the scale to compete globally. The **1980 Policy** attempted a mid-course correction, promoting "Economic Federalism" and encouraging nucleus plants to foster ancillary units.

3. The Watershed Moment: Liberalization of 1991 Faced with a Balance of Payments crisis, the **New Industrial Policy (NIP) 1991** dismantled the licensing regime (except for a few strategic sectors), opened the door to Foreign Direct Investment (FDI), and initiated the disinvestment of inefficient PSUs.

- *Result:* This triggered a decade of high growth, particularly in the services and automotive sectors, though manufacturing's share in GDP remained stubbornly stagnant around 16%.

4. The Strategic & Incentive-Driven Phase (2014–Present) The current phase is defined by "Make in India" and "Atmanirbhar Bharat." The focus has shifted from mere liberalization to active state partnership through fiscal incentives and infrastructure coordination.

The Modern Industrial Ecosystem: Beyond Cost Arbitrage

In the 20th century, global manufacturing was dictated by **cost arbitrage**—shifting production to wherever labor was cheapest. Today, the ecosystem is governed by **Strategic Indispensability within Global Value Chains (GVCs)**.

The reality of 2026 is that being "cheap" is no longer enough. Competitiveness now hinges on:

1. **Resilience:** The ability to withstand geopolitical shocks (the "China Plus One" strategy).
2. **Technological Depth:** Moving from assembly to high-value component manufacturing.
3. **Logistical Speed:** Reducing the time-to-market through integrated transport networks.

India's Great Transition: From Technology Adopter to Global Innovator

India is currently undergoing a structural metamorphosis. Traditionally, India was a **Technology Adopter**, importing foreign blueprints and assembling them for domestic use. We are now transitioning into a **Global Innovator**.

The Shift toward High-Technology Manufacturing as of FY 2025-26, high-tech and medium-high-tech activities account for nearly **46.3% of India's total manufacturing value added**. This shift is driven by three primary reasons:

1. **Complexity of Demand:** The rising Indian middle class now demands sophisticated electronics, EVs, and precision pharmaceuticals.
2. **Strategic Autonomy:** Dependence on imported semiconductors and critical minerals posed a national security risk, prompting the "India Semiconductor Mission."
3. **Global Integration:** To be part of GVCs for Apple, Tesla, or Airbus, Indian firms must adhere to global high-tech standards.

The Flagship Pillars of the "Industrial Leap"

The government has moved away from "control" to "enablement" through five strategic pillars:

1. The Production Linked Incentive (PLI) Scheme Perhaps the most successful industrial intervention in decades, the PLI scheme provides fiscal "carrots" (4% to 6% incentives) on incremental sales. Unlike old-style subsidies, these are "output-linked," meaning firms only get paid if they actually produce and sell.

- *Impact:* It has successfully localized the manufacturing of mobile phones, APIs (pharmaceutical ingredients), and advanced chemistry cell batteries.

2. National Manufacturing Mission This acts as the blueprint to raise manufacturing's share of GDP to 25%. It emphasizes the creation of "National Investment and Manufacturing Zones" (NIMZs) which act as self-governed industrial townships.

3. Anusandhan National Research Foundation (ANRF) Innovation cannot happen in silos. The ANRF is designed to bridge the gap between academia, national laboratories, and the private sector. It aims to "crowd-in" private R&D spending, which has historically been low in India (around 0.7% of GDP).

4. Research, Development & Innovation (RDI) Fund This fund provides seed capital and grants for "Deep-Tech" startups. By de-risking early-stage innovation in areas like robotics and biotech, the state ensures that the next generation of industrial giants is born on Indian soil.

5. PM Gati Shakti & National Industrial Corridor Development Logistics cost in India has historically been high (14-16% of GDP) compared to global benchmarks (8-10%).

- **PM Gati Shakti** is a digital "National Master Plan" that ensures that when a railway line is laid, the telecom ministry knows to lay fiber cables, and the power ministry knows where the grids should go.
- **Industrial Corridors:** Projects like the Delhi-Mumbai Industrial Corridor (DMIC) provide "plug-and-play" infrastructure, reducing the gestation period for new factories.

Challenges and the Path Ahead

While the momentum is strong, the "Next Leap" faces several structural "frictions":

- **The MSME Scale-up:** India has millions of small firms, but few "mid-sized" firms. The "missing middle" prevents India from achieving the scale of Germany or China.
- **The Skill Gap:** High-tech manufacturing requires a workforce trained in AI, IoT, and Mechatronics. The current education-industry linkage remains fragile.
- **Regulatory Compliance:** Despite improvements in the "Ease of Doing Business," the "cost of compliance" at the state level remains a bottleneck for many entrepreneurs.

Conclusion: Toward Viksit Bharat @ 2047

In the classical tradition of Indian economic thought, industrialization was often seen as a choice between labor-intensive "cottage industries" and capital-intensive "heavy industries." The synthesis achieved in 2026 suggests that India has found a third way:

Incentivized High-Tech Growth that scales through digital infrastructure.

The transition from being a "Civil Engineer of Silos" to an "Enabler of Value Chains" represents a strategic maturity of the Indian State. By focusing on "Strategic Indispensability," India is not just making for the world; it is making the world dependent on Indian excellence. The industrial sector is no longer a laggard but the "sprint" in India's economic marathon. As we look toward 2047, the goal is clear: to ensure that the "Made in India" label is synonymous with innovation, quality, and resilience.

2. The Industrial problems and measures to resolve.

From Stagnation to Global Indispensability

The narrative of India's industrialization is a complex management of ambitious state-led mandates, periods of insular protectionism, and a hard-fought transition toward market-led global integration. As we analyze the industrial landscape in 2026, it is evident that India is attempting to rectify deep-seated structural imbalances while simultaneously leapfrogging into the Fourth Industrial Revolution. This journey is marked by three historic "pain points" and a robust contemporary repositioning strategy.

The Triple Dilemma: Core Problems in India's Industrial Path

1. Premature Saturation and the "Missed Bus" of the Industrial Revolution Unlike the classical developmental trajectories of East Asian "Tiger" economies—which moved

seamlessly from agriculture to labor-intensive manufacturing and then to services—India experienced a structural anomaly known as **Premature Deindustrialization**.

- **Nature:** The manufacturing sector's share of GDP peaked at a relatively low income level, with the economy "skipping" the massive manufacturing employment phase to become a service-led economy.
- **The "Missed Bus":** India missed the second and third industrial revolutions (mass production and early electronics) due to an insular, license-heavy regime that prioritized "Capital Goods" over "Consumer Goods," leading to technological obsolescence.
- **Impact:** This created a "K-shaped" labor market where a small, highly skilled workforce entered the services sector, while the vast majority remained trapped in low-productivity agriculture or the informal sector, leading to a missing middle in the industrial hierarchy.

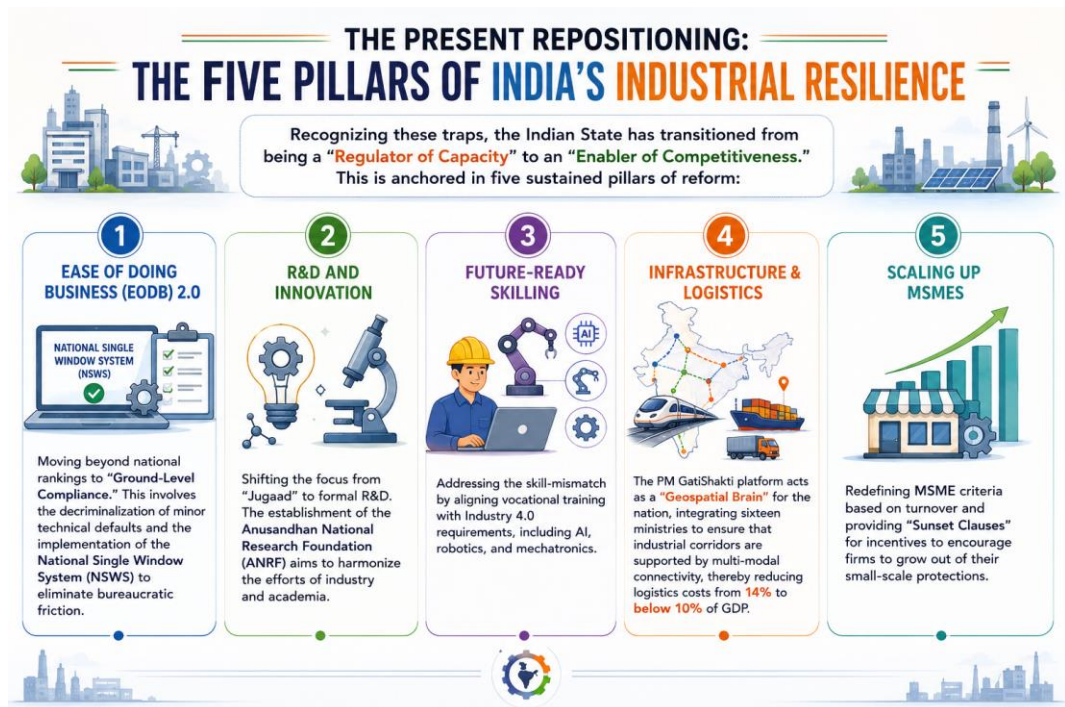
The Structural Failure of the Manufacturing Sector Despite the 1991 reforms, the manufacturing sector remained stubbornly stagnant at approximately 15-17% of GDP for over three decades.

- **Nature:** The sector suffered from "Low-Value Equilibrium," where firms lacked the incentive to scale up due to rigid labor laws and high input costs.
- **Reasons:** High "Cost of Doing Business" (land, power, and credit), fragmented logistics, and an inverted duty structure where raw materials were taxed higher than finished products.
- **Impact:** This resulted in a chronic trade deficit in manufactured goods, particularly in electronics and machinery, making India a "consumption-driven" rather than a "production-led" economy.

The MSME Stress: The "Dwarfism" Syndrome Micro, Small, and Medium Enterprises (MSMEs) are the backbone of Indian employment, yet they exist in a state of perpetual fragility.

- **Nature:** Economic census data reveals a preponderance of "Dwarfs"—firms that are old but remain small—rather than "Infants" that grow into giants.
- **Reasons:** Regulatory "threshold effects" where growing beyond a certain size invited more inspections and tax burdens; limited access to formal credit (the "Credit Gap"); and a lack of technological infusion.
- **Impact:** This has led to a lack of competitiveness in global markets. When MSMEs cannot achieve scale, they cannot integrate into Global Value Chains (GVCs), leaving them vulnerable to cheap imports.

The Present Repositioning: The Five Pillars of Resilience



Recognizing these traps, the Indian State has transitioned from being a "Regulator of Capacity" to an "Enabler of Competitiveness." This is anchored in five sustained pillars of reform:

1. **Ease of Doing Business (EoDB) 2.0:** Moving beyond national rankings to "Ground-Level Compliance." This involves the decriminalization of minor technical defaults and the implementation of the National Single Window System (NSWS) to eliminate bureaucratic friction.
2. **R&D and Innovation:** Shifting the focus from "Jugaad" to formal R&D. The establishment of the **Anusandhan National Research Foundation (ANRF)** aims to harmonize the efforts of industry and academia.
3. **Future-Ready Skilling:** Addressing the skill-mismatch by aligning vocational training with Industry 4.0 requirements, including AI, robotics, and mechatronics.
4. **Infrastructure & Logistics:** The **PM GatiShakti** platform acts as a "Geospatial Brain" for the nation, integrating sixteen ministries to ensure that industrial corridors are supported by multi-modal connectivity, thereby reducing logistics costs from 14% to below 10% of GDP.
5. **Scaling up MSMEs:** Redefining MSME criteria based on turnover and providing "Sunset Clauses" for incentives to encourage firms to grow out of their small-scale protections.

New Strategies for Industrial Transition

1. From Technology Adaptor to Global Innovator For decades, India was a "Technology Adaptor," importing foreign technology and reverse-engineering it for the domestic market. The new strategy focuses on **Intellectual Property creation**. India is now ranked 37th in the Competitive Industrial Performance (CIP) index, reflecting a move toward domestic design and high-tech patents, particularly in space-tech and green energy.

2. The Rise of Advanced Manufacturing The emphasis has shifted toward "Strategic Indispensability." By focusing on **Semiconductors, Advanced Chemistry Cells (ACC), and Rare Earth processing**, India is attempting to secure a reliable position in the GVCs of the future. The transition is less about cost arbitrage (cheap labor) and more about **Productivity Arbitrage** (high-tech efficiency).

3. Rejuvenating MSMEs for Global Competition The strategy now involves creating "**Industrial Clusters**" that mimic the Chinese or German *Mittelstand* models. By integrating MSMEs into the GVCs of large "Anchor Investors" (like the PLI participants), small firms are being forced to upgrade their quality standards and digital formalization.

Government Measures and Flagship Schemes

The transformation is anchored by several "Force Multipliers":

1. **Production Linked Incentive (PLI) Scheme:** This is a departure from old-style subsidies. It provides incentives on *incremental sales*, effectively rewarding only the efficient and the scalable. It has already demonstrated resilience in electronics manufacturing, where India has moved from being a net importer to a significant exporter of smartphones.
2. **National Manufacturing Mission:** A long-term blueprint to ensure manufacturing reaches 25% of GDP by focusing on "Sunrise Sectors."
3. **RDI Fund:** A strategic fund to crowd-in private investment into high-risk, high-reward industrial research.
4. **National Industrial Corridor Development Programme:** Developing "Smart Cities" with dedicated industrial zones to provide "Plug-and-Play" infrastructure.

Overall Impact: A New Resilience

The industrial sector in FY 2025-26 has demonstrated a "Structural Hardening." Despite global headwinds, the **Real Industry GVA grew by 7.0%**, and Manufacturing GVA showed a sustained momentum of 9.13% in Q2.

The nature of this growth is different from the past:

1. **Technological Depth:** Medium and High-tech activities now account for **46.3% of total manufacturing value added**.
2. **Formalization:** The GST and digital payments ecosystem have forced a level of formalization that makes firms more "bankable" and credit-worthy.
3. **Export Sophistication:** India's exports are shifting from raw commodities to medium and high-tech manufactured products, signaling a move up the value chain.

Conclusion: The Path to Viksit Bharat @ 2047

The evolution of India's industrial policy reflects a journey from the "Civil Engineer of Silos" to the "Architect of Ecosystems." The core problems of the past—premature saturation and MSME dwarfism—are being addressed not through protectionism, but through competitive enablement.

For the Indian economy to reach the vision of \$30 trillion by 2047, the industry must remain "Strategically Indispensable." This requires the State to maintain its role as an **Enabler of DPI (Digital Public Infrastructure)** and a facilitator of R&D. The current resilience is not merely a cyclical recovery; it is the result of a structural shift where the Indian farmer is becoming an agri-entrepreneur and the Indian artisan is becoming a global manufacturer. The "Industrial Bus" is no longer being missed; India is now building the engine of that bus itself.

3. India's New Industrial Doctrine

The narrative of Indian industrialization is currently witnessing a profound ideological shift. If the 1956 Resolution was the "Economic Constitution" of a nascent state, and the 1991 reforms were a "Leap Toward Liberalization," the post-2020 era represents a transition toward **Strategic Autonomy and Global Value Chain (GVC) Integration**.

The state has moved from being a "Regulator of Capacity" to an "Architect of Ecosystems." This new doctrine is not merely about "Make in India" but about making India "Strategically Indispensable" to the world.

The Pillar of Competitiveness:

1. Production Linked Incentive (PLI) Scheme

Year Inaugurated: 2020

Objectives: To create global manufacturing champions, attract large-scale investments, and boost domestic value addition.

The PLI scheme represents a radical departure from traditional "input-based" subsidies (like tax breaks on machinery) to "output-based" incentives. Under this regime, the government provides a fiscal carrot—typically 4% to 6% on incremental sales—only when the firm actually produces and sells more.

- **Key Components:** The scheme covers 14 strategic sectors, including Large-scale Electronics (Smartphones), Pharmaceuticals (APIs/KSMs), Specialty Steel, and Advanced Chemistry Cell (ACC) Batteries.
- **Significance:** It addresses the "Disability Cost" of manufacturing in India (high power and logistics costs). For instance, in the electronics sector, PLI has successfully turned India from a net importer to a significant exporter of high-end mobile devices, signaling a move from simple assembly to component manufacturing.

2. Make in India 2.0

Year Inaugurated: 2014 (Renewed as 2.0 in 2020)

Objectives: To increase the manufacturing sector's growth to 12-14% per annum and create 100 million additional jobs.

"Make in India" is no longer just a promotional logo; it is a structural reform process aimed at enhancing the four "L's": Land, Labor, Laws, and Liquidity. Under "Make in India 2.0," the focus has narrowed to 27 sub-sectors where India has a competitive advantage, including aerospace, defense, and renewable energy.

- **Components:** This involves the "Ease of Doing Business" reforms, decriminalization of minor technical defaults, and the implementation of the **National Single Window System**.
- **Impact:** By promoting "Assemble in India for the World," the program leverages India's demographic dividend. It has fostered a "China Plus One" sentiment, making India a resilient alternative for global manufacturing giants.

3. Skill India Programme

Year Inaugurated: 2015

Objectives: To provide market-relevant skills training to over 40 crore people by 2022 and beyond.

Industrial growth is a function of "Technical Depth," which is impossible without a skilled workforce. The **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** is the flagship component of this mission.

- **Components:** It focuses on vocational training, the Recognition of Prior Learning (RPL), and short-term training (STT) aligned with the National Skills Qualification Framework (NSQF).
- **Narrative Shift:** In 2026, the focus has pivoted toward "Industry 4.0" skills—AI, Mechatronics, and IoT. The program aims to bridge the gap between "Degree" and "Deployability," ensuring that the workforce is a "Dividend" and not a "Disaster."

4. National Manufacturing Mission

Objectives: To raise the share of manufacturing in GDP to 25% and ensure sustainability.

This mission operates as the administrative backbone of the **National Manufacturing Policy**. It oversees the creation of **National Investment and Manufacturing Zones (NIMZs)**.

- **Components:** NIMZs are envisioned as self-governing industrial townships with world-class infrastructure. The mission emphasizes "Green Manufacturing," ensuring that industrial expansion does not come at the cost of the ecological debt.

- **Strategic Role:** It provides "Plug-and-Play" infrastructure, reducing the gestation period for new industries. It is the physical manifestation of the state's role as an "Infrastructure Enabler."

5. National Semiconductor Mission (ISM)

Year Inaugurated: 2021

Objectives: To establish a sustainable semiconductor and display ecosystem in India.

Semiconductors are the "new oil" of the 21st century. The ISM is a \$10 billion (₹76,000 crore) commitment to ensure that India is not technologically colonized in the era of digital everything.

- **Components:** Incentives for Silicon CMOS Fabrications, Display Fabs, and Compound Semiconductors (Gallium Nitride/Silicon Carbide).
- **Significance:** By targeting "Strategic Autonomy," the mission seeks to reduce India's vulnerability to supply chain disruptions from countries like China and Taiwan. It is the cornerstone of India's transition into a "High-Tech Manufacturing Hub."

6. Anusandhan National Research Foundation (ANRF)

Year Inaugurated: 2023

Objectives: To provide strategic direction to scientific research in India and forge linkages between industry and academia.

Historically, Indian R&D was a "Silo-based" activity confined to government labs. The ANRF replaces the Science and Engineering Research Board (SERB) with a much larger

mandate and a ₹50,000 crore budget.

- **Core Component:** It aims to "crowd-in" private sector investment. In many developed nations, 70% of R&D is private; in India, the state has traditionally borne the brunt. ANRF aims to reverse this by funding "Deep-Tech" and "Translational Research."
- **Impact:** It transforms India from a "Technology Adaptor" to a "Global Innovator," ensuring that patents and intellectual property are owned by Indian entities.

7. Schemes for MSMEs

Micro, Small, and Medium Enterprises (MSMEs) contribute nearly 30% to India's GDP and are the primary source of employment after agriculture. The contemporary strategy is to solve the "MSME Stress" of credit and scale.

1. **RAMP Scheme (Raising and Accelerating MSME Performance):** Funded by the World Bank, it focuses on improving MSME competitiveness and addressing late payments.
2. **Udyam Registration:** A simplified, digital-only process that has formalized millions of small units, bringing them into the formal credit fold.
3. **MSME Champions Scheme:** Provides modern technology, credit, and marketing support to help small firms become "Global Champions."
4. **ZED Scheme (Zero Defect Zero Effect):** Encourages MSMEs to manufacture goods with zero defects (quality) and zero effect on the environment (sustainability).

8. Other Strategic Facilitators: Logistics and Infrastructure

To reduce the high "Logistics Cost" (currently 13-14% of GDP), the government has integrated physical and digital infrastructure.

- a) **PM GatiShakti (2021):** A Digital Master Plan for Multi-modal Connectivity. It brings 16 ministries together for integrated planning of railway, roadway, and waterway projects to eliminate "silo-based" development.
- b) **National Industrial Corridor Development Programme:** Development of 11 industrial corridors (like DMIC) to provide seamless connectivity from production centers to ports.

Conclusion: The Balanced Judgment

The evolution of India's industrial policy reflects a shift from "Defensive Protectionism" to "Aggressive Competitiveness." The state is no longer trying to protect inefficient firms; it is trying to incentivize the efficient ones to reach global scale.

For the Civil Services aspirant, the key takeaway is the "**Strategic Maturity**" of these reforms. While schemes like PLI and ISM solve the problem of *technological depth*, PM GatiShakti solves the problem of *logistical cost*. However, the final ascent to **Viksit Bharat @2047** depends on the qualitative transformation of the Indian worker. As India moves from the "Workshop of the World" assembly model to an "Innovation Hub" model, the state must continue to act as a **Strategic Enabler**, ensuring that the "Digital and Infrastructure Divide" does not become a barrier to inclusive industrial growth.

The success of these flagship schemes suggests that the Indian industry is finally regaining its momentum, positioning itself as a bright spot in an otherwise uneven global economic recovery.

4. Industry in Budget - 2026-27.



In the long-term narrative of Indian economic development, the Union Budget for 2026-27 represents a critical transition from "Crisis Mitigation" to "Structural Hardening." While the post-1991 era was defined by a retreat of the state, the current fiscal strategy marks the return of the state as a **Strategic Enabler**.

This budget does not merely allocate funds; it seeks to architect a high-tech industrial ecosystem that leverages the "Digital Public Infrastructure" (DPI) to bridge the historical productivity gap in Indian manufacturing.

The Strategic Significance of Industry in Budgetary Objectives

The 2026-27 Budget anchors its vision in the "Trinity of Growth": Sustainable High

Growth, Technological Sovereignty, and Fiscal Fortitude. The industrial sector is positioned as the primary engine for achieving the **7.0% potential growth rate** through the following strategic rationales:

1. **The Multiplier Effect:** The budget recognizes that industrial capital expenditure (CapEx) has the highest backward and forward linkages. For every rupee invested in industrial infrastructure, the economy realizes a multiplier of 2.5x to 3.5x over the medium term.
2. **Strategic Indispensability:** Moving away from the "Cost Arbitrage" model of the 1990s, the current policy stance aims for "Strategic Indispensability" within Global Value Chains (GVCs). The budget prioritizes sectors where India can become a non-substitutable provider—such as semiconductors, green hydrogen, and advanced pharmaceuticals.
3. **Absorbing the Demographic Dividend:** With the working-age population peaking around 2030, the budget views the industrial sector as the only viable mechanism to absorb the surplus labor from the "Subsistence Agriculture" sector (the Lewisian Transition).
4. **Strategic Sobriety:** In a world of fragmented trade and "Economic Statecraft," the budget prioritizes shock absorption and domestic growth maximization. It uses fiscal discipline (4.3% FD target) as a tool to maintain low sovereign risk, thereby lowering the "Cost of Capital" for domestic industry.

Fiscal Allocations and the "Crowding-In" Strategy

The total expenditure for FY26 is pegged at **₹53,47,315 crore**. A defining feature of this allocation is the aggressive tilt toward **Capital Expenditure (CapEx)**, which has seen an 89% increase compared to FY22 levels, standing at **₹11.21 lakh crore**.

- **Infrastructure as a Foundation:** Massive outlays have been directed to **Indian Railways (Demand No. 85)** and **Ministry of Road Transport (Demand No. 86)**. The focus is on the "Expressway Saturation" and "Dedicated Freight Corridors" to reduce logistics costs from 14% to below 10% of GDP.
- **Support for the "Sunrise" Frontier:** Significant allocations are directed toward the **Ministry of New and Renewable Energy (Demand No. 71)** for the Green Hydrogen Mission and toward the **Department of Electronics and Information Technology** for the Semiconductor Mission.
- **The "Quality over Quantity" Pivot:** The **Effective Revenue Deficit (ERD)** has been brought down to 0.3% of GDP. This indicates that almost all borrowed funds are being directed toward "Grants-in-aid for the creation of capital assets," ensuring that the nation does not "eat into its future" to fund current consumption.

New Schemes and Programmatic Overhauls

Budget 2026-27 introduces several "Force Multipliers" designed to modernize the industrial psyche.

1. The "Research, Development & Innovation" (RDI) Fund Recognizing that India's R&D expenditure (0.7% of GDP) is a structural bottleneck, the RDI fund is designed to "crowd-in" private investment. It provides seed capital for "Deep-Tech" startups in robotics, biotech, and aerospace. It transforms the state from a passive subsidizer to a strategic venture capitalist.

2. Unified Lending Interface (ULI) This is the "UPI moment" for industrial credit. The ULI is designed to ease credit constraints for MSMEs by creating a digital, consent-based architecture that uses GST and digital footprint data to provide collateral-free loans. It aims to solve the "MSME Credit Gap" that has historically limited the scale-up of small

firms.

3. PM GatiShakti Public & National Industrial Corridor 2.0 The budget expands the **PM GatiShakti** platform to the private sector. It provides geospatial data to private developers to help them make investment decisions based on real-time logistics analytics. Simultaneously, the budget funds the next phase of **Industrial Corridors**, focusing on "Plug-and-Play" manufacturing hubs to reduce the gestation period for global investors.

4. National Semiconductor Mission (Phase II) With an increased outlay, the budget shifts focus from "Testing and Packaging" to "Full-Scale Fab Fabrication." It provides massive incentives for **Silicon CMOS Fabrications** and **Compound Semiconductors**, aimed at securing India's technological sovereignty.

5. The "Green Industrialization" Compact Aligning with the **"LiFE" (Lifestyle for Environment)** initiative, the budget provides subsidies for "Sex-Sorted Semen" and "Irradiation Technology" for storage. While these are agricultural in nature, they create a new "Bio-Economy" sub-sector for industrial machinery and processing units.

Rejuvenating the "Backbone": The MSME Strategy

The budget acknowledges the "Dwarfism" problem in Indian MSMEs—where firms stay small to avoid regulatory burdens.

- **The RAMP Extension:** The "Raising and Accelerating MSME Performance" program has been integrated with the **Udyam Registration** portal to provide "performance-based" incentives.

- **Sunset Clauses:** New tax incentives for small firms now come with a "Sunset Clause," encouraging firms to grow into the "Medium" and "Large" categories rather than staying small to claim benefits.
- **Global Champions Scheme:** A specialized fund to help select MSMEs meet global quality standards (ZED - Zero Defect Zero Effect) to integrate into the GVCs of companies like Apple or Tesla.

The Transformation Effected: A Narrative of Strategic Resilience

The 2026-27 fiscal exercise effects a qualitative shift in India's industrial narrative. We have moved from the **"License Raj" (Pre-1991)** to the **"Liberalization Era" (1991-2014)** and finally to the **"Strategic Enabler Era" (Present)**.

The transformation is evident in the "Seasonally Adjusted Global Exports of High-Tech Products," which have seen a sustained upward curve. India is no longer just "Assembling for India"; it is "Innovating for the World." The **Anusandhan National Research Foundation (ANRF)** acts as the bridge, ensuring that the labor force—upskilled through the **Skill India** mandate—becomes a high-productivity asset.

VI. Conclusion: The Balanced Judgment

In the classical tradition of Indian economic thought, the budget is a "Social Contract." The 2026-27 Budget fulfills this contract by maintaining a delicate balance between **Fiscal Sobriety** and **Industrial Ambition**. By keeping the fiscal deficit on a glide path to 4.3%, the state is ensuring macroeconomic stability; by aggressively funding GatiShakti and PLI, it is ensuring future growth.

However, a balanced judgment requires a caveat: the success of this industrial resurgence depends on the **"Execution Pivot."** While the Union government has provided

the "Hardware" (infrastructure and incentives), the **"Software" (Factor Market Reforms)**—such as the notification of labor codes and land record digitization—must be executed at the state level.

Ultimately, Budget 2026-27 replaces the "Scarcity Mindset" of the past with a **"Saturation Mindset."** It ensures that every rupee of public investment multiplies into a better life for the citizen, making the "Made in India" label a symbol of high technology, sustainability, and global indispensability. The path to **Viksit Bharat @ 2047** is no longer just a vision; it is a fiscally-backed reality.

Previous Year Questions.

- 1) Account for the failure of manufacturing sector in achieving the goal of labour-intensive exports rather than capital-intensive exports. Suggest measures for more labour-intensive rather than capital-intensive exports. [150 Words] [10 Marks] [2017]
- 2) "Industrial growth rate has lagged behind in the overall growth of Gross-Domestic-Product (GDP) in the post-reform period" Give reasons. How far the recent changes in Industrial Policy are capable of increasing the industrial growth rate? [250 Words] [15 marks] [2017]
- 3) "Success of Make in India program depends on the success of Skill India programme and radical labour reforms." Discuss with logical arguments. [200 Words] [12.5 Marks] [2015]
- 4) There is a clear acknowledgement that Special Economic Zones (SEZs) are a tool of industrial development, manufacturing and exports. Recognising this potential, the whole instrumentality of SEZs require augmentation. Discuss the issue plaguing the success of SEZs with respect to taxation, governing laws and administration. [200 Words] [12.5 Marks]

[2015]

5) Examine the impact of liberalization on companies owned by Indians. Are they competing with the MNCs satisfactorily? Discuss. [200 Words] [10 Marks] [2013]

Section – IV – Government Budgeting

1. Government Budgeting.

The Indian Budgetary process is a complex exercise in constitutional accountability and macroeconomic management, reflecting the sovereign's commitment to transparent governance. In the classical tradition of Indian economic thought, the Budget is not merely a statement of accounts but a vital instrument of social engineering and developmental priority.

The Indian Budgetary Process:

The budgetary process in India is a cyclical exercise involving the preparation, enactment, and execution of the government's financial plans. It begins months before the presentation in Parliament, involving rigorous consultations between the Ministry of Finance, various administrative ministries, and the NITI Aayog.

The process culminates in the Finance Minister's Budget Speech, followed by the laying of mandated and explanatory documents before both Houses of Parliament.

The process serves as a bridge between the state's developmental aspirations and its fiscal constraints. It ensures that every rupee collected from the citizen is authorized by

their representatives and utilized for the public good, maintaining a delicate balance between growth-inducing expenditure and fiscal consolidation.

Constitutional Foundations and Mandated Documents

The sanctity of the Indian Budget is rooted in the Constitution of India, which ensures that the executive remains financially accountable to the legislature.

1. Annual Financial Statement (AFS) - Article 112

Mandated by Article 112, the AFS is the core budget document. It presents the estimated receipts and expenditure for the upcoming fiscal year (2026-27), alongside revised estimates for the current year and actuals for the preceding year.

- **The Three Funds:** Government accounts are maintained in three distinct parts: the **Consolidated Fund of India** (Article 266), the **Contingency Fund of India** (Article 267), and the **Public Account of India** (Article 266(2)).
- **Revenue vs. Capital:** The Constitution requires the AFS to distinguish expenditure on revenue account from other accounts. Together, these sections form the Union Budget.

2. Demands for Grants (DG) - Article 113

Under Article 113, estimates of expenditure from the Consolidated Fund required to be voted by the Lok Sabha must be submitted as Demands for Grants.

- **Structure:** Generally, one Demand is presented for each Ministry, though larger ministries may have multiple. In the 2026-27 Budget, there are 102 Demands for Grants.

- **Content:** Each Demand separates 'voted' and 'charged' expenditure, as well as 'revenue' and 'capital' segments.

3. Finance Bill - Article 110

The Finance Bill, presented under Article 110(1)(a), details the taxation proposals, including the imposition, abolition, or alteration of taxes for the fiscal year. It is classified as a **Money Bill**, as defined under Article 110, requiring specific legislative procedures for its passage.

The Structure of the Union Budget

The Union Budget is a bifurcated entity, separating the government's day-to-day operational costs from its long-term asset-creating investments.

I. Revenue Budget

The Revenue Budget consists of revenue receipts (tax and non-tax) and revenue expenditure.

- **Revenue Receipts:** Comprise tax proceeds (GST, Income Tax, etc.) and non-tax sources such as interest, dividends, and fees for services.
- **Revenue Expenditure:** Dedicated to the normal running of government departments and services. Crucially, this includes interest payments on debt, subsidies, and grants-in-aid to states. Broadly, this expenditure does not result in the creation of physical or financial assets for the Union.

II. Capital Budget

The Capital Budget deals with receipts and payments that impact the government's

assets and liabilities.

- **Capital Receipts:** These include market loans, borrowings through Treasury Bills, foreign loans, and recoveries of loans from states.
- **Capital Payments:** Consist of capital expenditure on the acquisition of assets like land, buildings, and machinery, as well as investments in shares and loans granted to state governments and public corporations.

Explanatory and Supporting Documents

To facilitate a user-friendly understanding of the Budget, several explanatory statements are provided alongside the mandated ones.

A. Expenditure Budget and Profile

- **Expenditure Budget:** This document brings together estimates for specific schemes or programmes that might be spread across several 'Major Heads' in the Demands for Grants, showing them on a net basis at one place. It classifies expenditure under two umbrellas: **Centre's Expenditures** and **Transfers to States/UTs**.
- **Expenditure Profile:** This document aggregates various types of expenditure across all demands. It includes specific statements on Gender Budgeting, Child Welfare, and schemes for Scheduled Castes and Scheduled Tribes. It also captures salient aspects of **Railway expenditure**, which has been integrated with the Union Budget since 2017-18.

B. Receipt Budget

This provides a detailed breakdown of tax and non-tax revenue and capital receipts. A

significant annexure is the **Statement of Revenue Impact of Tax Incentives**, which quantifies the revenue impact of various tax incentives proposed (formerly known as 'Statement of Revenue Foregone').

C. Fiscal Policy Statements (FRBM Act)

Mandated by the Fiscal Responsibility and Budget Management Act, 2003, these documents provide the macroeconomic context:

- **Macro-Economic Framework Statement:** Assesses the growth prospects of the economy, GDP growth rates, and external sector stability.
- **Medium-Term Fiscal Policy cum Fiscal Policy Strategy Statement:** Sets three-year rolling targets for six specific fiscal indicators: Fiscal Deficit, Revenue Deficit, Primary Deficit, Tax Revenue, Non-tax Revenue, and Central Government Debt.

Key Concepts in Budgetary Procedure

I. Money Bill and Finance Bill

While all Money Bills are Finance Bills, not all Finance Bills are Money Bills. A Finance Bill is specifically presented to give effect to the government's taxation proposals. Because it contains provisions relating to Article 110, it is treated as a Money Bill. A separate **Memorandum Explaining the Provisions in the Finance Bill** is provided to simplify the implications of these taxation proposals.

II. Charged Expenditure

The Constitution distinguishes between expenditure 'voted' by the Lok Sabha and expenditure '**charged**' on the Consolidated Fund. Charged expenditure is not subject to a

vote by Parliament. This includes:

- Emoluments of the President.
- Salaries and allowances of the Chairman/Deputy Chairman of Rajya Sabha and Speaker/Deputy Speaker of Lok Sabha.
- Salaries and pensions of Supreme Court Judges, the CAG, and the Central Vigilance Commission.
- Debt charges, including interest on and repayment of loans.

III. Output Outcome Monitoring Framework (OOMF)

This modern reform establishes clearly defined outputs and outcomes for various schemes with measurable indicators and specific targets for the 2026-27 fiscal year. For schemes with an outlay of ₹500 crore or more, the OOMF is laid directly in the House.

2. The Forms of Budgeting in India

As the Indian economy matures toward the vision of *Viksit Bharat @2047*, the administrative forms of budgeting have shifted from a simple "Line-Item" approach to more sophisticated, outcome-oriented frameworks.

1. Revenue and Expenditure Budgets: The Structural Core

- **Revenue Budget:** This consists of the government's "daily bread" accounts. It includes Revenue Receipts (tax and non-tax) and Revenue Expenditure. In the 2026-27 estimates, Revenue Receipts are projected at **₹35,33,150 crore**. Revenue

expenditure is predominantly dedicated to interest payments, subsidies, and administrative costs.

- **Expenditure Budget:** This serves as the roadmap for government spending. It is classified into the **Centre's Expenditure** (Establishment, Central Sector Schemes) and **Transfers** (Centrally Sponsored Schemes, Finance Commission grants). In 2026-27, total expenditure is pegged at **₹53,47,315 crore**.

2. Zero-Based Budgeting (ZBB): The Efficiency Lens

Zero-Based Budgeting is a methodology where every ministry must justify its entire budget request from scratch ("zero") for each new period, rather than simply adjusting the previous year's figures.

- **Significance:** It eliminates "incrementalism" and ensures that obsolete schemes are pruned. In the current fiscal climate, ZBB is crucial for identifying "fiscal space" to fund emerging technologies like AI and Green Hydrogen.

3. Gender Budgeting: The Inclusion Mandate

India adopted Gender Budgeting in 2005-06. It is not a separate budget for women but a "gender-sensitive" lens applied to the entire budgetary process.

- **Structure:** It consists of Part A (100% women-specific schemes) and Part B (schemes where at least 30% of the allocation benefits women).
- **2026 Perspective:** The Expenditure Profile now captures these allocations meticulously to ensure that the "Yuvati Shakti" (power of young women) is structurally supported in the national developmental story.

4. Outcome-Based Budgeting

This form shifts the focus from "**Outlays**" (how much money was spent) to "**Outcomes**" (what was actually achieved). Under the **Output-Outcome Monitoring Framework (OOMF)**, schemes with outlays over ₹500 crore are now subject to rigorous performance indicators laid before Parliament.

Anatomy of Deficits

Fiscal management is the art of balancing the state's developmental "ambition" with its "capacity" to pay. The Budget for 2026-27 provides a clear statistical trajectory for this management.

1. Revenue Deficit (RD)

- **Definition:** The excess of revenue expenditure over revenue receipts. It indicates that the government is borrowing to meet its day-to-day consumption needs.
- **Current Status:** For 2026-27, the Revenue Deficit is estimated at **₹5,92,344 crore**, representing **1.5% of GDP**.

2. Effective Revenue Deficit (ERD)

- **Definition:** This is the Revenue Deficit *minus* those grants-in-aid given to states for the creation of capital assets.
- **Significance:** It provides a truer picture of "consumption borrowing" because money sent to states to build roads or hospitals (even if labeled revenue expenditure) is technically asset-creating.
- **Current Status:** The ERD for 2026-27 is projected at a mere **0.3% of GDP** (₹99,642 crore), signaling a high quality of expenditure.

3. Fiscal Deficit (FD): The Macroeconomic Anchor

- **Definition:** The difference between total expenditure and total non-debt receipts. It represents the total borrowing requirement of the government.
- **Current Status:** The government has shown remarkable resilience in fiscal consolidation. The FD for 2026-27 is estimated at **4.3% of GDP** (₹16,95,768 crore), down from 4.4% in the revised estimates of the previous year.

4. Primary Deficit (PD)

- **Definition:** Fiscal Deficit minus interest payments.
- **Significance:** It shows the borrowing requirement of the government for current expenditures *excluding* the burden of past debts. A shrinking primary deficit indicates that current policy is fiscally sustainable.
- **Current Status:** PD is estimated at **0.7% of GDP** in 2026-27.

The FRBM Legislation: Provisions and Today's Condition

The **Fiscal Responsibility and Budget Management (FRBM) Act, 2003**, is the legal sentinel of India's fiscal health.

1. Important Provisions

- **Mandated Targets:** Originally aimed to eliminate the revenue deficit and reduce the fiscal deficit to 3% of GDP.
- **Escape Clause:** Allows the government to deviate from targets during national security crises, acts of God, or severe collapses in agriculture.
- **Mandated Statements:** The Act requires the government to lay the **Macro-Economic Framework Statement** and the **Medium-Term Fiscal Policy cum Fiscal Policy Strategy Statement** before Parliament.

2. Today's Condition (2026)

Following the global shocks of the early 2020s, the rigid 3% fiscal deficit target was temporarily recalibrated. The current "Fiscal Roadmap" focuses on a steady glide path to bring the fiscal deficit below **4.5% by 2025-26**.

- **Performance:** By achieving a 4.3% FD in 2026-27, the government has exceeded its own consolidation targets. This has been possible due to robust tax buoyancy (Gross Tax Revenue at **₹44,04,086 crore**) and a strategic shift toward **Capital Expenditure**, which has a higher multiplier effect on growth.

Fiscal Deficit Index (FDI) and its Significance

The **Fiscal Deficit Index** is a relative measure used to assess the "quality" of the deficit. It compares the growth of the deficit to the growth of the economy and the quality of assets being created.

Significance:

1. **Market Confidence:** A stable or declining FDI reassures international rating agencies and investors, lowering the "Sovereign Risk Premium."
2. **Crowding In vs. Crowding Out:** A high index suggests the government is hogging market credit, "crowding out" private investment. The current 2026-27 profile, focusing on market borrowings of **₹11,73,210 crore**, is designed to keep interest rates stable for the private sector.
3. **Inflation Targeting:** Since the deficit is largely financed by market borrowings and liabilities, the FDI serves as an early warning signal for inflationary pressures.

Conclusion: A Narrative of Strategic Resilience

The Budget for 2026-27 represents a synthesis of "**Strategic Maturity**" and "**Fiscal Prudence**." The government has moved beyond the "Scarcity Management" of the post-independence era to "Investment Management" for a \$30 trillion economy.

The transition from a 9.2% fiscal deficit in 2020-21 to **4.3% in 2026-27** is a masterstroke of fiscal policy. However, the caveat remains: the sustainability of this growth depends on maintaining the **Quality of Expenditure**. By keeping the **Effective Revenue Deficit at 0.3%**, the state is ensuring that borrowed money is used to build the physical and digital infrastructure of tomorrow, rather than just funding the consumption of today.

Ultimately, the Budget is the physical proof of a state that is both "Compassionate" in its gender and child welfare outlays, and "Disciplined" in its macroeconomic management. It is the bedrock upon which the edifice of **Viksit Bharat @2047** is being constructed.

The Union Budget for 2026-27

A comprehensive structural analysis of Budget 2026-27

The Philosophy: From Scarcity to "Viksit" Aspirations

The underlying philosophy of Budget 2026-27 is anchored in the transition from "**Reactive Governance**" to "**Prospective Planning**." As India enters the final decades leading up to 2047, the budget moves away from the populist "subsidy-trap" toward a "**Productivity-Led Welfare**" model.

The philosophy rests on the belief that true empowerment (*Sabka Vikas*) is achieved by building national capacity rather than just funding consumption. It emphasizes the **"Saturation Approach,"** ensuring that technology and infrastructure reach the "Last Person in the Queue," thereby converting the demographic dividend into a tangible economic asset.

The Core Objectives: The "Trinity of Growth"

Based on the 2026-27 documents, the budget identifies three overarching objectives that serve as the macroeconomic compass:

1. **Sustainable High Growth:** Maintaining a GDP growth rate of 7% plus through continued public capital expenditure, which has a high multiplier effect (estimated at 2.45x).
2. **Technological Sovereignty:** Embedding AI, IoT, and Digital Public Infrastructure (DPI) across agriculture, healthcare, and governance to reduce inefficiencies.
3. **Fiscal Fortitude:** Achieving a steady glide path in fiscal consolidation, targeting a deficit of **4.3% of GDP** for 2026-27, down from 4.4% in the previous year.

The Three "Kartavyas" (Duties) for the Amrit Kaal

The Finance Minister, in her speech, framed the budget around three **Kartavyas**—a moral and economic contract between the State and its citizens:

- **First Kartavya: Accelerate and Sustain Economic Growth.** This involves the "Reform Express," ensuring that the ease of doing business is replaced by the "Ease of Living." It focuses on logistical efficiency and energy transition.

- **Second Kartavya: Fulfil Aspirations and Build Capacity.** This focuses on **Yuva Shakti** (Youth Power). Through the National Education Policy and a revamped skill development mission, the goal is to create a "Global Talent Pool."
- **Third Kartavya: Sabka Sath, Sabka Vikas.** This is the duty of inclusive growth. It targets the four "castes" redefined by the government: the Poor, the Youth, the Women (*Nari Shakti*), and the Farmers (*Annadata*).

The Strategy: The "Reform Express"

The 2026-27 strategy is a departure from traditional "sectoral silos." It employs a **"Cluster-Based Strategy"**:

1. **Infrastructure Multimodalism:** Moving beyond just building roads, the focus is now on the **PM GatiShakti** framework—integrating railways, airways, and waterways to reduce logistics costs from 14% of GDP to 8%.
2. **Digital First Agriculture:** The implementation of **AgriStack** and the **Digital Agriculture Mission** (with an outlay of ₹2,817 crore) seeks to digitize land records and crop surveys, enabling precise credit delivery.
3. **Livestock-Centric Economics:** Recognizing that livestock GVA is growing faster than crops, the strategy focuses on genetic enhancement (Gir bull semen imports) and disease eradication (NADCP).

Budgetary Highlights:

The "Budget at a Glance" 2026-27 provides the following vital statistics:

- **Total Expenditure:** Pegged at **₹53,47,315 crore**.

- **Capital Expenditure (CapEx):** The budget continues its aggressive stance on asset creation, maintaining a high outlay to "crowd-in" private investment.
- **Gross Tax Revenue:** Estimated at **₹44,04,086 crore**, showing a robust tax-to-GDP ratio and high tax buoyancy.
- **Devolution to States:** In the spirit of cooperative federalism, the transfer of resources to States and UTs is projected at **₹15.26 lakh crore** as per the 16th Finance Commission's early recommendations.

The "Gold Theme": Balancing Fiscal Responsibility and Growth

The defining achievement of Budget 2026-27 is the "**Golden Mean**"—the successful balancing act between fiscal discipline and sustained growth.

- **The Fiscal Glide Path:** By keeping the Fiscal Deficit at **4.3%**, the government has demonstrated that it can adhere to the FRBM legislation without strangling public investment.
- **Effective Revenue Deficit (ERD):** A standout fact in the 2026 documents is the ERD being brought down to **0.3% of GDP**. This indicates that the government has virtually eliminated borrowing for consumption. Almost all borrowed money is now directed toward **Grants-in-aid for the creation of capital assets** (₹4,92,702 crore).

Significant Sectors of Focus

1. Agriculture and the "Annadata"

The focus is on **Crop Diversification** and **Oilseed Atmanirbharta**. The budget prioritizes

the **National Mission on Edible Oils** to reduce the \$20 billion import bill. It also emphasizes "Agriculture 2.0"—integrating drones and AI for precision farming.

2. Infrastructure: The GatiShakti Expansion

Investment in the **Indian Railways** (Demand No. 85) has seen a massive surge, focusing on the Dedicated Freight Corridors (DFC) and the High-Speed Rail Corporation. The **Ministry of Road Transport** (Demand No. 86) continues to lead the CapEx drive with an focus on "Expressway Saturation."

3. Green Energy and the "LiFE" Initiative

The budget allocates significant resources to the **Ministry of New and Renewable Energy** (Demand No. 71), targeting the Green Hydrogen Mission and the rooftop solarization program.

4. Nari Shakti and Yuva Shakti

Gender Budgeting has been integrated into almost every department, focusing on women-led development. The Ministry of Skill Development (Demand No. 92) has been tasked with the "Industry 4.0" readiness of the Indian workforce.

Opinion & Conclusion

In my considered opinion, Budget 2026-27 is a "**Strategic Masterstroke.**" It successfully navigates the "impossible trinity" of high growth, low inflation, and fiscal consolidation. By prioritizing **Capital Expenditure** over **Revenue Expenditure**, the government is effectively "paying forward" the dividends of current discipline to future generations.

The decision to maintain the **Fiscal Deficit at 4.3%** while expanding the **Digital Agriculture Mission** suggests that the state is confident in its tax-collection machinery (GST and Direct Taxes). However, the success of this budget will depend on two critical "Execution Caveats":

1. **State-Level Synergy:** As resources are devolved, the states must mirror the Centre's fiscal discipline and CapEx focus.
2. **Private Investment Crowding-In:** While public spending is high, the "Animal Spirits" of the private sector must now take over the mantle of investment to reach the \$5 trillion target.

Conclusion: The Budget for 2026-27 is not just an annual financial statement; it is the "**Economic Constitution**" for a new India. It replaces the "Scarcity Mindset" with a "Saturation Mindset." To conclude, it marks the end of the "Planned Era" and the beginning of the "Performative Era," where every rupee spent is measured against its outcome. As India marches toward 2047, this budget ensures that the foundation of the edifice is fiscally sound, technologically modern, and socially inclusive.

Previous Year Questions

1. Explain how the Fiscal Health Index (FHI) can be used as a tool for assessing the fiscal performance of states in India. In what way would it encourage the states to adopt prudent and sustainable fiscal policies? (250w) [2025]
2. Distinguish between Capital Budget and Revenue Budget. Explain the components of both these Budgets. [150 Words] [10 Marks] [2021]

3. Define potential GDP and explain its determinants. What are the factors that have been inhibiting India from realizing its potential GDP? [150 Words] [10 Marks] [2020]
4. The public expenditure management is a challenge to the Government of India in context of budget making during the post liberalization period. Clarify it. [250 Words] [15 marks] [2019]
5. Comment on the important changes introduced in respect of the Long term Capital Gains Tax (LCGT) and Dividend Distribution Tax (DDT) in the Union Budget for 2018-2019. [150 Words] [10 Marks] [2018]
6. One of the intended objectives of Union Budget 2017-18 is to 'transform, energize and clean India'. Analyse the measures proposed in the Budget 2017-18 to achieve the objective. [250 Words] [15 marks] [2017]
7. Women empowerment in India needs gender budgeting. What are requirements and status of gender budgeting in the Indian context? [200 Words] [12.5 Marks] [2016]

Answering Guidelines

To address this 10-mark question effectively within the 150-word limit, your answer must be direct, technically precise, and divided into clear thematic components using the formatting tools below.

I. Introduction (Approx. 20 words)

- **Objective:** State the overarching fiscal intent of the budget structural changes.
- **Key Guidelines:**

- Frame the modifications in the Union Budget 2018–19 as a strategic recalibration aimed at widening the tax base, mobilizing resources, and bringing parity between capital and labor taxation.

II. Body Points: Core Structural Reforms (Approx. 100 words)

Use distinct bullet points to highlight the exact modifications introduced for both instruments:

- **Long-Term Capital Gains Tax (LTCG) Realignment:**
 - Explain the **reintroduction of a 10% tax** on long-term capital gains exceeding ₹1 lakh generated from listed equity shares and equity-oriented mutual funds.
 - Highlight the elimination of the 14-year-old tax exemption under Section 10(38).
 - Mention the incorporation of the "**grandfathering clause**," which protected all capital gains accrued up to January 31, 2018, to prevent retrospective distress.
- **Dividend Distribution Tax (DDT) Expansion:**
 - Explain the **introduction of a 10% DDT** on income distributed by equity-oriented mutual funds.
 - Focus on the policy intent: creating a level playing field between growth-oriented schemes and dividend-distributing schemes, which previously enjoyed tax-free payouts.

III. Conclusion & Macroeconomic Impact (Approx. 30 words)

- **Objective:** Synthesize the long-term institutional significance of these tax reforms.
- **Key Guidelines:**
 - Conclude by noting that these measures checked the excessive financialization of savings and minimized market volatility.
 - Emphasize that the revenue generated helped build the state's **social infrastructure shield**, channeling resources from market segments to fund welfare schemes for the "**person in the last row**."

Section V: Infrastructure & Investment

I. Infrastructure in India

Infrastructure development is the foundational bedrock of the Indian economy. In the current fiscal landscape, the government has transitioned from merely adding capacity to creating an integrated, multimodal, and digitally-enabled ecosystem designed to support the vision of **Viksit Bharat @2047**.

Significance: Infrastructure as the Engine of Growth

Infrastructure is not just a collection of roads and bridges; it is a "force multiplier" that determines the pace and quality of economic expansion.



1.The Multiplier Effect

The most compelling reason for the government's focus on infrastructure is its high multiplier effect. Studies indicate that for every rupee the government spends on creating infrastructure, the GDP gains approximately **₹2.5 to ₹3.5** over the medium term. This makes public capital expenditure (Capex) the most efficient tool for driving economic growth.

2.Creator of Public Goods and Market Expansion

Infrastructure acts as a creator of essential public goods—such as transport, energy, and digital connectivity—which are often too capital-intensive for the private sector to build alone. By strengthening physical and digital connectivity, infrastructure expands the market size, allowing goods produced in rural areas to reach global value chains efficiently.

3.Linkages and Productivity

Infrastructure provides critical "forward and backward linkages." For example, a new highway (backward linkage) reduces logistics costs for a factory, while reliable power and 5G networks (forward linkages) enable that factory to adopt smart manufacturing, thereby enhancing overall national productivity.

The Present Shift: Expansion and Strategy

Since FY15, and particularly gaining momentum after FY20, there has been a decisive shift in how India approaches infrastructure.

1. The Massive Rise in Public Capex

The Union Budget has seen a sustained upward trajectory in capital outlay.

- **Expansion Scale:** Between FY19 and FY22, capital expenditure increased by 92%.
- **Current Momentum:** The budgeted allocation for FY26 stands at **₹11.21 lakh crore**, nearly double the FY22 levels.
- **Reason:** This push is designed to "crowd-in" private investment by providing the necessary foundational assets that make private projects viable.

2.The Rise of Digital Public Infrastructure (DPI)

A defining feature of the current phase is that infrastructure is no longer just "bricks and mortar." India has built a world-leading digital backbone.

- **Components:** Platforms like **Aadhaar, UPI, FASTag, and DigiYatra** form the digital public infrastructure that allows for inclusive and efficient service delivery at scale.
- **Connectivity:** The expansion of **BharatNet** and the rapid deployment of **5G networks** ensure that the "digital multiplier" reaches the last mile.

Structural and Operational Challenges

Despite record-breaking investment, several hurdles limit the effectiveness of infrastructure projects, often leading to time and cost overruns.

1. The "Twin Balance Sheet" and PPP Performance

While India ranks among the top five globally for private participation in infrastructure (PPI), the domestic private sector has often been hesitant.

- **Balance Sheet Syndrome:** Many private infrastructure companies and banks are still recovering from a period of high debt and Non-Performing Assets (NPAs) caused by stalled projects from previous decades.
- **PPP Underperformance:** Weak feasibility assessments and rigid procurement practices have historically made some Public-Private Partnerships (PPP) commercially unviable.

2. Clearance Delays and Administrative Gaps

Upstream project preparation remains a significant bottleneck. Delays in land acquisition, environmental clearances, and dispute resolution remain the primary reasons why large projects exceed their budgets.

3. Sector-Specific Issues

- **Roadways Burden:** While highways are expanding rapidly, the sector bears a heavy debt burden, requiring innovative "asset recycling" models like Toll-Operate-Transfer (TOT) to free up capital.
- **Railways and Technology:** Moving from "obsolescence" to modernization requires massive investment in signaling and high-speed corridors to compete with the efficiency of roadways.

Government Measures and Institutional Reforms

To address these challenges, the government has moved toward "integrated, system-level development" rather than isolated projects.

Multimodal Planning: PM GatiShakti

Launched in 2021, the **PM GatiShakti National Master Plan** has institutionalized GIS-enabled planning.

- **Purpose:** It ensures that different departments (Railways, Roads, Ports) coordinate their plans to reduce "siloed" execution and execution risks.
- **Democratization:** The launch of **PM GatiShakti Public** provides geospatial data to private developers, helping them make better investment decisions based on advanced analytics.

National Logistics Policy (NLP)

The NLP focuses on reducing the cost of doing business in India. Tools like the **Unified Logistics Interface Platform (ULIP)** provide a predictable and digitized environment, directly improving the competitiveness of the manufacturing sector.

Diversified Infrastructure Financing

The financing landscape is shifting away from a historical dependence on bank credit toward more stable capital market instruments.

- **InvITs and REITs:** These trusts allow long-term institutional capital (like pension funds) to participate in finished infrastructure assets, reducing the risk of "asset-liability mismatches" on bank balance sheets.
- **RBI Project Finance Directions 2025:** These guidelines introduce a unified framework for lending and realistic ways to handle project delays, preventing the "evergreening" of bad loans.
- **IIPDF (Project Development Fund):** Funding is now provided to create a pipeline of "bankable" projects by assisting central and state authorities in project preparation.

Conclusion: The Road to 2047

India's infrastructure strategy is currently in a state of "**Strategic Maturity.**" The focus has shifted from mere physical expansion to a holistic ecosystem that integrates **Physical Assets, Digital Infrastructure, and Green Energy.**

To sustain this momentum, the government is focusing on:

1. **Strengthening Institutional Capacity:** Improving project preparation and adopting lifecycle-based costing.
2. **Private Sector Crowding-in:** Using a stronger PPP pipeline and standardized contracts to attract private capital.
3. **Sustainability:** Aligning the infrastructure base with resilient water systems and renewable energy assets.

Ultimately, infrastructure is the "engine" that will determine India's ability to transition from a developing economy to **Viksit Bharat @2047**. The success of this engine depends on the quality of planning, the speed of dispute resolution, and the ability to maintain the high multiplier effect through efficient execution.

2. Infrastructure Finance

Infrastructure finance in India is currently undergoing a structural transformation. For a nation aiming for **Viksit Bharat @2047**, the shift from traditional bank-led lending to diversified market-based financing is a strategic necessity to ensure long-term, sustainable growth.

The following notes outline the evolving landscape of infrastructure financing, focusing on new regulatory frameworks, investment vehicles, and government initiatives as highlighted in the **Economic Survey 2025-26**.

The Problem: Why the Financing Landscape is Shifting

Historically, India relied heavily on commercial banks to fund infrastructure. This led to significant systemic issues:

- **Asset-Liability Mismatch:** Banks use short-term deposits to fund long-gestation (20–30 years) infrastructure projects, creating financial instability.
- **Twin Balance Sheet Syndrome:** High exposure to stalled projects led to a surge in Non-Performing Assets (NPAs), making banks cautious about further lending.
- **Stagnant Credit Growth:** In October 2024, bank credit growth to infrastructure was as low as **2.3%**, though it recovered to **4.6%** by October 2025.

To mitigate these risks, the economy is shifting toward **market channels** and non-bank financial companies (NBFCs), which saw a robust CAGR of **43.3%** in credit flows to the commercial sector between FY20 and FY25.

Market-Based Financing: InvITs, REITs, and SM REITs

Investment Trusts have emerged as the primary vehicles for "asset recycling," allowing the government and private developers to free up capital from finished projects.

InvITs and REITs (Recent Changes)

Infrastructure Investment Trusts (**InvITs**) and Real Estate Investment Trusts (**REITs**) enable institutional and retail investors to earn dividends from income-generating assets like

highways or commercial buildings.

- **Funds Mobilized:** Between April and November 2025, listed REITs and InvITs raised **₹13,893 crore**.
- **Equity Treatment:** From January 1, 2026, SEBI has decided that investments by Mutual Funds and Specialised Investment Funds (**SIFs**) in REITs will be treated as **equity-related instruments**, which is expected to improve market liquidity.

The SM REIT Framework (Small and Medium REITs)

SEBI introduced the **SM REIT** framework to democratize real estate investment:

- **Asset Size:** It reduced the minimum asset size requirement from ₹500 crore to **₹50 crore**.
- **Structure:** It allows multiple schemes under one SM REIT, with each scheme managing assets worth between ₹50 crore and ₹500 crore.
- **Impact:** This brings smaller, stabilized assets (like urban commercial buildings) into a regulated pooled vehicle, supporting urban regeneration.

Regulatory Reforms: RBI and SEBI

New guidelines are designed to enhance planning quality and reduce execution risks.

RBI (Project Finance) Directions 2025

Effective from October 1, 2025, these guidelines provide a unified framework for project lending:

- **Realistic DCCO:** The treatment of the **Date of Commencement of Commercial Operations (DCCO)** has been revised to handle project delays more realistically.

- **Anti-Evergreening:** By identifying actual stress earlier, these rules prevent the "artificial evergreening" of loans.
- **Policy Synchronization:** The definition of "Infrastructure" has been aligned with the government's **Harmonised Master List (HML)** for regulatory clarity.

Government Measures: Integrated Planning Tools

Infrastructure expansion is no longer just about building assets; it is about "integrated, system-level development".

PM Gati Shakti: The Master Plan

Launched in 2021, **PM Gati Shakti** has institutionalized multimodal, GIS-enabled planning.

- **Multimodal Planning:** It ensures that different departments (Rail, Road, Port) coordinate to reduce transaction costs.
- **PM Gati Shakti Public:** This recent launch provides geospatial data to private developers and researchers, helping them use advanced analytics for investment decisions.

National Logistics Policy (NLP) and Digital Backbone

The NLP aims to make India's manufacturing sector more competitive by reducing logistics costs.

- **ULIP (Unified Logistics Interface Platform):** Provides a predictable, digitized environment for logistics.
- **LEADS (Logistics Ease Across Different States):** A framework that provides insights to improve efficiency across state borders.

- **Force Multipliers:** Digital Public Infrastructure (DPI) components like **FASTag**, **DigiYatra**, and **UPI** act as force multipliers, delivering smart and inclusive services at scale.

Infrastructure Finance in Budget 2026-27

The recent budget continues the trend of massive public capital expenditure (Capex) to "crowd-in" private investment.

- **Budgeted Outlay:** For FY26, the government has budgeted **₹11.21 lakh crore** for capital outlay, an 89% increase from FY22.
- **PPP Pipeline:** A new **3-year PPP project pipeline** has been created, comprising **852 projects** with a combined cost of over **₹17 lakh crore**.
- **Multiplier Effect:** The government relies on the high multiplier of infrastructure spending—estimated at **2.5 to 3.5 times** the GDP—to sustain medium-term growth.

Challenges to Sustained Growth

Despite the funding push, execution remains a hurdle:

- **Upstream Gaps:** Time and cost overruns are often linked to weak feasibility assessments and incomplete **Detailed Project Reports (DPRs)**.
- **Rigid Procurement:** Outdated practices and delays in dispute resolution continue to slow down project delivery.
- **Project Preparation:** Strengthening the **IIPDF** (Project Development Fund) is critical to creating a pipeline of "bankable" projects.

Conclusion: The Roadmap to 2047

India's infrastructure financing has moved beyond mere capacity addition to focusing on **Efficiency, Competitiveness, and Network Integration**. The shift toward capital markets (InvITs/REITs), combined with institutional reforms like **PM Gati Shakti**, is creating a more resilient ecosystem.

To reach the **Viksit Bharat @2047** vision, the focus must remain on:

1. **Sustaining Public Capex:** While improving project planning and execution.
2. **Crowding-in Private Investment:** Through a stronger PPP pipeline and standardized contracts (MCAs).
3. **Alternative Financing:** Deepening long-term financing via capital markets and prudentially sound credit.

By aligning infrastructure with **Sustainability and Modernization**, India is ensuring that its physical and digital backbone can support a high-growth, high-productivity economy for decades to come.

Previous Year Question

1. "Investment in infrastructure is essential for more rapid and inclusive economic growth." Discuss in the light of India's experience. [250 Words] [15 Marks] [2021]

Answering Guidelines

I. Introduction (Approx. 30–40 words)

- **Objective:** Define infrastructure using a macroeconomic lens and link it to the core philosophy of the prompt.
- **Key Guidelines:**
 - Define infrastructure as the physical skeleton and systemic nervous system of an economy (encompassing transport, power, digital networks, and social assets).
 - Frame India's policy shift: Infrastructure is no longer viewed merely as a supportive utility, but as a primary catalyst for transitioning from a **"Survival Society"** to a thriving, unified **Viksit Bharat**.

II. Body Paragraph 1: Driving "More Rapid" Economic Growth (Approx. 90–100 words)

Explain the supply-side and demand-side engines of growth activated by infrastructure spending:

- **Reducing the Cost of Doing Business:** Detail how advanced transport and logistical corridors lower transaction and transit costs, structurally increasing national competitiveness.
- **The Crowding-In Effect:** Highlight how massive state capital expenditure drives a "virtuous cycle" by drawing in private capital and foreign direct investment (FDI).
- **Technological Transformation:** Discuss how the digital public infrastructure acts as a force multiplier, formalizing economic transactions and driving multi-sector productivity.

III. Body Paragraph 2: Ensuring "Inclusive" Development (Approx. 90–100 words)

Shift the lens to show how infrastructure applies the **"Person in the Last Row"** test to economic progress:

- **Rural-Urban Connectivity:** Illustrate how reliable connectivity connects remote farm enclaves to urban consumer centers, directly reducing distress migration and agricultural drudgery.

- **The JAM Trinity and Distributive Justice:** Explain how digital identity and banking networks dismantle informal market barriers, ensuring welfare funds and credit reach marginalized populations directly without leakage.
- **Social Infrastructure Infrastructure:** Emphasize that constructing rural piped water systems and standardized local health centers acts as a primary tool for women's empowerment and human capital accumulation.

IV. Conclusion & Way Forward (Approx. 30–40 words)

- **Objective:** Synthesize the policy mandate for India's ongoing growth story.
- **Key Guidelines:**
 - Conclude that while infrastructure investment successfully bridges the **Triple Inequality Gap** (digital, wealth, and regional divides), the state must balance expansion with fiscal discipline.
 - Emphasize that India's growth must feature both **Merit and Mercy**, ensuring that every pipeline, digital gateway, and roadway serves to lift citizens out of absolute vulnerability into active stakeholdership.

3. Infrastructure Subsectors

The infrastructure landscape in India has undergone a paradigm shift from simple capacity expansion to integrated, technology-led network development. This transition is aimed at reducing logistics costs and enhancing the global competitiveness of the Indian economy.

The following analysis is of the core physical infrastructure subsectors—Roadways, Railways, and Civil Aviation—based on the **Economic Survey 2025-26** and the strategic directions of the **Budget 2026-27**.

1. Roadways and Highways

Roadways continue to be the primary driver of India's infrastructure story, shifting focus toward logistics efficiency and high-speed integration.

1. Present Achievements and Expansion

The National Highway (NH) network has expanded by **60%** over the last decade, reaching **146,572 km** by December 2025.

- **High-Speed Corridors (HSCs):** A 10-fold increase has been recorded in operational HSCs, growing from 550 km in FY14 to **5,364 km** by late 2025.
- **Construction Acceleration:** Average annual construction has accelerated 2.3 times compared to the 2004-14 decade.
- **Investment Surge:** Capital expenditure has seen a 5.8-fold increase since FY15, reaching a budgeted **₹3.06 lakh crore** for FY26.

2. Rural Connectivity: PMGSY and PM-JANMAN

Rural integration has reached near-universal levels through the **Pradhan Mantri Gram Sadak Yojana (PMGSY)**, with **99.7%** of eligible habitations connected.

- **PMGSY-IV:** Launched in September 2024, this phase aims to connect 25,000 new habitations by constructing **62,500 km** of roads by FY29 at a cost of ₹70,125 crore.
- **PM-JANMAN:** This initiative serves Particularly Vulnerable Tribal Groups (PVTGs), targeting **8,000 km** of roads. It converges with the **Dharti Abha-Janjatiya Gram Utkarsh Abhiyan (DA-JGUA)** to prioritize tribal habitations.

3. Key Measures and Budget 2026-27 Priorities

- **Asset Monetization:** The government plans to launch the first **Public InvIT** in 2026.

- **PPP Pipeline:** A dedicated pipeline of **13,400 km** (estimated cost of ₹8.3 lakh crore) has been identified for the next three years.
 - **Technological Reforms:** Mandatory drone surveys, AI-based pothole detection, and **Automated Intelligent Machine-Aided Construction (AIMC)** are being deployed to ensure project quality.
-

II. Railways

Indian Railways is undergoing a structural transformation, focusing on massive capital outlay to create a future-ready, electrified, and safe network.

1. Recent Focus and Achievements

- **Network Expansion:** The rail network reached **69,439 Rkm** as of March 2025, with a target of adding 3,500 km in FY26.
- **Universal Electrification:** By October 2025, **99.1%** of the network has been electrified.
- **Historical Capex:** Capital expenditure has been maintained at record levels to accelerate capacity creation.

2. Key Initiatives under PM GatiShakti

- **Economic Railway Corridors:** Three programs—Energy, Mineral & Cement; Port Connectivity; and High Traffic Density—are mapping **434 projects** on the PM GatiShakti portal.
- **MAHSR (High-Speed Rail):** The Mumbai–Ahmedabad project has achieved over **55% physical progress** as of October 2025.

- **Dedicated Freight Corridors (DFCs):** 96.4% of the DFC network is commissioned, with the Eastern DFC fully complete and the Western DFC nearly finished.

3. Safety, Technology, and Redevelopment

- **Kavach:** Large-scale deployment of this Advance Train Protection (ATP) system is enhancing safety.
 - **Amrit Bharat Station Scheme:** 1,337 stations are being redeveloped to improve multimodal integration and user experience.
 - **Track Upgradation:** Over 78% of tracks have been upgraded to handle speeds of 110 kmph and above.
 - **Public-Private Partnerships:** 18 projects worth ₹16,636 crore have been completed, with more under implementation as of September 2025.
-

III. Civil Aviation

India has emerged as the world's third-largest domestic aviation market, driven by a policy environment that promotes affordability and regional access.

1. Recent Achievements

- **Infrastructure Growth:** The number of operational airports has more than doubled, from 74 in 2014 to 164 in 2025.
- **Passenger Traffic:** Handled 412 million passengers in FY25, with projections to reach 665 million by FY31.
- **Air Cargo:** Growth from 2.53 MMT in FY15 to 3.72 MMT in FY25.

2. Key Policy and Technological Initiatives

- **RCS-UDAN:** This scheme has operationalized **657 routes**, connecting 93 airports (including heliports and water aerodromes).
- **Greenfield Airports:** In-principle approval has been granted for 24 Greenfield airports, with **13 already operational**, including Navi Mumbai.
- **Capacity Expansion:** Modernization projects since FY20 have raised passenger-handling capacity to **575 million per annum**.
- **Digital Integration:** The expansion of **Digi Yatra**, liberalized drone regulations, and PLI support for drone manufacturing are modernization pillars.

3. Legislative Reforms and Budget 2026-27 Outlook

- **Bharatiya Vayuyan Vidheyak, 2024:** Replaces the century-old Aircraft Act of 1934 to enhance innovation and global compliance.
 - **Protection of Interests in Aircraft Objects Act, 2025:** Aligns India's leasing laws with global standards to reduce leasing costs.
 - **Future Growth:** India currently operates only **0.11 airports per million people**, signaling massive headroom for growth compared to the US or China.
-

IV. Energy Sector: From Access to Agency

India's power sector has achieved a historic milestone by closing the energy deficit from 4.2% in FY14 to **nil** by November 2025. The strategy has evolved from providing basic electricity connections to ensuring the financial viability of the entire value chain.

1. Achievements in Power Development and Distribution

Total installed capacity rose to **509.74 GW** as of November 2025. This expansion was supported by a massive investment of ₹1.85 lakh crore in distribution infrastructure.

- **Key Schemes for Access:**
 - **DDUGJY & IPDS:** Focused on rural and urban distribution strength.
 - **SAUBHAGYA:** Successfully provided electricity access to **2.86 crore households**.
- **Revamped Distribution Sector Scheme (RDSS):** Launched in 2021 with an outlay of ₹3.03 lakh crore, this scheme links funding to the operational performance of DISCOMs to improve smart metering and reduce losses.

2. India Energy Stack (IES): The DPI of Power

The **India Energy Stack** is a landmark reform designed as Digital Public Infrastructure (DPI) for the power sector.

- **Energy Agency:** It shifts the focus from "access" to "agency," allowing consumers to choose service providers, share data securely, and participate in peer-to-peer (P2P) energy trading.
- **Monetization:** It enables small participants, such as farmers with solar pumps or households with rooftop solar, to convert surplus energy into tradable economic assets.

3. Renewable Energy: Structural Transformation

Renewable Energy (RE) now constitutes **49.83%** of India's total installed capacity.

- **Global Standing:** India ranks 3rd in overall RE and solar capacity and 4th in wind capacity globally.
- **Record Growth:** Total RE capacity surged from 76.38 GW in 2014 to **253.96 GW** by November 2025.

- **Addressing Variability:** To manage the inherent variability of renewables, the government is prioritizing **Battery Energy Storage Systems (BESS)** and **Pumped Storage Hydropower (PSP)** to ensure grid stability during peak loads.

India's infrastructure strategy has evolved into a sophisticated, integrated system. The launch of **PM GatiShakti** has successfully institutionalized GIS-enabled planning, reducing transaction costs and execution risks. By combining record-breaking public Capex with innovative financing tools like REITs and InvITs, the government is "crowding-in" private investment.

The focus for **Budget 2026-27** remains on **sustainability, competitiveness, and network integration**. As the country builds toward **Viksit Bharat @2047**, the convergence of digital public infrastructure (DPI) with core physical assets like high-speed rail and access-controlled highways will be central to supporting India's long-term growth and its ambition of becoming a global manufacturing hub.

Ports and Shipping: Anchoring Global Competitiveness

India's maritime sector is the primary pillar for integrating the domestic economy with global supply chains. The focus is currently on reducing "turnaround time" and increasing private participation.

1. Significance and Operational Efficiency

India's cargo throughput has reached record levels, supported by mechanization and "smart port" initiatives.

- **Global Recognition:** India's growing competitiveness is reflected in the **World Bank's Container Port Performance Index 2024**, where two Indian ports featured in the top 30 and seven in the top 100.
- **Turnaround Time:** Digital trade facilitation has significantly reduced the average container vessel turnaround time, reaching near-global best standards.

2. The Landlord Port Model and PPP

Under the **Major Port Authorities Act, 2021**, India has institutionalized the **Landlord Port Model**.

- **Structure:** Port authorities retain ownership of the land and core infrastructure while private operators manage terminal operations through long-term concessions.
- **PPP Growth:** The value of PPP projects rose by **377%** between FY15 and FY25. Currently, PPP and captive operators are projected to handle **80% of all cargo** at major ports by 2030.
- **Vadhvan Port:** A massive greenfield project worth **₹76,220 crore** has been identified to further boost India's maritime capacity.

3. Legislative Reforms

Five major Acts in 2025 have modernized the sector:

- **Merchant Shipping Act:** Aligns Indian laws with International Maritime Organisation (IMO) standards.
- **Coastal Shipping Act:** Removes licensing hurdles for Indian vessels to promote eco-friendly coastal trade.

- **Indian Ports Act:** Establishes a Maritime Single Window System to reduce logistics costs.
 - **Bills of Lading and Carriage of Goods by Sea Acts:** Simplify legal provisions to reduce disputes and align with international norms like the Hague-Visby Rules.
-

Emerging Infrastructure: Inland Waterways and Space

1. Inland Water Transport (IWT)

Cargo movement through IWT rose from 18 MMT in 2014 to **146 MMT in 2025**.

- **Jal Marg Vikas Project (JMVP):** Focused on NW-1 (Varanasi to Haldia), where cargo movement increased by 220%.
- **Kochi Water Metro:** A scalable model for sustainable urban mobility, reducing costs to one-tenth of traditional rail-based metro systems.

2. Space Sector

India currently operates **56 active space assets** and achieved a milestone in 2025 with autonomous satellite docking via the **SpaDeX** mission.

- **Private Participation:** Reforms in 2020 and the **Indian Space Policy 2023** have led to the emergence of over **300 space start-ups**.
- **Venture Capital:** A ₹1,000 crore VC fund has been approved to accelerate technology-led growth in the private space economy.

India's infrastructure strategy reflects a "Strategic Maturity" where physical connectivity is seamlessly integrated with digital and institutional reforms. Whether through the **India**

Energy Stack empowering the consumer or the **Landlord Port Model** attracting private capital, the goal is clear: reducing transaction costs and execution risks to achieve the vision of **Viksit Bharat @2047**.

Conclusion

India's infrastructure strategy has transitioned from mere physical expansion to a sophisticated, integrated ecosystem that serves as the primary engine for **Viksit Bharat @2047**. By institutionalizing multimodal planning through **PM GatiShakti** and leveraging **Digital Public Infrastructure (DPI)**, the government has significantly reduced logistics costs and execution risks. Sustained public capital expenditure, reaching **₹11.21 lakh crore** for FY26, continues to generate powerful multiplier effects while "crowding-in" private investment through innovative models like **HAM** and **InvITs**. Ultimately, this modernization of roads, railways, ports, aviation, and energy ensures a resilient, sustainable, and globally competitive foundation for inclusive national growth.

Pervious year Questions

1. India aims to become a semiconductor manufacturing hub. What are the challenges faced by the semiconductor industry in India? Mention the salient features of the India Semiconductor Mission. (250w) [2025]
2. What is the technology being employed for electronic toll collection on highways? What are its advantages and limitations? What are the proposed changes that will make this process seamless? Would this transition carry any potential hazards? [2024]
3. What is the need for expanding the regional air connectivity in India? In this context,

discuss the government's UDAN Scheme and its achievements. [2024]

4. Do you think India will meet 50 percent of its energy needs from renewable energy by 2030? Justify your answer. How will the shift of subsidies from fossil fuels to renewable help achieve the above objective? Explain. [250 words][15 Marks][2022]

5. Give an account of the current status and the targets to be achieved pertaining to renewable energy sources in the country. Discuss in brief the importance of National Programme on Light Emitting diodes (LEDs). [200 Words] [12.5 Marks] [2016]

6. To what factors can be the recent dramatic fall in equipment cost and tariff of solar energy be attributed? What implications does the trend have for thermal power producers and related industry? [200 Words] [12.5 Marks] [2015]

7. National Urban Transport Policy emphasises on 'moving people' instead of 'moving vehicles. Discuss critically the success of the various strategies of the Government in this regard. [200 Words] [12.5 Marks] [2014]

8. Write a note on India's green energy corridor to alleviate the problem of conventional energy. [200 Words] [10 Marks] [2013]

9. Adoption of PPP model for infrastructure development of the country has not been free of criticism. Critically discuss the pros and cons of the model. [200 Words] [10 Marks] [2013]

10. National Urban Transport Policy emphasises on 'moving people' instead of 'moving vehicles. Discuss critically the success of the various strategies of the Government in this regard. [200 Words] [12.5 Marks] [2014]

11. Write a note on India's green energy corridor to alleviate the problem of conventional energy. [200 Words] [10 Marks] [2013].

4. Investment Models

Why Investment is a Necessity for India ?

India faces a unique set of challenges that make investment the most important priority for the government and the private sector. We often talk about our "demographic dividend," but a large population is only a dividend if they have jobs. Without investment, that dividend becomes a burden. The two prime reason for the investments are

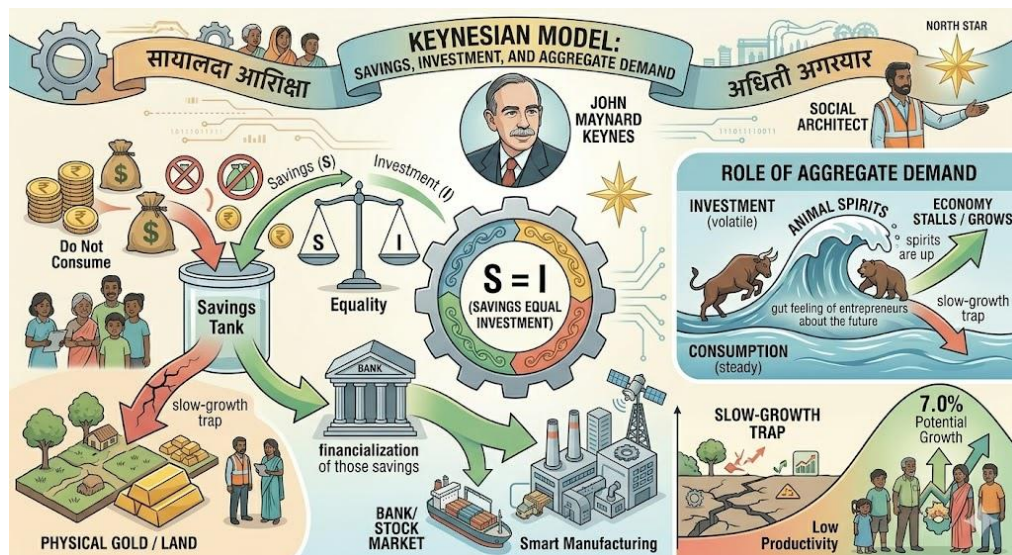
1. The Investment Deficit and the "Drain"

For decades, India has suffered from an **investment deficit**. This means we are not putting enough money into long-term assets like factories, roads, and power plants. We had the long experience of "drain" of capital. When our domestic investors feel the environment is too risky or when global interest rates shift, money tends to flow out of the country.

2. The Fiscal Deficit Challenge

The government often wants to invest more, but it faces a **high fiscal deficit**. This simply means the government spends more than it earns. To bridge this gap, the government borrows money. While borrowing for a highway is good, borrowing just to pay for daily expenses (like salaries or subsidies) creates a "crowding out" effect. This happens because when the government borrows too much from the banks, there is less money left for private businesses to borrow and invest.

Savings and Investment in the Keynesian Model



To understand investment, we must look at the ideas of John Maynard Keynes. His model is very relevant for India because it explains why economies sometimes get stuck in a slow-growth trap.

The Equality of Savings and Investment

In a simple Keynesian world, **Savings (S)** must equal **Investment (I)**.

- **Savings** is the part of income that people do not consume.
- **Investment** is the spending on new capital goods like machinery or buildings.

Keynes argued that if people save more but businesses do not invest that money, the total demand in the economy falls. This leads to lower production and higher unemployment. In India, we have a decent savings rate, but the challenge is "financialization" of those savings—getting people to put money into banks and stocks rather than just buying physical gold or land.

The Role of Aggregate Demand

Keynes believed that investment is the most volatile part of the economy. Unlike consumption, which stays somewhat steady (people have to eat), investment depends on what he called "**Animal Spirits**"—the confidence and gut feeling of entrepreneurs about the future. If businessmen feel the future is bright, they invest; if they are scared, they stop, and the economy stalls.

Factors that determine Investment

Why does a company decide to build a new factory today? It depends on several moving parts.

1. Income and Consumption

The most basic factor is **Income**. If the national income is rising, people have more money to spend. When consumption goes up, businesses need to produce more. To produce more, they must invest in more machines. This is known as the **Accelerator Effect**.

2. Interest Rates

This is the "price" of money. If the Reserve Bank of India (RBI) keeps interest rates high, borrowing becomes expensive. For a small business in Chennai or a large firm in Mumbai, high rates mean the cost of a project goes up, which might make it unprofitable. Therefore, lower interest rates usually encourage more investment.

3. Rate of Return and Taxes

An investor looks at the **Marginal Efficiency of Capital (MEC)**—basically, the expected profit from a new investment.

- **Taxes:** High corporate taxes eat into profits. If the government reduces taxes, the "net" rate of return increases, making the investment more attractive.
- **Inflation:** Moderate inflation is actually good for investment because it suggests demand is healthy. However, very high inflation creates uncertainty and raises the cost of raw materials, which kills investment.

4. Factors of Production and Infrastructure

Investment doesn't happen in a vacuum. It needs a foundation:

- **Land, Labor, and Capital:** If land acquisition is difficult or labor laws are too rigid, investors will stay away.
- **Transport and Communication:** A factory is useless if there are no roads to move the goods or high-speed internet to manage the supply chain. This is why the **PM Gati Shakti** plan is so critical—it lowers the "logistics cost" for investors.

New Sources of Investment capital: SWFs and Pension Funds

Traditional bank loans are no longer enough for India's needs. We are now looking at:

1. **Sovereign Wealth Funds (SWFs):** These are state-owned investment funds (like those from the UAE or Norway). They have "patient capital"—money that can stay invested for 20 years.
2. **Pension Funds:** Huge amounts of money from retired workers globally are looking for safe, long-term returns. India's infrastructure projects are perfect for these funds.

Investment Multiplier

The **Investment Multiplier** is perhaps the most powerful concept in macroeconomics. It explains that when the government or a private company spends money on a project, the total increase in national income is much higher than that original amount.

The Mechanics: MPC and MPS

Think of it this way: when the government builds a highway in Tamil Nadu, it pays contractors and laborers. These people now have "new" income. What do they do with it?

- **Marginal Propensity to Consume (MPC):** This is the portion of that new income they choose to spend on goods like food, clothes, or electronics.
- **Marginal Propensity to Save (MPS):** This is the portion they tuck away in a bank or under a mattress.

The **Value of MPC** always stays between **0 and 1**.

- If $MPC=0$, people save everything and spend nothing; the multiplier stops immediately.
- If $MPC=1$, people spend every single rupee they earn, creating an infinite chain of demand.

The Formula

For exam preparation, you must remember the relationship:

$$\text{Investment Multiplier (K)} = 1 / 1 - MPC \text{ or } K = 1 / MPS$$

If India has a high MPC, every rupee invested generates a massive wave of secondary

income. However, if inflation is high or people are scared of the future, they save more (MPS goes up), and the "magic" of the multiplier weakens.

Categorizing Investments:

Not all investments are the same. In the Indian context, we categorize them based on who is spending and what is driving that decision.

1. Public vs. Private Investment

- **Public Investment:** This is spending by the State. It isn't always about profit. It's about building the "foundations"—dams, schools, and digital infrastructure. In a developing economy like ours, public investment often "crowds in" private players by making the environment easier to do business in.
- **Private Investment:** This is driven purely by the "Animal Spirits" and profit. A tech firm in Anna Nagar expands only if it sees a market for its product. It is highly sensitive to interest rates and government policy.

2. Induced vs. Autonomous Investment

This distinction is crucial for understanding economic cycles:

- **Induced Investment:** This is investment that changes as income changes. When the Indian middle class earns more, they buy more cars. Car companies then invest in new factories to meet that demand. It is profit-driven and follows the growth curve.
- **Autonomous Investment:** This is the "brave" investment. It does not depend on the current level of income. It is often driven by:

- **Social Welfare:** Building hospitals because people need them, not because they are profitable.
- **Population Change:** As our population grows, we *must* build more houses and schools regardless of the GDP growth rate.
- **Technology Change:** When 5G or AI arrives, companies must invest in new hardware just to stay relevant. It is a structural necessity.

Savings and Investment

Investment cannot exist without savings. If we don't save, there is no pool of money for banks to lend to builders. In India, we have traditionally been a "nation of savers," but the way we save is changing.

Factors That Determine Savings

Why do Indian households decide to save more or less? It isn't just about habit; it's about the environment.

1. **Inflation:** This is the silent thief. If inflation is 10% but your bank interest is 7%, you are losing money by saving. High inflation pushes people toward "physical assets" like gold, which doesn't help the economy grow.
2. **Tax Reforms:** If the government gives tax breaks on insurance or provident funds, people save more through formal channels. The move toward the New Tax Regime is a major factor currently shifting how people manage their surplus income.

3. **Global Economic Conditions:** In a globalized world, if there is a recession in the US or Europe, Indian IT employees might save more out of fear of job losses. Uncertainty is the greatest driver of "precautionary savings."
4. **Funding Mechanisms:** The rise of **Mutual Funds (SIPs)** has changed the game. Earlier, savings were stuck in "dead" assets. Today, through digital platforms, even a small saver in a village can contribute to the capital market, making the funding mechanism for Indian industry much more robust.

Crucial points

1. **The Infrastructure Gap:** India has a "savings-investment gap." We want to build like China but our domestic savings are sometimes not enough. This is why we need Foreign Direct Investment (FDI).
2. **The Quality of Spending:** Government spending on salaries (Revenue Expenditure) has a low multiplier. Spending on bridges and semiconductors (Capital Expenditure) has a high multiplier. Your answers should always advocate for shifting from the former to the latter.
3. **The "Last Mile":** Inclusive growth happens when the multiplier works in rural areas. This is why "Autonomous Investment" in rural technology and education is the real secret to **Viksit Bharat**.

Investment is the bridge between where India is and where it wants to be. We must move away from a "subsidy-heavy" model toward an "investment-led" model. This requires balancing the fiscal deficit, keeping inflation under control, and ensuring that the "Animal Spirits" of our entrepreneurs are always high. If we can fix the infrastructure and make borrowing easier, the investment deficit will finally turn into a surplus, leading to a truly inclusive and developed India.

To sum up, the Indian economy is a living, breathing entity. The **Investment Multiplier** is its heartbeat, **Savings** are its fuel, and **Autonomous Investment** is its vision for the future.

5. The Foundational Models of investment-India.

The Harrod-Domar Model: The Savings & Efficiency Blueprint

This was the starting point for many developing nations, including India during its First Five-Year Plan. It is a simple but rigid model that looks at growth as a mathematical outcome of two things: **How much we save** and **How efficiently we use capital**.

The Core Factors:

- **The Level of Savings:** In this model, the more a society saves, the more it can invest. Investment leads to capital accumulation (more machines, more factories), which drives growth.
- **The ICOR (Incremental Capital-Output Ratio):** This is the "efficiency" metric. It tells us how much additional capital is needed to produce one extra unit of output.
 - *Low ICOR* = High Efficiency (You need less money to grow).
 - *High ICOR* = Low Efficiency (You are wasting money or using outdated technology).
- **The Role of the Labour Force:** Harrod-Domar warns of a "knife-edge" balance. For steady growth, the rate of investment must match the rate of labor force growth and technological progress. If the population grows faster than we can create "capital" (tools/jobs), we fall into a trap of unemployment.

The Lewis Model: The Theory of the "Unlimited" Labour Pool

Arthur Lewis gave us the most famous "Dual Economy" model. This is essentially the story of India's transition from a rural, agrarian society to an urban, industrial one.

The Dual Economic System:

Lewis divides the economy into two sectors:

1. **The Subsistence Sector (Traditional/Agriculture):** Here, there are too many people on too little land. The "marginal productivity" of these workers is zero—meaning if you move a few farmers to a factory, the farm output doesn't drop.
2. **The Capitalist Sector (Modern/Industrial):** This sector uses capital (machines) and hires labor to produce goods for profit.

The Factors of Transition:

- **Subsistence Wages:** Factories can hire workers from the villages at a "subsistence wage"—just enough to survive. Because there is a "surplus" of people in the villages, the wages in the city stay low for a long time.
- **Profit Reinvestment:** The "magic" happens when the factory owner makes a profit and reinvests it into more machines. This creates a demand for even more workers.
- **Population Rise:** While a rising population provides the "surplus labor" Lewis talks about, the model only works if the capitalist sector grows fast enough to absorb them. If the population rises too quickly, the "subsistence sector" remains bloated, leading to the urban slums we see today.

The Solow-Swan Model: The Long-Term Productivity Cycle

If Harrod-Domar is about "quantity" of investment, Solow-Swan is about "quality." It introduces the idea that you cannot grow forever just by adding more and more machines.

The Investment-Income-Savings Cycle:

The model follows a logical loop: **Investment** creates **Income**; a portion of that income is turned into **Savings**; and those savings are put back into **Investment**.

Key Focus Areas:

- **Diminishing Returns:** Solow argued that if you keep adding machines (Capital) to the same number of workers, each new machine adds less and less to total output.
- **The Role of Technology:** This is the game-changer. Solow showed that long-term growth doesn't come from just more "Capital Goods," but from **Technological Progress**. Technology allows the same number of workers and machines to produce more.
- **Rapid Industrialization & Imports:** For a country like India, following this model meant a period of high imports of heavy machinery (Capital Goods) to "catch up" with the West. The goal was rapid industrialization to reach a "steady state" of high income.

Application of Models in India: A Historical Journey

India has been a laboratory for these models. We didn't just follow one; we evolved through them.

- **The Harrod-Domar Era (1st Plan):** We focused on basic savings and agriculture to get the engine started.
- **The Nehru-Mahalanobis Strategy (2nd Plan onwards):** While similar to Solow's focus on **Capital Goods**, this was India's "Heavy Industry" push. We believed that by building steel plants and machine-tool factories first, we could achieve self-reliance. This led to **High Imports** of technology and a focus on the "Capitalist Sector" of the Lewis model.
- **The Liberalization Shift (1991):** We realized the "Efficiency" (ICOR) was too low. We moved toward a model that allowed private investment to lead, focusing on technology and services (Solow's "Technological Progress").

The Present Condition: Where Does India Stand now?

Today, India is navigating a complex mix of these models as it eyes the 2026-2030 window for peak demographic opportunity.

The Current Investment Landscape:

1. **High Fiscal Deficit vs. Capital Expenditure:** The government is currently pushing "Public Investment" into infrastructure (roads, rails, digital) to "crowd in" private players. This is a modern take on Solow—building the productive base of the economy.
2. **The Persistence of the Lewis Trap:** We still have a "Dual Economy." Over 40% of our workforce is in agriculture, contributing only about 15-18% to GDP. The challenge is that our "Modern Sector" (IT, Services) is capital-intensive and doesn't absorb the "surplus labor" from villages as easily as Lewis's textile factories did.

3. **Efficiency Concerns (ICOR):** India's ICOR has improved, but logistics costs remain high. The **PM Gati Shakti** and **National Logistics Policy** are direct attempts to lower the ICOR—making every rupee of investment produce more growth.
4. **The Shift to Inclusive Growth:** Today's strategy emphasizes **Social Inclusion** and **Social Justice**. We are no longer just looking at GDP; we are looking at **Digital Public Infrastructure (DPI)** to ensure that the "Multiplier" of investment reaches the last mile.

Conclusion for the Aspirant:

In the Mains exam, your analysis must show that India is currently trying to solve the **Lewis Model's** labor problem by using **Solow's** technological focus. We are investing in "Capital Goods" not just in the form of steel, but in the form of **Semiconductors, AI, and Green Hydrogen**.

The goal is a "Viksit Bharat" where the transition from the subsistence sector to the modern sector is driven by high-tech skills and formalization, backed by a government that maintains the delicate balance between high investment needs and fiscal discipline. Keep your answers focused on this transition—from "Survival" (early models) to "Strategic Indispensability" (present condition).

6. Public-Private Partnership (PPP).

Public-Private Partnership (PPP) has emerged as a cornerstone of India's infrastructure development strategy. As the Indian economy targets a \$5 trillion and eventually a \$30 trillion status, the gap between the required investment and available public funds makes PPP an absolute necessity rather than just an option.



Roots and Salient Features of PPP

A Public-Private Partnership is a long-term contract between a government agency and a private entity. The goal is to provide a public asset or service, in which the private party bears significant risk and management responsibility.

The Roots

The roots of PPP lie in the transition from a "Provider State" to an "Enabler State." In the early decades after independence, the government built everything. However, limited budgets and inefficiency led to delays. By the late 1990s, the global trend shifted toward bringing in private capital and efficiency to build public goods like roads, ports, and power plants.

Salient Features

- **Risk Sharing:** The most critical feature is that risk is allocated to the party best able to manage it. For example, construction risk stays with the private builder, while regulatory risk stays with the government.
- **Efficiency:** Private players bring in better technology, faster completion times, and superior management practices.
- **Funding:** It allows the government to build massive projects without immediate, heavy pressure on the fiscal deficit.
- **Value for Money:** It focus on the "Life Cycle Cost" of an asset rather than just the initial building cost.

Origin of PPP in India

The journey of PPP in India gained momentum with the **Liberalization of 1991**. However, the real push came in the late 1990s and early 2000s:

- **The Kelkar Committee:** The recommendations of the Vijay Kelkar Committee on "Revisiting and Revitalizing the PPP Model" provided the modern framework.
- **NHAI:** The creation of the National Highways Authority of India (NHAI) led to the first major wave of PPPs in the road sector.
- **Viability Gap Funding (VGF):** To make projects attractive, the government started providing a grant (up to 20-40%) to projects that were socially essential but commercially difficult.

Different PPP Models in India

The government uses different "flavors" of PPP depending on how much risk the private

player can take.

1. BOT (Build-Operate-Transfer)

In this model, the private partner builds the project, operates it for a "concession period" (e.g., 20 years) to recover their investment through tolls or fees, and then transfers it back to the government.

- **Example:** Many stretches of the **Golden Quadrilateral** highways were built using the BOT-Toll model.

2. BOO (Build-Own-Operate)

Here, the private player builds, owns, and operates the facility forever (or for a very long duration). The government acts as a regulator rather than taking the asset back.

- **Example:** Many **Private Power Plants** in India operate on a BOO basis, where the company owns the plant and sells power to the grid.

3. BOLT (Build-Operate-Lease-Transfer)

The private entity builds the asset and leases it to the government for a fixed period. The government pays "rent" to the private player. After the period ends, the asset is transferred to the government.

- **Example:** **Indian Railways** has used BOLT for projects like station redevelopment or specialized rolling stock (wagons).

4. LDO (Lease-Develop-Operate)

This model is used for existing assets. The government leases an old or underperforming

asset to a private player. The private player develops/upgrades it and operates it for a period.

- **Example:** The **Modernization of Major Airports** (like the initial phases of Delhi and Mumbai airports) involved leasing existing government land and assets to private consortia to develop them into world-class facilities.

5. EPC (Engineering, Procurement, Construction)

In this model, the government pays the private player to design and build the project. The private player takes no financial risk; they are simply a "contractor." Once built, the government owns and operates it.

- **Example:** Most **National Highway projects** where traffic is low and private players are unwilling to take toll risks are built through EPC.

6. HAM (Hybrid Annuity Model)

This is a "mix" of EPC and BOT. The government pays 40% of the project cost during construction. The remaining 60% is arranged by the private player. The government then pays back that 60% plus interest over time (Annuities). The government takes the "Toll Risk."

- **Example:** This is currently the most popular model for **NHAI Road Projects** because it reduces the financial burden on private builders.

Model	Ownership	Investment	Key Feature	Risk Allocation	Common Sector
EPC	Government	Government	Private player	Government	Low-traffic

(Engineering, Procurement, Construction)		ent	is a contractor paid to build the project.	ent takes all financial and toll risks.	Highways, Bridges
BOT (Build-Operate-Transfer)	Private (Temporary)	Private	Private player recovers cost via user fees (tolls) for a fixed period.	Private sector takes full financial and traffic risk.	National Highways, Ports
HAM (Hybrid Annuity Model)	Government	Mixed (40:60)	A mix of EPC and BOT; Government pays 40% during construction.	Shared: Govt takes traffic risk; Private takes construction risk.	Modern Road Projects (NHAI)
BOO (Build-Own-Operate)	Private	Private	Private player retains the asset indefinitely or for its full life.	Private sector takes all risks; Govt is only a regulator.	Power Plants, Telecom
BOLT (Build-Operate-Lease-	Private (Temporary)	Private	Private player builds and leases the	Shared: Private takes	Indian Railways (Wagons/Stations)

Transfer)			asset to the Government for "rent."	constructi on; Govt ensures payment.	
LDO (Lease-Develop-Operate)	Government	Private	Private player upgrades and manages an <i>existing</i> government asset.	Private player takes operation al and developm ent risk.	Airport Modernization

Present Condition of PPP in India

The current landscape of PPP in India is one of "cautious maturity." We have moved past the initial excitement and are now fixing structural flaws.

Strategic Shifts

- **Focus on Hybrid Models:** Because many private companies faced "Debt Stress" in the past, the government has shifted toward **HAM** and **EPC** to reduce private risk.
- **Digital Public Infrastructure (DPI):** India is using technology to streamline PPPs. The **PM Gati Shakti Master Plan** uses digital mapping to help private players plan routes and get clearances faster.
- **Monetization (NMP):** The **National Monetization Pipeline** is a new form of PPP where the government "leases out" finished assets (like a running highway or a warehouse) to private players for 20-30 years to raise immediate cash for new projects.

- **Dispute Resolution:** One of the biggest hurdles was delayed court cases. The government is now focusing on faster arbitration and "independent regulators" to ensure private players don't get stuck in red tape.

The Public-Private Partnership (PPP) framework is the bridge between India's massive infrastructure needs and its limited fiscal capacity. To understand why India is betting so heavily on this model for **Viksit Bharat**, we must look at the balance of benefits, the deep-seated challenges, and the reforms that are currently shaping the landscape.

The Advantages of the PPP Model

The shift toward PPP is driven by the realization that the government alone cannot bear the burden of building a modern economy.

1. **Efficiency and Innovation:** Private partners bring superior technology and management practices that the public sector often lacks. This leads to faster project completion and higher quality assets.
2. **Risk Allocation:** One of the greatest benefits is that risks—such as construction delays or cost overruns—are transferred to the private party, who is usually better equipped to manage them.
3. **Fiscal Relief:** PPPs allow the government to initiate large-scale projects like highways and airports without immediate, heavy pressure on the fiscal deficit.
4. **Asset Maintenance:** Unlike traditional government contracts where maintenance is often neglected, PPP contracts usually include long-term maintenance clauses, ensuring the asset remains in good condition throughout its life cycle.

The Disadvantages and Risks

Despite the benefits, the model is not a "magic bullet" and comes with significant downsides.

1. **Higher Costs to Users:** Private players need to recover their investment and make a profit, which often leads to higher tolls or user fees for the public.
2. **Complex Contracts:** These are long-term agreements (often 20–30 years). Predicting every economic shift over three decades is impossible, leading to frequent disputes.
3. **Contingent Liabilities:** If a project fails or the private partner goes bankrupt, the government often has to step in and take over the debt, creating a hidden burden on the state's finances.
4. **Social Equity Concerns:** High user fees can exclude the poorest sections of society from using essential infrastructure like premium expressways or high-speed rail.

Challenges for PPP Models in India

India's experience with PPP has been a rollercoaster. While we have seen great success, several structural hurdles remain.

1. **The "Twin Balance Sheet" Problem:** Many private infrastructure companies in India are heavily in debt, and banks are cautious about lending to them due to past Non-Performing Assets (NPAs).
2. **Regulatory Delays:** Land acquisition and environmental clearances remain the biggest "bottlenecks." Delays in these areas make projects unviable for private investors.
3. **Judicial and Dispute Resolution:** Resolving a contract dispute in India can take years. This uncertainty scares away long-term "patient capital" like foreign pension funds.

4. **Inadequate Project Appraisal:** Often, the "traffic projections" or demand estimates for projects (like Metro rails or Toll roads) are overly optimistic, leading to financial failure once the project is operational.

PPP Reforms: The Kelkar Committee and Beyond

To fix these issues, the government appointed the **Vijay Kelkar Committee** on "Revisiting and Revitalizing the PPP Model." Its recommendations are highly relevant for any Civil Services aspirant.

Key Kelkar Committee Recommendations:

- **Focus on Service Delivery:** Move from "building an asset" to "providing a service." The focus should be on the quality of the experience for the citizen.
- **Risk Allocation:** Risks should be allocated to the party best able to manage them. For example, the government should handle land acquisition and clearances, while the private player handles construction and operation.
- **Review of Model Concession Agreements (MCA):** Contracts should be flexible enough to be "renegotiated" if economic conditions change drastically, rather than ending up in court.
- **Independent Regulators:** Establish independent sector-specific regulators to ensure fair play and resolve disputes without political interference.
- **VGF Reform:** Strengthening the **Viability Gap Funding (VGF)** mechanism to support projects that are socially necessary but financially difficult.

Other Modern Suggestions:

- **Hybrid Models:** Transitioning toward the **Hybrid Annuity Model (HAM)** to reduce the financial risk for private builders.
- **PM Gati Shakti:** Using digital mapping to ensure that all departments (Rail, Road, Power) are coordinated, preventing a road from being dug up for a pipeline immediately after it is built.

Success Stories of PPP in India

India has some of the finest examples of PPP success that have transformed lives.

- **The Delhi and Mumbai Airports:** Once crumbling government facilities, they are now ranked among the best airports in the world thanks to private management and investment.
- **The Golden Quadrilateral:** This massive highway network was significantly accelerated by using various PPP models, revolutionizing logistics in India.
- **Hyderabad Metro:** One of the world's largest elevated metro projects implemented on a PPP basis, showcasing how urban transport can be managed privately.
- **Digital Public Infrastructure (DPI):** While not a traditional "bridge and road" PPP, the partnership between the government and private tech players for UPI and Aadhaar is a global success story in inclusive growth.

Conclusion: The Path Forward

The present condition of PPP is characterized by "Strategic Sobriety." The government is focusing on building a "Future-ready Digital Infrastructure" and physical connectivity while maintaining fiscal discipline. By shifting from "Regulation and Control" to "Enabling," the state is ensuring that PPPs become the primary vehicle for achieving

Viksit Bharat@2047.

The present condition of PPP in India is one of "Strategic Sobriety". We have moved past the era of unbridled optimism and are now focusing on outcome-oriented governance.

For India to reach its goal of **Viksit Bharat**, the state must evolve from a "regulator" to an "enabler". This means providing a trust-based compliance environment and reducing the "cost of capital" for private players. The future of PPP lies in **Sustainable Infrastructure**—projects that are not just profitable, but also environmentally green and socially inclusive.

As an aspirant, you must view PPP not just as a financial tool, but as a "Strategic Indispensability" for India to become a global economic leader. The goal is to ensure that every rupee of investment—whether public or private—multiplies into a better life for the last person in the queue.

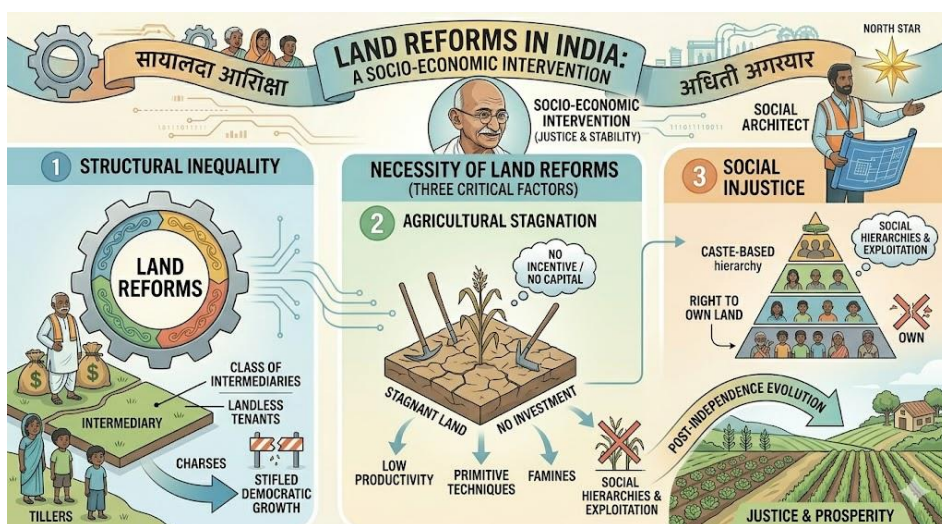
Previous Year Questions

- 1) Why is Public Private Partnership (PPP) required in infrastructural projects? Examine the role of PPP model in the redevelopment of Railway Stations in India. [150 Words] [10 Marks] [2022]
- 2) Explain the meaning of investment in an economy in terms of capital formation. Discuss the factors to be considered while designing a concession agreement between a public' entity and a private entity.[250 Words] [15 Marks] [2020]
- 3) Examine the developments of Airports in India through Joint Ventures under Public-Private Partnership (PPP) model. What are the challenges faced by the authorities in this regard. [150 Words] [10 Marks] [2017]

- 4) Explain how Private Public Partnership arrangements, in long gestation infrastructure projects, can transfer unsustainable liabilities to the future. What arrangements need to be put in place to ensure that successive generations 'capacities are not compromised? [200 Words] [12.5 Marks][2014]
- 5) Foreign Direct Investment (FDI) in the defence sector is now set to be liberalized: What influence this is expected to have on Indian defence and economy in the short and long run? [200 Words][12.5 Marks] [2014]
- 6) Discuss the impact of FDI entry into multi-trade retail sector on supply chain management in commodity trade pattern of the economy. [100 Words] [5 Marks] [2013]
- 7) Though India allowed Foreign Direct Investment (FDI) in what is called multi-brand retail through the joint venture route in September 2012, the FDI, even after a year, has not picked up. Discuss the reasons. [100 Words] [5 Marks] [2013]
- 8) Adoption of PPP model for infrastructure development of the country has not been free of criticism. Critically discuss the pros and cons of the model. [200 Words] [10 Marks] [2013]
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Section VI: Agriculture and Rural Transformation –I

I. Land reforms in India



Land reforms in India represent one of the most significant socio-economic interventions in the post-independence era. For a nation where more than half the population depends on agriculture, the ownership and management of land are not just economic issues but are deeply tied to social justice and political stability.

The Necessity of Land Reforms

At the time of independence, India inherited a highly exploitative and distorted land tenure system from the British Raj. The necessity for reform was driven by three critical factors:

1. **Structural Inequality:** Under British rule, systems like the **Zamindari system** created a class of powerful intermediaries who owned vast tracts of land while the actual tillers remained landless tenants. This concentration of wealth in a few hands stifled the growth of a democratic society.
2. **Agricultural Stagnation:** Intermediaries had no incentive to invest in the land, and the poor tenants had no capital to do so. This led to low productivity, primitive farming techniques, and frequent famines.
3. **Social Injustice:** Land ownership in India was closely linked to the caste system. Marginalized communities were often denied the right to own land, leading to deep-seated social hierarchies and exploitation.

Primary Objectives of Land Reforms

The government initiated land reforms with a dual focus: achieving **social equity** and increasing **economic efficiency**.

1. **Redistribution of Land:** The primary goal was to take surplus land from large stakeholders and redistribute it to the landless and marginal farmers. This was intended to provide a basic source of livelihood to the poorest sections of society.
2. **Promotion of Modern Farming:** By giving ownership rights to the actual tillers (the "tiller of the soil" policy), the government aimed to incentivize farmers to adopt modern techniques, fertilizers, and irrigation, as they would now reap the full benefits of their hard work.
3. **Abolition of Exploitation:** To end the high rents, illegal evictions, and forced labor that were characteristic of the intermediary system.
4. **Equality in Agro-Assets:** To ensure that land—the most precious asset in a rural economy—was shared equitably to prevent the emergence of a new "landed aristocracy."

Core Components of Land Reforms

The land reform strategy in India was divided into four main pillars. Each pillar addressed a specific defect in the existing agricultural structure.

I. Abolition of Intermediaries (Zamindari Abolition)

The first and most successful component was the removal of layers of intermediaries (Zamindars, Jagirdars, and Inamdars) between the State and the tiller.

- **Process:** Almost all states passed "Zamindari Abolition Acts" by the early 1950s.
- **Result:** Approximately 20 million tenants were brought into direct contact with the State. Vast areas of uncultivated land and forests were also taken over by the government, which helped in rural development.

II. Tenancy Reforms

For those who continued to cultivate land owned by others, the government introduced three types of protection:

1. **Regulation of Rent:** Before reforms, rents were often as high as 50% to 70% of the produce. Laws were passed to cap rents at a more reasonable level (usually 20% to 25%).
2. **Security of Tenure:** Laws were enacted to prevent "arbitrary evictions." Tenants could only be evicted according to the law and under specific conditions.
3. **Ownership Rights for Tenants:** In many cases, tenants were given the right to purchase the land they had been tilling for years at a subsidized rate determined by the government.

III. Fixation of Land Ceilings

This component aimed to limit the maximum amount of land an individual or a family could own.

- **Redistributive Logic:** Any land held above the "ceiling limit" was declared as **surplus land**. The government took possession of this surplus land and redistributed it to landless laborers, particularly those from Scheduled Castes and Scheduled Tribes.
- **Challenges:** This was the most difficult part of the reform to implement. Many large landowners used loopholes—such as transferring land in the names of relatives or domestic help (known as **Benami transfers**) to bypass the law.

IV. Cooperative Farming and Consolidation of Holdings

Indian farms were often "fragmented"—meaning a single farmer owned small, scattered plots in different places. This made modern farming impossible.

- **Consolidation:** The government encouraged the "pooling" of scattered plots into one single compact holding.
- **Cooperatives:** The goal was to encourage farmers to work together in cooperatives to purchase expensive machinery (like tractors) and sell their produce at better prices.

The Legal Process of Land Reforms

The implementation of land reforms in India was a complex legal battle involving both the Parliament and State Legislatures.

Constitutional Framework

Under the Indian Constitution, "**Land**" is a **State Subject** (Entry 18 of the State List). This meant that while the Central Government provided the policy guidelines (through the

Five-Year Plans), the actual laws had to be passed by the State Legislatures.

Parliamentary Laws and Amendments

When early land reform laws were challenged in courts by wealthy landowners (citing the "Right to Property" as a fundamental right at the time), the Parliament took decisive action:

- **The 1st Constitutional Amendment (1951):** It introduced the **Ninth Schedule**. Any law placed in the Ninth Schedule was protected from judicial review on the grounds that it violated fundamental rights. Most state land reform acts were placed here.
- **The 44th Amendment (1978):** This amendment finally removed the "Right to Property" from the list of Fundamental Rights and made it a mere legal right (under Article 300A). This cleared the legal hurdles for the State to acquire land for public welfare.

State Legislations

Different states achieved different levels of success based on their political will:

- States like **West Bengal** (Operation Barga) and **Kerala** were highly successful because of strong state-level legislation and political mobilization of the peasantry.
 - In contrast, in many northern states, the legal process was slowed down by litigation and a lack of accurate land records.
-

2. Evaluation of Land Reforms

I. The Abolition of Intermediaries: Breaking the Feudal Back

The first task of a new India was to remove the Zamindars, Jagirdars, and Inamdars—the "middlemen" who stood between the State and the farmer, extracting rent without contributing a single seed to the soil.

The Process and Legislation

The process was decentralized. Since land is a state subject, various State Legislations were passed between 1947 and 1956. The most famous was the **UP Zamindari Abolition and Land Reforms Act, 1950**. These laws were designed to strip the intermediaries of their superior rights and vest the land in the State.

- **The 173 Million Acre Appropriation:** Through these legal maneuvers, the government successfully appropriated approximately **173 million acres** of land from the intermediaries. This included not just farmland, but also forests, wastelands, and community grazing grounds that had been held as private estates.

The Success of the First Phase

The abolition of the Zamindari system is widely considered the most successful part of India's land reforms.

- **Transformation of the Tiller:** Approximately **2.5 crore (25 million)** farmers were brought into direct contact with the State. They were no longer tenants; they became owners.

- **Shift in Landholding Patterns:** The reforms shattered the monopoly of the great landed estates. It gave birth to a new class of **middle-level, independent farmers** who had the incentive to invest in their land. This specific class later became the engine that drove the Green Revolution in the 1960s.

The Failures and the "Unholy Trinity"

Despite the numbers, the implementation was marred by deep structural flaws.

- **The Loophole of "Sir" and "Khudkasht":** Laws allowed Zamindars to keep land for "personal cultivation." Huge tracts were claimed as personal farms, meaning many landlords remained powerful under a different name.
- **Litigation as a Weapon:** Landlords used their immense wealth to tie up these laws in courts for years. They challenged the constitutional validity of the acts, forcing the government to introduce the **Ninth Schedule** to protect land reform laws from judicial review.
- **The Collaboration:** A dangerous nexus emerged—a collaboration between the **Landlord, the Politician, and the Bureaucrat**. The landlord provided the votes, the politician provided the protection, and the bureaucrat turned a blind eye to records being manipulated.

II. Tenancy Reforms: Protecting the Actual Tiller

While Zamindari abolition helped those who had a direct claim to the land, millions of others were sub-tenants or "sharecroppers" who worked on the land of others. Tenancy reforms aimed to provide them with the "Three S's": Security, Sane Rents, and Sufficiency.

The Three Components

1. **Security of Tenure:** Laws were passed to ensure that a tenant could not be evicted at the whim of the landlord. They could only be removed for non-payment of rent or misuse of land.
2. **Regulation of Rent:** Before reforms, landlords often took half or more of the crop. Reforms capped rents at **1/4th or 1/5th** of the total produce in most states.
3. **Peasant Proprietorship:** The ultimate goal was to allow the tenant to buy the land. This was the concept of "tiller of the soil."

The Success of Tenancy Reforms

The success was most visible in states with high political will, like West Bengal (Operation Barga) and Kerala.

- **The 17 Million Milestone:** Nationwide, approximately **17 million peasant proprietors** were created. These were former tenants who finally received the legal title to the land they had farmed for generations.
- **Empowerment:** It gave the small farmer a sense of security, allowing them to take loans from banks rather than money lenders, as they finally had an asset to show as collateral.

The Failure: Evictions and Benami Holdings

- **Voluntary Surrenders:** To bypass the law, landlords forced tenants to sign "voluntary surrenders" of their rights. If a tenant refused, they were often physically intimidated.

- **Benami Holdings:** Landlords transferred land into the names of their domestic help, distant relatives, or even non-existent people (fictional names) to keep the land under their control while appearing to comply with the law.
- **Oral Leases:** Fearing the law, landlords stopped giving written contracts. Everything was done orally, making it impossible for the tenant to prove their rights in a court of law.

III. Fixation of Land Ceilings: The Quest for Equity

If the first two phases were about the "rights" of the farmer, the third phase—Land Ceilings—was about the "limit" of the owner. It was an attempt to ensure that no single family owned too much while others had nothing.

The Process and Limits

The "ceiling" was the maximum area of land a family could legally hold.

- **Family Unit:** A "family holding" was generally defined as the area that a family of five could cultivate with a pair of bullocks and a basic plough.
- **The 1 to 3 Rule:** Laws suggested that no family should hold more than **3 times** the area of a standard family holding.
- **Irrigated vs. Unirrigated:** The limits were strict. For **perennially irrigated land**, the ceiling was often set between **10 to 18 acres**. For **unirrigated/dry land**, the ceiling could go up to **54 acres**.

The Success: Surplus and Redistribution

- **Surplus Land Creation:** Through these laws, approximately **7 to 8 million acres** of land were declared "surplus."

- **Redistribution to the Landless:** About **5 to 6 million acres** of this surplus land were eventually redistributed. This went primarily to landless laborers from Scheduled Castes and Scheduled Tribes, marking a significant step toward social inclusion.
- **Discouragement of Large Estates:** Even where the law wasn't fully implemented, it discouraged the creation of new giant plantations, preventing the further concentration of agricultural wealth.

The Failures: A Lack of Consensus

The Ceiling phase is often cited as the least successful part of the land reform journey.

- **Area Consensus:** Different states had different limits. A landlord in one state could hold twice as much as a landlord in another, leading to migration and legal confusion.
- **The Compensation Battle:** There was no consensus on how much the government should pay for the surplus land it took. Low compensation led to more litigation; high compensation was a drain on the exchequer.
- **The "Additional Member" Loophole:** Landlords claimed that their "extended family" (including adult sons) were separate units, effectively doubling or tripling the amount of land they could keep.
- **Exemptions:** Many states exempted orchards, sugarcane farms, and "efficiently managed farms" from the ceiling. Naturally, every landlord suddenly claimed their land was a highly efficient sugarcane farm to escape the law.

Conclusion: The Unfinished Marathon

Land reforms in India were a "mixed bag." We succeeded in destroying the giant feudal intermediaries, but we failed in the microscopic details of redistribution and tenant protection.

The present shift is now toward the **Digitization of Land Records** and the **Formalization of Leasing**. To achieve **Viksit Bharat @2047**, we must ensure that land is no longer a source of conflict but a liquid, transparent asset. The lessons of the past—especially the failures caused by the Landlord-Politician nexus—serve as a warning that without "transparency and technology," equity will always remain an elusive goal.

As an aspirant, you must realize that land is the stage on which the Indian economy performs. If the stage is cluttered with poor records and unequal distribution, the performance will always be hampered. The goal now is to turn "Land Reforms" into "Land Governance."

3. Cooperatives

1.

The Spirit and Origin of Cooperatives in India



The spirit of a cooperative is simple: **"Each for all and all for each."** It is a voluntary association of people who come together to achieve a common economic goal that they cannot reach alone.



The Colonial Roots

The cooperative movement in India did not start after independence; it was born out of the crushing debt of the 19th century. In the 1870s, the farmers of the Deccan rose in revolt against exploitative moneylenders.

To solve this, the British administration introduced the **Cooperative Credit Societies Act of 1904**.

Initially, it was just about providing cheap loans to keep the peace.



The Post-Independence Vision

After 1947, the vision changed. Leaders like Jawaharlal Nehru saw cooperatives as a **"middle path"** between the extremes of capitalist farming (which favored the rich) and Soviet-style collective farming (which used force).

The goal was to **preserve the farmer's ownership of land** while pooling their resources for buying seeds, using tractors, and selling crops.



Voluntary Association
People come together willingly for a common economic goal.



Self-Help
Solving problems that individuals cannot solve on their own.



Democratic Control
One member, one vote.



Economic Empowerment
Improving livelihoods through collective strength.

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The Legal Process of Cooperatives

In India, cooperatives have a unique legal standing that reflects our federal structure.

- **A State Subject:** Under the Constitution, "Cooperative Societies" fall under the **State List** (Entry 32). This means each state has its own Cooperative Societies Act.
- **Multi-State Cooperatives:** For societies that operate in more than one state (like AMUL), the Central Government passed the **Multi-State Cooperative Societies Act**.
- **The 97th Constitutional Amendment (2011):** This was a landmark change. It made the right to form a cooperative a **Fundamental Right** (Article 19). It also added a new Directive Principle (Article 43B) and a new part to the Constitution (Part IXB) to ensure that cooperatives are run democratically and professionally.
- **A New Ministry:** In 2021, the Union Government created a separate **Ministry of Cooperation** with the vision of "*Sahakar se Samriddhi*" (Prosperity through Cooperation), aiming to modernize the legal and financial framework of these societies.

Types of Cooperatives in the Agro-Economy

Cooperatives are not just about farming; they cover the entire "lifecycle" of a rural household.

1. **Credit Cooperatives:** These are the most common. They provide short-term loans for seeds and fertilizers, saving the farmer from the "debt trap" of the local moneylender.
2. **Marketing Cooperatives:** These help small farmers pool their produce to get a better price from big buyers. They prevent "distress sales" where a farmer sells at a low price just to survive.
3. **Farming Cooperatives:** Here, small farmers pool their land to cultivate it jointly. This allows them to use big machines like harvesters which would be too expensive for a single 2-acre farm.
4. **Processing Cooperatives:** These add value to the crop. Instead of selling sugarcane, the farmers own a cooperative mill to make sugar. Instead of selling milk, they own a plant to make butter and cheese.
5. **Consumer Cooperatives:** These provide basic household goods (oil, salt, soap) at fair prices in remote villages.

The Successes: When the Collective Works

When implemented with true spirit, cooperatives have changed the map of rural India.

- **Breaking the Monopolies:** Cooperatives have successfully challenged the monopoly of middlemen and "Arhatiyas" (commission agents). By providing a direct link to the market, they have increased the farmer's share of every rupee spent by the consumer.

- **Financial Inclusion:** Before the big banks reached the villages, the Primary Agricultural Credit Societies (PACS) were the only source of formal finance for millions.
- **The White Revolution:** It is no exaggeration to say that India became the world's largest milk producer because of the cooperative model. It turned a seasonal, unorganized activity into a steady daily income for rural women.
- **Empowerment of the Marginalized:** Cooperatives are democratic. Every member has one vote, regardless of how much land they own. This has given a political and social voice to small and marginal farmers.

The Failures: The Dark Side of the Movement

If cooperatives are so good, why isn't every village a success story? The failures are rooted in human and political interference.

- **Political Interference:** In many states, cooperatives became "political springboards." Local politicians used the funds of the cooperative to build their own "vote banks." Instead of serving the farmer, the cooperative served the chairman's political career.
- **Bureaucratic Red Tape:** Because they are regulated by state laws, cooperatives are often stifled by "Inspectors" and "Registrars." The freedom of the farmer is often lost in a mountain of paperwork.
- **The "Elite Capture":** Just like in land reforms, the "Big Landlord" often took control of the village cooperative. They took all the cheap loans for themselves, while the small farmer was told that the funds had run out.
- **Lack of Professionalism:** Many cooperatives failed because they couldn't compete with private companies. They lacked modern marketing, cold-chain logistics, and professional managers who understood the global market.

- **Dormancy:** Thousands of cooperatives exist only on paper. They are "shell" societies that were formed to get government subsidies but do no actual work on the ground.

A Case of Success: The "Amul" Model (GCMMF)

To understand the potential of cooperatives, one must look at the **Kaira District Co-operative Milk Producers' Union**, famously known as **Amul**.

The Problem

In the 1940s, milk farmers in Anand (Gujarat) were being cheated by a private company called Polson, which had a monopoly. The farmers were getting a pittance, while the company made huge profits.

The Solution

Guided by Sardar Patel and Tribhuvandas Patel, the farmers refused to sell to Polson and formed their own cooperative. They decided to control the **entire value chain**—from the cow to the consumer.

Why it succeeded

- **Professional Management:** Under **Dr. Verghese Kurien**, the cooperative hired the best engineers and marketers. They didn't just sell milk; they used technology to make milk powder, ensuring that surplus milk in winter wasn't wasted.
- **The Three-Tier Structure:**
 1. **Village Level:** Collection of milk.
 2. **District Level:** Processing and manufacturing.
 3. **State Level:** Marketing and branding.

- **Direct Payment:** Every morning and evening, farmers get paid based on the quality (fat content) of the milk. There is no delay and no middleman.

The Recent measures of Cooperatives in India

The cooperative movement in India is currently witnessing a renaissance, transitioning from a state-regulated sector to a modern, digitalized, and professionally managed ecosystem. Under the guiding principle of "*Sahkar se Samriddhi*" (Prosperity through Cooperation), the Union Government has introduced several landmark changes as of 2026.

1. The National Cooperation Policy, 2025

Launched in July 2025, this policy serves as a comprehensive roadmap for revitalizing the sector.

- **Expansion:** Plans were approved to establish multipurpose PACS (Primary Agricultural Credit Societies), Dairy, and Fisheries cooperatives in **every Panchayat** over the next five years.
- **White Revolution 2.0:** A massive push to strengthen dairy cooperatives, aiming to replicate the success of the original Amul model nationwide.

2. Digital Empowerment (e-PACS)

The core of the recent reform is the **Computerization of PACS**.

- **Common ERP Software:** By March 2026, over **50,000 PACS** had successfully migrated to a national Enterprise Resource Planning (ERP) software, enabling them to provide over 300 e-services (banking, insurance, and health).

- **National Cooperative Database:** A live, unified database now tracks nearly all cooperative societies, ensuring transparency and data-driven policymaking.

3. Legislative and Financial Reforms

- **Multi-State Cooperative Societies (Amendment) Act:** This law introduced the **Cooperative Election Authority** to ensure democratic and fair elections, and a **Rehabilitation Fund** for sick cooperatives.
- **Tax Relief:** The government reduced the surcharge for cooperatives from 12% to 7% and brought Minimum Alternate Tax (MAT) down to 15%, creating fiscal parity with corporate entities.
- **Banking Inclusion:** The RBI now allows Urban Cooperative Banks (UCBs) to provide doorstep banking and has removed the gold loan ceiling to bring them at par with commercial banks.

These changes represent a move toward "Cooperation among Cooperatives," ensuring that small farmers and women-led Self-Help Groups (SHGs) are no longer passive recipients but active entrepreneurs in a globalized economy.

Conclusion: The Road to "Sahakar se Samriddhi"

Cooperatives are the essential bridge for inclusive growth. In a country where 86% of farmers are small and marginal, they cannot compete individually in a globalized economy.

However, the "Old Cooperative" model—stuck in state control and political patronage—is dying. The "New Cooperative" must be:

1. **Technologically Advanced:** Using the **India Energy Stack** logic for transparent data.

2. **Financially Robust:** Linked to the capital markets through **SM REIT** style pooling.
3. **Digitally Transparent:** Ensuring that every "Lakhpatis Didi" and small farmer knows exactly where their money is going.

As we move toward **Viksit Bharat @2047**, the role of the government must shift from "controlling" cooperatives to "enabling" them. Only when the cooperative movement is freed from the "Unholy Trinity" of the landlord, the politician, and the bureaucrat, will the spirit of cooperation truly realize its potential to turn the Indian farmer into a global entrepreneur.

4. Historic assessment of Land Reforms

To understand the trajectory of the modern Indian economy, one must dissect its most ambitious, yet most bitterly contested post-independence experiment: **Land Reforms**. It was not merely a policy; it was a socio-economic revolution designed to dismantle a centuries-old feudal structure and replace it with a system based on dignity, equity, and productivity.

In the theater of Indian economic history, land reforms played a double-edged role. While they shattered the old feudal elite, their incomplete execution left a trail of unresolved issues that continue to shape rural politics, crop yields, and economic inequality today.

I. The Great Achievements: Advantageous Land Reforms

When we assess the positive outcomes of land reforms in India, we must acknowledge that they fundamentally altered the landscape of rural society and laid the structural foundations for the agricultural growth that followed.

1. Breaking the Feudal Hegemony

The first and most explosive achievement of land reforms was a psychological and social one. By passing the various state-level **Zamindari Abolition Acts**, the Indian state struck a colossal blow to the traditional feudal structure. The centuries-old, rent-seeking, parasitic class of intermediaries—who controlled rural life through private militias, forced labor (*begar*), and physical violence—was legally dismantled. Over night, their absolute monopoly over rural power was broken.

2. A Silent Revolution: 20 Million Peasant Proprietors

In terms of pure human impact, the scale of this reform was breathtaking. Approximately **20 million (2 crore) tenants** were freed from the clutches of intermediaries. They were brought into a direct relationship with the state, gaining legal title to the lands they cultivated.

- **The Psychology of Ownership:** This massive structural change turned passive, exploited sharecroppers into proud, self-directing **peasant proprietors**. For the first time in generations, millions of rural families had an asset they could pass down to their children, transforming their social status and political agency.

3. Unleashing Agricultural Productivity and Investment

The conventional wisdom of economics is simple: if a tenant must surrender half of their crop to a landlord, they have zero incentive to invest in high-yield seeds, fertilizers, or tubewells.

- **The Incentive to Innovate:** By granting security of tenure and ownership rights, land reforms completely changed the micro-incentives of the Indian farmer. Because they were now the sole beneficiaries of their hard labor, these newly minted landowners began investing their own capital back into the soil.
- **The Launchpad for the Green Revolution:** This structural transformation was the indispensable prerequisite for the Green Revolution of the late 1960s. Without a stable, motivated class of owner-cultivators in regions like Punjab, Haryana, and Western Uttar Pradesh, the high-yielding variety (HYV) seeds and public irrigation investments would never have yielded such spectacular results.

4. Egalitarianism and Social Justice

Land in rural India is not just economic capital; it is a measure of human dignity. By seizing surplus lands and redistributing them, the state engineered a degree of social equity. Over **5 to 6 million acres** of surplus land were distributed directly to marginalized communities, primarily Scheduled Castes (SCs) and Scheduled Tribes (STs). This process acted as a powerful instrument of social justice, providing a basic economic safety net to the historically oppressed.

II. The Dark Side: The Deep Failures of the Reforms

Despite these grand achievements, the implementation of land reforms across most of India was heavily compromised, turning what should have been a sprint into a painfully slow, incomplete marathon.

1. Exceptional Landlordism and "Khudkasht" Loop-Holes

The greatest tragedy of the land reform laws was that they were drafted by politicians who were often landlords themselves. Consequently, the laws were systematically riddled with massive loopholes:

- **The Cultivation Excuse:** Under the Uttar Pradesh and Bihar legislations, landlords were permitted to retain land under their "personal cultivation" (referred to as *Sir* or *Khudkasht*).
- **The Definition Loophole:** The legal definition of "personal cultivation" was kept incredibly vague. A landlord did not have to touch a plow; they only had to show they managed the farm, even if it was done via hired, exploited labor. Under this pretext, thousands of landlords evicted their actual tenants, claiming the land was for personal use, thereby preserving massive estates intact.

2. Benami Holdings and Mass Evictions

To bypass the strict land ceiling limits, landlords resorted to a widespread practice of **Benami transactions**.

- Land was legally transferred to distant relatives, farm-hands, domestic help, and even fictional entities, while the actual control and economic profits remained with the original landlord.

- Fearing that tenants would claim permanent ownership rights under tenancy protection laws, landlords carried out **pre-emptive, mass evictions**. Tenants who had cultivated plots for decades were suddenly thrown off the land, turning them into highly vulnerable, casual day-laborers.

3. The Weapon of Litigation

The wealthy landed gentry did not accept these reforms quietly. They used their immense financial power to wage a relentless war in the courts. They challenged the validity of every land reform act, claiming it violated their fundamental "Right to Property" (under Article 19). For decades, key redistributive initiatives were entirely frozen by injunctions and endless appeals, starving the state of momentum.

4. The Complete Neglect of Landless Agricultural Laborers

Perhaps the most glaring structural failure was the **lack of focus on landless laborers**.

- Tenancy reforms protected those who already had some tenant status on paper.
- Land ceilings were supposed to create a pool of surplus land big enough to give to the landless.
- However, because so little surplus land was actually realized, the absolute bottom of the rural pyramid—the landless casual laborers who owned nothing but their physical strength—received virtually no benefit. They remained trapped in a cycle of low wages, seasonal unemployment, and social vulnerability.

III. Deciphering Success and Failure: The Crucial Factors

Why did some regions of India witness spectacular success while others degenerated into hotbeds of agrarian conflict? The answer lies in a combination of political, administrative, and economic factors.

Factors of Success

- **Strong Political Will and Ideological Commitment:** In states like **Kerala** and **West Bengal** (exemplified by the legendary *Operation Barga* in 1978), the state governments possessed a fierce, unshakeable ideological commitment to empowering the peasantry.
- **Peasant Mobilization:** Success only occurred where the tenants themselves were politically organized and conscious of their rights. When the peasantry was mobilized by active rural unions, landlords could not easily resort to illegal evictions or manipulate records.
- **Accurate Land Records:** In regions with clean, well-maintained land records, implementing reforms was relatively straightforward.

Factors of Failure

- **The "Unholy Trinity" of Rural India:** In states like Bihar, Uttar Pradesh, and parts of Madhya Pradesh, reforms were systematically strangled by a powerful alliance of the **Landlord, the Local Politician, and the Revenue Bureaucrat**. The landlord controlled the vote-banks, the politician wrote soft laws, and the local patwari (revenue official) happily altered land records for a fee.

- **Defective Legislation:** Laws were deliberately drafted with built-in escape routes (such as exemptions for "efficiently managed" sugar farms, orchards, and religious trusts).
- **Absence of Land Records:** In many areas, land registries were deliberately misplaced, burned, or simply never updated, making it legally impossible for a poor tenant to prove they had been cultivating a specific plot of land.

IV. A Balanced Judgment on Indian Land Reforms

To evaluate India's land reforms is to look at a glass that is simultaneously half-full and half-empty. It is a story of a brilliant revolutionary vision compromised by deeply flawed local execution.

On one hand, the reforms achieved a **historic sociological victory**. They decisively destroyed the back of classical, unchecked feudalism in India. They paved the way for the emergence of a prosperous, politically dominant middle-peasantry that transformed India from a food-scarce, "ship-to-mouth" nation into a global agricultural powerhouse. The political empowerment of rural India today is a direct legacy of those early reforms.

On the other hand, the reforms failed to deliver **absolute economic equity**. By leaving the landless laborers behind and allowing landlords to retain vast wealth through Benami tricks, they left the structural roots of rural poverty alive.

Today, as India marches toward **Viksit Bharat @2047**, the nature of the land problem has shifted. The issue is no longer about seizing land from giant Zamindars. The challenges of the 21st century are **fragmentation** (the average farm size has shrunk to less than 1.08 hectares) and **informality**.

The modern answer to the unfinished agenda of land reforms lies in **technology and transparency**:

- **Digitization of Records:** Completing the **Digital India Land Records Modernization Programme (DILRMP)** to make land titles clear and indisputable.
- **Securing Title Deeds:** Leveraging programs like **SVAMITVA** to map village commons and properties using advanced drone technology, unlocking "dead capital" for credit.
- **Formalizing Land Leasing:** Creating legal, transparent frameworks for land leasing so that small farmers can securely lease out land to consolidate holdings without the fear of losing their ownership rights.

Ultimately, land reforms in India were an indispensable first step. They did not solve every problem, but they created the modern, democratic agrarian space in which today's digital, market-led agricultural reforms are finally able to take root.

Land Reforms – 21st Century.

LAND REFORMS – 21ST CENTURY

In the 21st century, the conversation around land in India has undergone a radical transformation. We have moved away from the 1950s obsession with "seizing and redistributing" land. Today, the focus is on efficiency, transparency, and liquidity. Land is no longer seen just as a source of feudal power; it is seen as a vital economic asset that must be unfettered by poor records and legal shadows if India is to become a global manufacturing and agricultural powerhouse.

The following notes outline this modern shift, the landmark legislations, and the digital revolution currently sweeping through India's land registries.



1. The New Attitude: From "Redistribution" to "Governance"

The dawn of the 21st century brought a realization that the old "First Phase" of land reforms had hit a wall. While we had abolished the big Zamindars, we were left with a country of marginalized, fragmented holdings and a mountain of land-related litigation that clogged our courts.



The Policy Shift: 10th and 11th Plans

The real change in attitude began during the 10th Five-Year Plan (2002–2007) and gained full momentum in the 11th Plan (2007–2012).

- The 10th Plan shifted the focus towards digitization of land records. It recognized that without clear titles, farmers could not get bank credit, and the "dead capital" in rural India could not be unlocked.
- The 11th Plan went further, emphasizing the need for a Conclusive Titling System. In India, we currently have "presumptive titles," meaning the person who pays the land tax is presumed to be the owner. The goal now is a "conclusive title" where the government guarantees the ownership.



2. LARR Act, 2013: Balancing Development and Dignity

One of the most significant legal shifts of this century was the replacement of the colonial-era Land Acquisition Act of 1894 with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013.

Core Provisions of the 2013 Act



Consent Clause:
For private projects, the consent of 80% of affected families is required. For PPP projects, it is 70%.



Fair Compensation:
The Act mandated compensation at 4 times the market value in rural areas and 2 times in urban areas.



R&R (Rehabilitation and Resettlement):
It was the first law to acknowledge that taking land isn't just about paying money; it's about restoring the lives of the people who worked on that land (even the landless laborers).



Social Impact Assessment (SIA):
No land can be acquired without an SIA to study the impact on the community and food security.



The 2015 Amendment Attempt

The 2015 Amendment sought to speed up the process by creating "exempted categories" for projects like defense, rural infrastructure, and industrial corridors, where the consent clause and SIA would not be mandatory. While it faced political hurdles, many states have since passed their own variations of these rules to attract investment.



3. The Model Agricultural Land Leasing Act, 2016

As farm sizes continued to shrink due to inheritance, we faced a new problem: "Fallow Land." Small farmers were moving to cities for jobs but leaving their land uncultivated because they feared that if they leased it out, the tenant would legally claim ownership under old land reform laws.



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The Haque Committee Recommendations

The NITI Aayog, under **T. Haque**, drafted the **Model Agricultural Land Leasing Act, 2016** to solve this "fear factor."

- **Necessity:** To allow land consolidation for "economies of scale" while ensuring the owner doesn't lose their title.
- **Key Objectives:**
 1. **Legalize Leasing:** Allow any person to lease land for agricultural use.
 2. **Remove Fear of Ownership Loss:** Clearly state that the tenant has no right to claim ownership based on the lease.
 3. **Access to Credit:** Allow the "lessee" (the person renting the land) to get bank loans and crop insurance based on the lease agreement.

DILRMP: The Digital Revolution

The **Digital India Land Records Modernization Programme (DILRMP)** is the central pillar of 21st-century land governance. It is the attempt to build a "single window" for land records.

Important Provisions and Components

1. **Computerization of Records:** Converting all "Records of Rights" (RoRs) into digital format.
2. **Digitization of Maps:** Using GIS and satellite imagery to update village maps (*Bhuknasha*).
3. **Registration Integration:** Linking the Sub-Registrar's office (where you buy land) with the Tehsildar's office (where the records are kept). This prevents the same plot from being sold twice to different people.

4. **ULPIN (The Aadhaar for Land):** Assigning a unique 14-digit **Unique Land Parcel Identification Number** to every plot of land in India.

Benefits of DILRMP

- **Real-time Updates:** As soon as you buy land, the record is updated automatically. No more running to the Patwari.
- **Transparency:** It destroys the "Patwari-Middleman" nexus. A farmer can check their records at any Common Service Centre (CSC).
- **Unlocking Dead Capital:** With clear, digital titles, banks can provide loans instantly. This is a massive blow to the local moneylender.

Challenges of Digitization

- **Historical Errors:** If the old paper record was wrong, digitizing it only "modernizes the error."
- **Fragmentation:** Mapping millions of tiny, irregularly shaped plots is a logistical nightmare.
- **Data Security:** Protecting land records from cyber-attacks is critical for national security.

Digital Public Infrastructure (DPI) in Land Reforms

We are now moving toward a "**Land Stack**." Just as UPI transformed payments, DPI in land is transforming ownership.

1. **SVAMITVA Scheme:** Using drones to map village properties. This provides "Property Cards" to villagers for their houses, which were never previously recorded.

2. **Interoperability:** Land records are being linked with the **PM-Kisan** database to ensure that subsidies go directly to the actual owner/cultivator.

Way Forward: The Road to 2047

To achieve **Viksit Bharat @2047**, the "unfinished business" of land reforms must be settled through technology.

1. **Moving to Conclusive Titling:** We must move away from the "presumptive" system. The state should guarantee the title, reducing the burden of litigation on our economy.
2. **Land Banks for Industry:** State governments should use digital records to create "Land Banks" so that new industries can find space without long, painful acquisition battles.
3. **Incentivizing States:** Land is a State subject. The Central Government should continue to link financial grants to the progress made by states in land record modernization.

Balanced Judgment

Land reforms in the 21st century have shifted from "Socialism" to "Governance." We are no longer trying to change *who* owns the land; we are trying to ensure that *whoever* owns it can use it efficiently. Clear land titles are not just a legal requirement; they are a fundamental right of the Indian farmer and a prerequisite for a \$30 trillion economy. The success of India's future lies in its ability to map its past and digitize its present.

Previous Year Questions

1. What were the factors responsible for the successful implementation of land reforms in some parts of the country? Elaborate. [2024]
 2. State the objectives and measures of land reforms in India. Discuss how land ceiling policy on landholding can be considered as an effective reform under economic criteria. [150 Words] [10 Marks] [2023]
 3. How did land reforms in some parts of the country help to improve the socio-economic conditions of marginal and small farmers. [150 Words] [10 Marks] [2021]
 4. Discuss the role of land reforms in agricultural development. Identify the factors that were responsible for the success of land reforms in India. [200 Words] [12.5 Marks] [2016]
 5. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 has come into effect from 1st January, 2014. What are the key issues which would get addressed with the Act in place? What implications would it have on industrialization and agriculture in India? [200 Words] [12.5 Marks] [2014]
 6. Establish relationship between land reforms, agricultural productivity and elimination of poverty in the Indian economy. Discuss the difficulties in designing and implementation of agriculture-friendly land reforms in India. [200 Words] [10 Marks] [2013]
-

Answering Guidelines

I. Introduction (Approx. 30–40 words)

- **Objective:** Define the core objective of land reforms and highlight the regional divergence in execution.
- **Key Guidelines:**
 - Define land reforms as a structural intervention aimed at breaking the back of feudal monopolies (*Zamindari* systems) to ensure **distributive justice** and agrarian efficiency.
 - Establish the thesis: Land reforms in post-independence India were a state subject, resulting in a highly skewed outcome where structural success was concentrated in specific regions (notably Kerala and West Bengal) due to a alignment of political will and grassroots mobilization.

II. Body Points: Factors Responsible for Success (Approx. 160–170 words)

Use structured bullet points to break down the multi-dimensional factors that drove successful implementation:

- **Resolute Political Will and Ideological Commitment:**
 - In regions like Kerala and West Bengal, left-of-center governments prioritized agrarian restructuring as a core ideological mandate, refusing to bow to pressure from traditional land-owning elites.
- **Mass Mobilization and "Bottom-Up" Pressure:**
 - Success was directly linked to strong peasant unions and grassroots movements (e.g., the *Tebhaga* movement legacy in Bengal). This organized "bottom-up" pressure prevented the local administration from sabotaging implementation.
- **Robust Administrative Innovation (e.g., Operation Barga):**
 - West Bengal bypasses bureaucratic red tape by utilizing village-level meetings to identify and formally register sharecroppers (*bargadars*) directly on-site, recording their rights in front of the community to eliminate falsification.
- **High Levels of Literacy and Social Awareness:**
 - In Kerala, advanced social development and high literacy rates empowered tenants to understand their legal rights, approach land tribunals, and actively resist forced evictions by landlords.
- **Comprehensive Legislative Drafting:**

- Successful states drafted airtight legislation that minimized legal loopholes regarding "personal cultivation" exemptions—a loophole widely exploited by landlords in other states to evict tenants and retain vast tracts of land.
- **Simultaneous Institutional Support:**
 - Land redistribution was backed by structural support mechanisms, including institutional cooperative credit and state-assisted inputs, preventing newly empowered smallholders from slipping back into the debt traps of local moneylenders.

III. Conclusion & Macro Takeaway (Approx. 40 words)

- **Objective:** Connect the historical lesson of land reforms to modern economic and social engineering.
 - **Key Guidelines:**
 - Conclude that the regional success of land reforms proves that structural laws cannot succeed in a vacuum; they require active political commitment and community mobilization.
 - Emphasize that as India targets a **Viksit Bharat**, the lesson of land reforms must be adapted to modern challenges—specifically through digital land record formalization (e.g., the SVAMITVA scheme) to protect the assets and economic agency of the **"person in the last row."**
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Section VII – Agriculture & Rural Transformation -II

1. Cropping Patterns in India

Types of Cropping Systems in India

In a land as diverse as India, farmers use “spatial and temporal arrangements” to maximize yield and manage risk.

A Monocropping (Monoculture)
This involves growing only one type of crop on the same land year after year.



The Indian Context: While efficient for industrial-scale farming, it often leads to soil depletion and pest build-up. Examples include continuous wheat in parts of Punjab or cotton in the Vidarbha region.

B Multiple Cropping
The practice of growing two or more crops on the same field in a single year. A specialized version of this is **Ratoon Cropping**.



Ratoon Cropping: This involves harvesting the main crop but leaving the roots and lower part of the plant in the soil to allow a “second harvest” or a “ratoon” to grow.
Example: It is most common in Sugarcane. After the first cut, the “stubble” grows back into a second crop, saving the farmer the cost of new seeds and replanting.

C Mixed Cropping
Growing two or more crops simultaneously on the same piece of land by mixing the seeds together without any specific row arrangement.



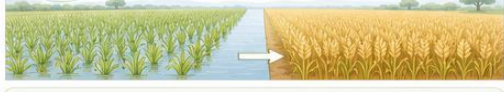
Example: Sowing Wheat and Mustard together. This is a classic “insurance” strategy; if the wheat fails due to low rainfall, the mustard might still survive.

D Intercropping
Growing two or more crops simultaneously on the same field but in a definite row pattern (e.g., 1:1 or 1:2 ratio).



Example: Soybean and Maize. This reduces competition for nutrients as different crops have different root depths and nutrient requirements.

E Sequence Cropping
Growing two or more crops in a sequence on the same field within a year. The succeeding crop is planted only after the preceding crop has been harvested.



Example: Rice followed by Wheat. This is the standard cycle in the North Indian plains.

F Relay Cropping
A sophisticated version of sequence cropping where the second crop is planted before the first crop is harvested. The second crop “picks up the relay” from the first.



Example: Planting Potato in a standing Maize crop. By the time the maize is harvested, the potato has already started its initial growth, saving precious time in the sowing window.

G Row Cropping
The practice of growing crops in wide rows to allow for mechanical weeding and intercultural operations.



Example: Cotton or Tobacco. This is essential for modern mechanization and efficient irrigation management.

H Strip Intercropping
Growing two or more crops simultaneously in strips wide enough to permit independent cultivation but close enough to interact agronomically.



Example: Alternating strips of Maize and Groundnut. This is highly effective in controlling soil erosion on sloping lands.

The Major Crop Pattern in India

The "Crop Pattern" as the geographical and economic signature of the nation. It is not merely a list of what is grown where; it is a dynamic reflection of soil health, water availability, government policy, and market signals.

As India strives for **Viksit Bharat @2047**, the shift from traditional cereal-centric patterns to high-value, climate-resilient systems is the defining narrative of rural transformation.

The following section analyze the intricacies of cropping systems and the multi-dimensional factors that dictate the Indian agricultural landscape.

Defining the Crop Pattern:

The "Crop Pattern" refers to the proportion of area under various crops at a given point in time. It is understood through two lenses:

- **Spatial Dimension:** This refers to the **geographical distribution** of crops across different regions. For instance, why the Indo-Gangetic plain is dominated by wheat, while the coastal deltas are synonymous with paddy.
- **Temporal Dimension:** This refers to the **time-based sequence** of crops on the same piece of land. It tracks how the choice of crops changes across seasons (Kharif, Rabi, and Zaid) or over years due to climate change or price fluctuations.

Types of Cropping Systems in India

In a land as diverse as India, farmers use various "spatial and temporal arrangements" to

maximize yield and manage risk.

A. Monocropping (Monoculture)

This involves growing only **one type of crop** on the same land year after year.

- **The Indian Context:** While efficient for industrial-scale farming, it often leads to soil depletion and pest build-up. Examples include continuous wheat in parts of Punjab or cotton in the Vidarbha region.

B. Multiple Cropping

The practice of growing **two or more crops** on the same field in a single year. A specialized version of this is **Ratoon Cropping**.

- **Ratoon Cropping:** This involves harvesting the main crop but leaving the roots and lower part of the plant in the soil to allow a "second harvest" or a "ratoon" to grow.
- **Example:** It is most common in **Sugarcane**. After the first cut, the "stubble" grows back into a second crop, saving the farmer the cost of new seeds and replanting.

C. Mixed Cropping

Growing **two or more crops simultaneously** on the same piece of land by mixing the seeds together without any specific row arrangement.

- **Example:** Sowing **Wheat and Mustard** together. This is a classic "insurance" strategy; if the wheat fails due to low rainfall, the mustard might still survive.

D. Intercropping

Growing **two or more crops simultaneously** on the same field but in a **definite row pattern** (e.g., 1:1 or 1:2 ratio).

- **Example: Soybean and Maize.** This reduces competition for nutrients as different crops have different root depths and nutrient requirements.

E. Sequence Cropping

Growing two or more crops in a sequence on the same field within a year. The succeeding crop is planted **only after** the preceding crop has been harvested.

- **Example: Rice followed by Wheat.** This is the standard cycle in the North Indian plains.

F. Relay Cropping

A sophisticated version of sequence cropping where the second crop is planted **before** the first crop is harvested. The second crop "picks up the relay" from the first.

- **Example: Planting Potato in a standing Maize crop.** By the time the maize is harvested, the potato has already started its initial growth, saving precious time in the sowing window.

G. Row Cropping

The practice of growing crops in **wide rows** to allow for mechanical weeding and intercultural operations.

- **Example: Cotton or Tobacco.** This is essential for modern mechanization and efficient irrigation management.

H. Strip Intercropping

Growing two or more crops simultaneously in **strips** wide enough to permit independent cultivation but close enough to interact agronomically.

- **Example:** Alternating strips of **Maize and Groundnut**. This is highly effective in controlling soil erosion on sloping lands.

Factors Influencing the Crop Pattern in India

The decision of a farmer in Coimbatore or Ludhiana to grow a specific crop is influenced by a complex "web of factors."

1. Ecological Factors

Nature sets the "boundary" of what is possible.

- **Rainfall:** The 100 cm isohyet (rainfall line) traditionally divides the rice-growing East from the wheat-growing West.
- **Temperature:** Wheat requires a cool winter (Rabi), while Paddy needs the heat and humidity of the monsoon (Kharif).
- **Soil Type:** Cotton thrives in the moisture-retentive **Black Soil** (Regur), while pulses are suited to the well-drained **Red Soils** of the Deccan.

2. Infrastructure Affordability Factor

A farmer's choice is limited by the tools at their disposal.

- **Irrigation Access:** If a farmer has a tube well, they will shift to water-intensive crops like Sugarcane. Without it, they are forced to stick to dry-land millets.

- **Logistics:** The proximity to a **Cold Storage** or a **Food Processing Unit** encourages farmers to move from cereals to perishables like tomatoes or peas.

3. Economic Factors

This is the "Rational Farmer" perspective.

- **Land Holding Size:** Small and marginal farmers often stick to food crops for "subsistence" (food security). Large farmers can afford the risk of high-value commercial crops.
- **Input Costs:** If the price of fertilizers or seeds rises, farmers may shift to "low-input" crops like pulses or oilseeds.
- **Agro-Income Variation:** Farmers favor crops with **stable prices**. High volatility in the price of onions or potatoes often drives farmers back to the safety of MSP-backed cereals.

State Protection and Regulation: The "Safety Net"

The Indian government is a major "shaper" of crop patterns through its various intervention mechanisms.

- **MSP (Minimum Support Price):** By providing a price guarantee for 23 crops, the state influences what is grown. The heavy bias toward **Rice and Wheat** in procurement has led to a "cereal-centric" pattern, often at the cost of pulses and oilseeds.
- **Subsidies: Fertilizer and Power subsidies** have encouraged the cultivation of water-intensive crops (Paddy/Sugarcane) even in water-stressed regions like Punjab and Marathwada.

- **Insurance (PMFBY):** Crop insurance reduces the fear of loss, theoretically encouraging farmers to try new, high-value varieties.
- **Free/Subsidized Power:** This has significantly altered the spatial pattern of irrigation, allowing "wet crops" to be grown in traditionally "dry zones."

Technology Factors

As of 2026, technology is the new "bio-determinant" of crop patterns.

- **Seed Technology:** The introduction of Short-Duration Varieties (SDVs) has allowed for **Multiple Cropping** in areas that previously only saw one crop.
- **Digital Agriculture Mission (DAM):** AI-based soil testing and satellite-led weather forecasting allow farmers to choose crops that are scientifically suited to their specific plot of land.
- **Mechanization:** The availability of harvesters and planters encourages the adoption of **Row Cropping** and **Strip Cropping**.

The Impact of Globalisation on Crop Patterns

Globalization has turned the Indian farm into a "global factory."

- **Export Orientation:** India's emergence as a top exporter of **Basmati Rice, Spices, and Marine products** has encouraged specialized "export zones" for these commodities.
- **Shift to Oilseeds:** The massive global demand for edible oils (and India's high import bill) has triggered a shift toward **Oil Palm** in the Northeast and Southern India.

- **"Super-Foods":** Global health trends have revived interest in Indian **Millet**s (Shree Anna), leading to a slow but steady increase in their acreage after decades of decline.
- **Global Volatility:** If the global price of Cotton rises, Indian farmers quickly shift acreage away from Soybeans to capture the profit, demonstrating that the crop pattern is now linked to the New York or London markets.

Conclusion: A Balanced Judgement

The crop pattern in India is at a crossroads. For decades, it was frozen in a "Rice-Wheat" loop due to the success of the Green Revolution and the safety of the MSP. However, the 21st-century reality of **Climate Change** and **Water Scarcity** is forcing a change.

The move toward **Crop Diversification**—encouraging oilseeds, pulses, and horticulture—is no longer just a policy suggestion; it is an ecological necessity. To achieve **Viksit Bharat @2047**, the crop pattern must become **market-led and science-driven**. The state must move from "controlling" the pattern through subsidies to "enabling" it through digital infrastructure and better processing linkages. The goal is a resilient agricultural landscape where the "pattern" protects both the farmer's pocket and the nation's soil.

2.The Crop Patterns in India since 1950s.

The story of Indian cropping patterns can be divided into three distinct eras: the Pre-Green Revolution, the Green Revolution era, and the Post-Liberalization era.

A. The Era of Subsistence (1950–1965)

In the immediate post-independence years, the cropping pattern was dominated by food grains, but with very low productivity. Farmers grew a wide variety of "coarse cereals" (millets), pulses, and local varieties of rice and wheat mainly for home consumption. Cash crops like cotton and jute were restricted to specific colonial hubs.

B. The Cereal-Centric Revolution (1966–1990s)

The introduction of High-Yielding Varieties (HYV) triggered a massive shift. The "Crop Pattern" became highly skewed toward two crops: **Rice and Wheat**.

- **The Wheat-Rice Trap:** Traditional pulses and oilseeds were pushed out to marginal, rainfed lands as fertile, irrigated lands were dedicated to the "Wheat-Rice" cycle, particularly in the Indo-Gangetic plains.
- **Regional Specialization:** Punjab, Haryana, and Western UP became the "Grain Basket," while the Deccan began focusing on commercial cotton and oilseeds.

C. The Commercial and Horticultural Shift (2000s–Present)

In the 21st century, the pattern is shifting again. There is a visible move away from food grains toward **High-Value Crops (HVCs)** like fruits, vegetables, spices, and plantation crops (rubber, tea, coffee). This is driven by changing urban diets and higher profit margins in horticulture compared to traditional cereals.

Factors and State Policies Influencing the Shift

The Indian farmer is a "rational economic actor." Their choice of what to grow is a response to the signals sent by the State and the market.

A. Price Support and Procurement (MSP)

The most dominant factor has been the **Minimum Support Price (MSP)**. While the government announces MSP for 23 crops, effective procurement is largely limited to Rice and Wheat. This "price certainty" has acted as a magnet, pulling farmers away from other crops and creating a monoculture in Northwest India.

B. Input Subsidies (The "Subsidy Regime")

- **Power and Water:** Highly subsidized (or free) electricity and water have encouraged the cultivation of "water-intensive" crops (Paddy and Sugarcane) in semi-arid regions where they naturally shouldn't grow, such as Punjab or the Marathwada region of Maharashtra.
- **Fertilizer Subsidy:** The heavy subsidy on Urea (Nitrogen) led to a distorted N:P:K ratio, influencing farmers to stick to crops that respond well to chemical fertilizers.

C. Infrastructure and Technology

The expansion of **Canal Irrigation** and the **Rural Electrification** drive allowed for the expansion of the Rabi (winter) crop. The development of short-duration varieties meant that land was no longer left fallow; farmers could now squeeze in a third "Zaid" crop, significantly altering the temporal crop pattern.

Important Crops and the reasons for their Dominance

No	Crop	Nature of Change	Primary Reason for Change
1	Wheat	Massive Acreage Increase	Success of HYV seeds; 100% procurement at MSP; high calorie-

			per-acre yield.
2	Rice	Expansion to Non-traditional Areas	Subsidized groundwater; high resilience to various soil types; global export demand.
3	Sugarcane	Shift to Peninsular India	Better climate in the South; high sugar recovery; state-backed Fair and Remunerative Prices (FRP).
4	Cotton	Introduction of Bt Cotton	Transition to GM technology (Bt Cotton) in the early 2000s tripled yields and reduced pest risk.
5	Horticulture	Rapid Growth in 2010-20s	Rising urban demand; development of "Cold Chains" and the "Operation Greens" mission.

Explaining Crop Diversification

Crop Diversification refers to the shift from a single-crop system (Monoculture) to a variety of crops across the agricultural landscape. It can happen in two ways:

1. **Horizontal Diversification:** Growing more crops on the same piece of land (Intercropping or Mixed Cropping).

2. **Vertical Diversification:** The farmer moves up the value chain by adding "processing" or "value addition" to the crop (e.g., selling potato chips instead of potatoes).

The Index of Crop Diversification

Economists use the **Gibbs-Martin Index** to measure the extent of diversification.

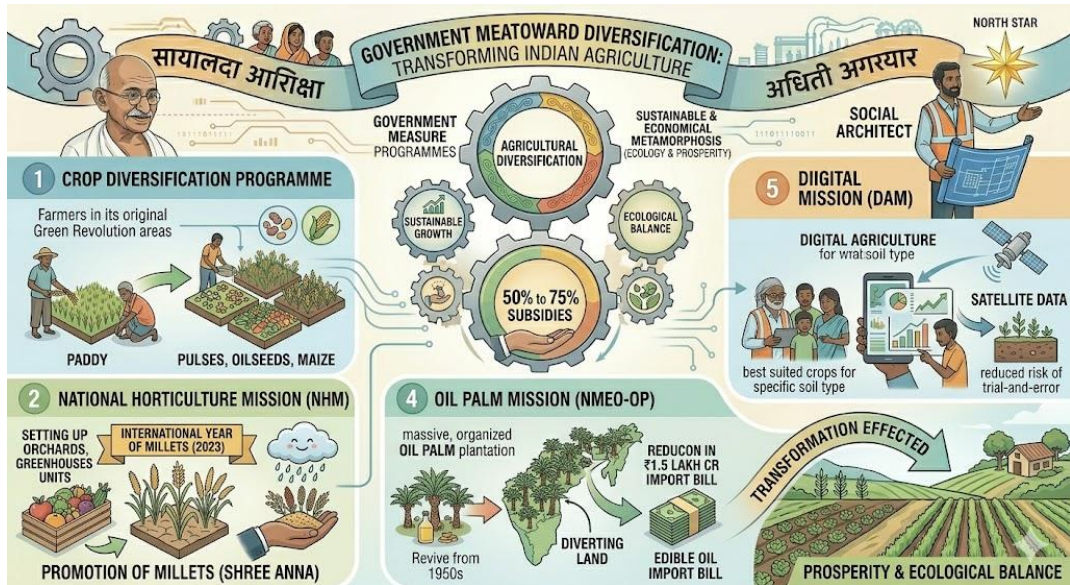
- A high index value indicates that the land is shared almost equally by many crops.
- A low index value suggests "Specialization" or "Monoculture."
- In India, the index is high in states like Kerala (diverse plantations) and low in states like Punjab (Rice-Wheat specialization).

Challenges to Crop Diversification

Why is it so hard to move away from the "Wheat-Rice" cycle?

1. **The Infrastructure Lock-in:** Much of our infrastructure (grain silos, specialized mandis, and irrigation canals) is designed for cereals. Switching to vegetables requires cold storages and refrigerated trucks, which are still lacking in many areas.
2. **Market Risk:** Cereals are "dry" and can be stored for months if the price is low. Vegetables and fruits are "perishable." If the farmer cannot sell them within 24 hours, they lose everything.
3. **The "Safety Net" Bias:** As long as the government provides 100% procurement for wheat and rice, a small farmer will rarely risk their livelihood by switching to unprocured oilseeds or pulses.
4. **Knowledge Gap:** Diversification requires a higher level of "Agronomic Skill." Managing a pomegranate orchard is far more complex than sowing wheat.

Government Measures toward Diversification



The State has recognized that the current cereal-centric model is ecologically and economically unsustainable.

- 1. Crop Diversification Programme (CDP):** A sub-scheme of RKVY (Rashtriya Krishi Vikas Yojana) implemented in the original Green Revolution states to encourage farmers to shift from paddy to pulses, oilseeds, and maize.
- 2. National Horticulture Mission (NHM):** Providing 50% to 75% subsidies for setting up orchards, greenhouses, and post-harvest management units.
- 3. Promotion of Millets (Shree Anna):** By declaring 2023 as the International Year of Millets, the government is trying to revive the "monsoon-friendly" crops of the 1950s.
- 4. Oil Palm Mission (NMEO-OP):** A massive push to divert land toward oil palm in the Northeast and Southern India to reduce the ₹1.5 lakh crore edible oil import bill.

5. **Digital Agriculture Mission (DAM):** Using satellite data to guide farmers on which crops are best suited for their specific soil type, reducing the risk of trial-and-error.

The Core Problem: The "Procurement Paradox"

For 50 years, the procurement of rice and wheat was essential for food security.

However, we have now hit a point of "diminishing returns":

- **Excessive Buffers:** Procurement is growing faster than actual food security needs.
- **High Carrying Costs:** Massive amounts of public money are "locked" in storage, interest, and handling of surplus stocks.
- **Structural Dependency:** While we have too much wheat/rice, we spend billions of dollars importing edible oils and pulses.

The Solution: A Calibrated Diversification Approach

The government is moving toward a **fiscally neutral** and **farmer-centric** shift. The goal is to align farm support with modern consumption patterns and environmental sustainability.

- **Voluntary and Incentivized:** Farmers are not being forced to change. Instead, they are offered financially attractive alternatives to shift a part of their rice/wheat acreage.
- **Financial Shield:** To protect farmers from income risk, the government will provide **per-quintal or per-acre incentives**. These bonuses will offset lower yields or the costs of transitioning to a new crop.
- **Source of Funding:** These incentives will be financed purely from the **savings** generated by reducing the accumulation and storage of excess rice/wheat stocks.

Linking Agronomy to National Priorities

The shift is guided by two factors: **What the soil can grow** and **What the market wants**.

- **Eastern India:** Focused on maize, pulses, and oilseeds which fit naturally into the high-rainfall system.
- **Central India:** Focused on soybean and gram, suited to the prevailing soil conditions.
- **Strategic Alignment:**
 - **Import Substitution:** Reducing dependence on foreign oil and pulses.
 - **Value Chain Expansion:** Maize and oilseeds feed into the growing ethanol, livestock, and bioenergy sectors.

The Centre-State Partnership Model

Implementation will follow a "Structured Partnership":

- **Centre's Role:** Provides savings from procurement, storage, and interest.
- **States' Role:** Funds their share from gains like **reduced input subsidies** (water, power, fertilizer) and existing sustainable agriculture frameworks.
- **Phased Rollout:** Starting in Eastern and Central regions before moving to the high-procurement zones that are "strategically critical" for food security.

Summary Table: From Stockpiling to Modern Markets

Feature	Old System (Procurement Focus)	New System (Diversification Focus)
Primary Goal	Physical Stockpiling of	Market-Oriented Value Realization.

Feature	Old System (Procurement Focus)	New System (Diversification Focus)
	Cereals.	
Financial Logic	High Carrying & Interest Costs.	Reinvesting Savings into Incentives.
Farmer Support	Physical Offtake at MSP.	Price-Deficiency Payments & Bonuses.
Sustainability	Water-Intensive Monocropping.	Agro-Climatic Suitability & Resource Efficiency.
Export to Sheets		

The intervention signals a shift from the government being a **"Civil Engineer of Silos"** to an **"Enabler of Value Chains."** By using procurement efficiencies, India can stay fully food-secure while becoming more diversified and resource-efficient. It's a win-win: the farmer gets protected income, the state saves on storage, and the nation moves closer to **Atmanirbhar Bharat** in edible oils and pulses.

Conclusion: A Balanced Judgement

The evolution of Indian cropping patterns since 1950 is a testament to the nation's resilience. We moved from "Ship-to-Mouth" to "Feed-the-World." However, this journey has left behind an "Ecological Debt" in the form of falling water tables and degraded soil in the Northwest.

The 21st century requires a **"Second Green Revolution"** that is defined not by calorie count, but by **Nutritional Security** and **Sustainability**. Crop diversification is no longer a

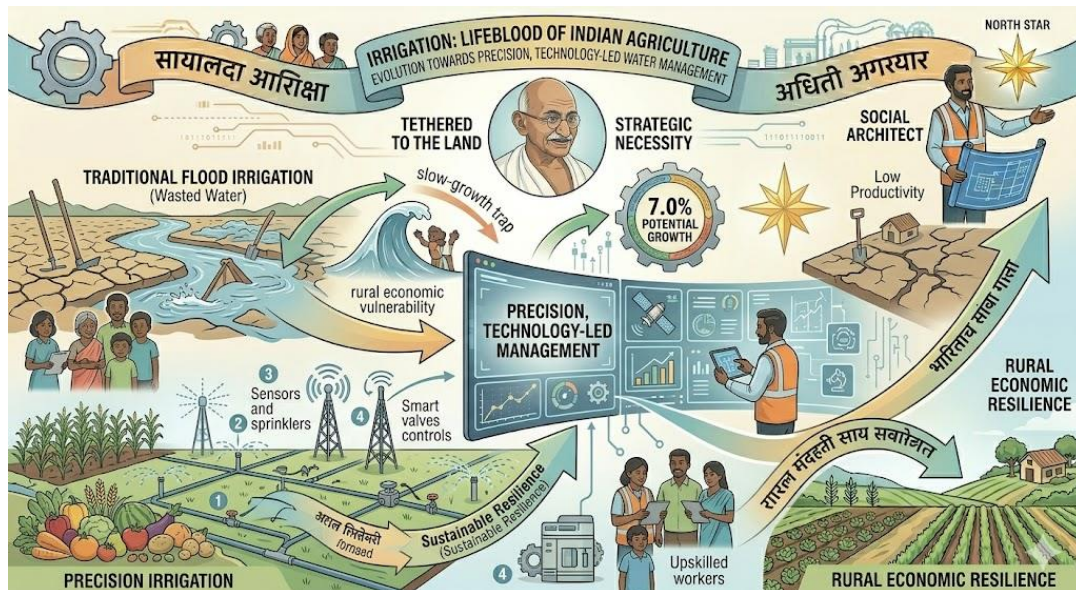
choice; it is a necessity for climate resilience. To achieve **Viksit Bharat @2047**, we must ensure that the farmer's "Rational Choice" is aligned with the nation's "Ecological Reality." This requires the State to move from being a "Grain Merchant" to an "Infrastructure Enabler," providing the cold chains and processing units that make diversification a profitable reality for the smallest farmer.

Previous Year Questions

1. Explain the factors influencing the decision of the farmers on the selection of high value crops in India. **[2025]**
2. Explain the role of millets for ensuring health and nutritional security in India. **[2024]**
3. What are the major challenges faced by the Indian irrigation system in recent times? State the measures taken by the government for efficient irrigation management. **[2024]**
4. Explain the changes in cropping pattern in India in the context of changes in consumption pattern and marketing conditions. [150 Words] [10 Marks] [2023]
5. What is Integrated Farming System? How is it helpful to small and marginal farmers in India? [250 Words] [15 Marks] [2022]
6. What are the present challenges before crop diversification? How do emerging technologies provide opportunity for crop diversification? [250 Words] [15 Marks] [2021]
7. How and to what extent would micro irrigation help in solving India's water crisis? [150 Words] [10 Marks] [2021]

8. What are the major factors responsible for making rice-wheat system a success? In spite of this success how has this system become bane in India? [250 Words] [15 Marks] [2020]
 9. How far is Integrated Farming System (IFS) helpful in sustaining agricultural production? [150 Words] [10 Marks] [2019]
 10. Elaborate the impact of National Watershed Project in increasing agricultural production from water-stressed areas. [150 Words] [10 Marks] [2019]
 11. How has the emphasis on certain crops brought about changes in cropping patterns in recent past? Elaborate the emphasis on millets production and consumption. [250 Words] [15 marks][2018]
 12. What are the major reasons for declining rice and wheat yield in the cropping system? How crop diversification is helpful to stabilize the yield of the crop in the system? [250 Words] [15 marks][2017]
 13. What is water-use efficiency? Describe the role of micro-irrigation in increasing the water-use efficiency.[200 Words] [12.5 Marks] [2016]
 14. What is allelopathy? Discuss its role in major cropping systems of irrigated agriculture. [200 Words] [12.5 Marks] [2016]
 15. In the view of the declining average size of land holdings in India which has made agriculture non-viable for a majority of farmers should contract farming and land leasing be promoted in agriculture? critically evaluate the pros and cons. [200 Words] [12.5 Marks] [2015]
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3. Irrigation



Irrigation is the lifeblood of Indian agriculture. For a nation where nearly half the workforce is still tethered to the land, the ability to control water supply is not merely a technical requirement but a strategic necessity.

As we move towards the vision of **Viksit Bharat @2047**, the evolution from traditional flood irrigation to precision, technology-led water management has become the central pillar of rural economic resilience.

The Significance of Irrigation in India:

1. The "Monsoon Gamble"

Historically, Indian agriculture has been described as a "**Gamble on the Monsoon.**"

Approximately 75% of India's annual rainfall occurs within just four months (June to September). This seasonal concentration creates a structural vulnerability that only a robust irrigation network can mitigate.

2. The Rain fed Reality and Soil Constraints

- **Monsoon Dependency:** Large parts of India are "rain-shadow" regions or areas with erratic rainfall. Irrigation provides a safety net during the frequent dry spells (monsoon breaks) that can otherwise lead to total crop failure.
- **Soil Type & Moisture Retention:** Soil characteristics vary drastically across the subcontinent.
 - **Sandy and Laterite Soils:** Common in parts of Rajasthan and the Western Ghats, these soils have **poor moisture-holding capacity**. Water drains through them rapidly, making regular, controlled irrigation essential for crop survival.
 - **Red Soils:** Found in the Deccan plateau, these are often thin and require frequent watering to remain productive.

3. Crop Requirements and Seasonality

- **The Rabi Necessity:** While the Kharif season benefits from monsoon rains, the **Rabi season** (winter) is almost entirely dependent on stored water. Without irrigation, major staples like wheat and oilseeds could not be cultivated at scale.
- **Multiple Cropping:** Modern agriculture requires water throughout the year. Crops like sugarcane and various fruits/vegetables need a consistent supply that nature alone cannot provide.

Benefits of Irrigation: The Catalyst for Productivity

Irrigation is not just "adding water but more than that." It is a technology that unlocks the potential of other inputs.

1. **Assured Water Supply:** It removes the element of "chance" from farming, allowing farmers to plan their sowing and harvesting cycles with precision.
2. **Better Nutrient Absorption:** Fertilizers and soil nutrients are only effective when they are dissolved in water. Proper irrigation ensures that the roots can actually absorb the expensive inputs a farmer provides.
3. **Climate Resilience:** As global temperatures rise, irrigation acts as a "buffer" against heat waves. Controlled water supply can lower the ambient temperature of the micro-environment around the crop.
4. **Crop Diversification:** Irrigation allows farmers to move away from low-value, drought-resistant millets toward high-value commercial crops like cotton, sugarcane, and horticulture, which significantly boosts rural income.

Different Types of Irrigation Systems in India

India utilizes a diverse mix of irrigation methods, determined by local geography, geology, and history.

The Proportional Mix (Overview)

System	Proportion (%)	Primary Regions
Well & Tube Well	63%	North Indian Plains, Gujarat, Tamil Nadu

Canal Irrigation	24%	Punjab, Haryana, Uttar Pradesh, Coastal Deltas
Tank Irrigation	3%	Peninsular India (Telangana, Karnataka, Tamil Nadu)
Others	10%	Springs, Drips, Sprinklers

I. Well and Tube Well Irrigation

This is the "**private sector**" of irrigation. Because it is controlled by the individual farmer, it is the most reliable and popular form.

- **Types:** Shallow dug wells and deep electric-powered tube wells.
- **Significant States:** Uttar Pradesh (the leader), Punjab, Haryana, Bihar, and Gujarat.
- **Significance:** It is "on-demand." The farmer can switch it on exactly when the crop needs it, leading to higher yields compared to erratic canal schedules.
- **Problems: Groundwater Depletion:** Over-extraction has led to a "water-energy-food nexus" where subsidized electricity leads to falling water tables.
 - **Salinity:** In coastal areas, over-pumping causes seawater intrusion into the groundwater.

II. Canal Irrigation

Canals are the "**public face**" of irrigation, involving massive dams and distribution networks.

- **Types: Inundation canals** (flow only during floods) and **Perennial canals** (flow year-round due to barrages).
- **Significant States:** The Indo-Gangetic plains (UP, Punjab, Haryana) and the deltaic regions of Andhra Pradesh and Odisha.
- **Significance:** Capable of irrigating massive "Command Areas" and suitable for water-intensive crops like paddy and sugarcane.
- **Problems:**
 - **Waterlogging:** In areas like the Indira Gandhi Canal (Rajasthan), excess water seeps into the soil, bringing salts to the surface (Salinization).
 - **Inefficiency:** High losses due to evaporation and seepage from unlined canals.

III. Tank Irrigation

This is the **traditional wisdom of the South**. Tanks are developed by constructing small bunds across streams to store rainwater.

- **Significant States:** Andhra Pradesh, Telangana, Tamil Nadu, and Karnataka.
- **Significance:** It is the only viable option in the **rocky Deccan plateau** where digging wells is difficult and rivers are seasonal (not perennial).
- **Problems:**
 - **Siltation:** Over time, mud settles at the bottom, reducing the water-holding capacity.
 - **Rainfall Dependence:** If the monsoon fails, the tank stays dry, offering no protection during a severe drought.

Trends in Net Irrigated Area: 2014 to 2026

The last decade has seen a paradigm shift from "**more water**" to "**more crop per drop.**"

1. **Expansion of Coverage:** Between FY16 and FY21, the irrigated area increased from **49.3% to 55%** of the Gross Cropped Area (GCA).
2. **The Rise of Micro-Irrigation:** Under the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** and the **Per Drop More Crop (PDMC)** initiative, over **95.5 lakh hectares** have been brought under micro-irrigation (Drip and Sprinkler) between 2016 and 2025.
3. **Institutional Finance:** The creation of the **Micro-Irrigation Fund (MIF)** with NABARD has allowed states to take low-interest loans to modernize their systems.
4. **Groundwater Management:** Programs like **Atal Bhujal Yojana** (launched 2020) are now focusing on community-led groundwater recharge in water-stressed states like Gujarat, Haryana, and Karnataka.
5. **Projected 2026 Status:** By May 2026, the emphasis has shifted toward **Digital Public Infrastructure (DPI) in Irrigation**, using IoT-based soil moisture sensors and satellite data to automate water release, aiming to push the total irrigation intensity beyond **160%**.

The "New Irrigation" is defined by:

1. **Precision:** Drip and sprinkler systems that deliver water directly to the root.
2. **Sustainability:** Balancing groundwater extraction with artificial recharge.
3. **Governance:** Using the **PM GatiShakti** framework to integrate water resources with industrial and agricultural needs.

The transition from 55% to 100% irrigation coverage is not just a target; it is the

prerequisite for a \$30 trillion economy where the farmer is resilient to the whims of the climate.

Central Water Commission (CWC) – 2026.

Parameter	Details / Value
Number of Reservoirs Monitored	166 Major Reservoirs
Total Live Storage Capacity	183.565 BCM
Current Live Storage (Available)	71.082 BCM
Current Storage (%)	38.72% of Total Capacity
Comparison to Last Year (Same Period)	114.10% (Better than last year)
Comparison to Normal (10-Year Avg)	126.53% (Better than normal)

Regional Storage Breakdown

Region	Total Capacity (BCM)	Current Storage (BCM)	Current % of Capacity	Normal Storage (%)	Status vs. Normal
Northern	19.836	8.593	43.32%	31.05%	Much Better
Eastern	21.759	7.481	34.38%	35.43%	Slightly Lower
Western	38.094	17.187	45.12%	31.97%	Better
Central	48.588	22.241	45.77%	35.34%	Better

Southern	55.288	15.580	28.18%	23.44%	Stable but Low
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While the national average is stable, the regional data highlights significant variations, with the **Southern Region** facing the most seasonal stress.

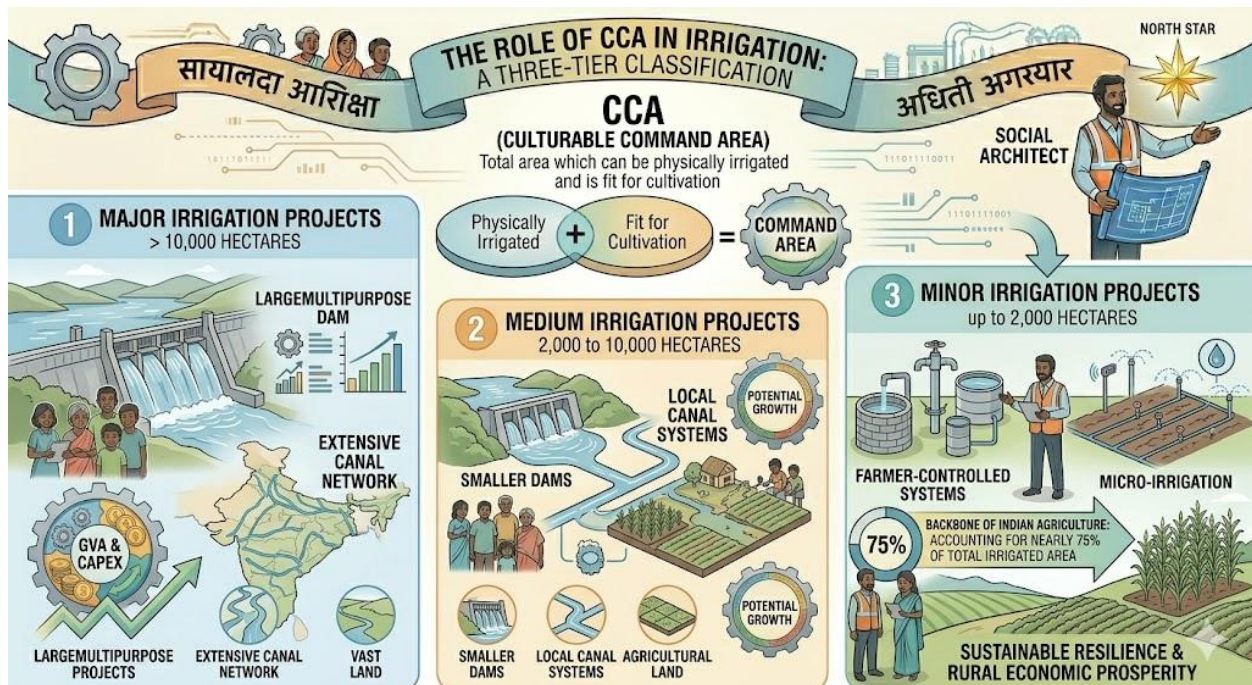
Strategic Insight: Hydroelectric & Specialized Storage

- **Hydroelectric Power Backbone:** Out of these 166 reservoirs, **20 are dedicated to hydro-electric projects** with a combined live storage capacity of **35.299 BCM**. Their health is critical for managing the peak summer power load.
- **Reservoir Performance:** * **100 reservoirs** currently hold more water than they did at the same time last year.
 - **117 reservoirs** are performing better than their 10-year average (Normal).
- **Critical Zones:** Despite the overall "better" status, basins like the **Krishna** and specific dams like the **Chandan Dam (Bihar)** are at near-zero or critically low levels, necessitating strict demand-side management as we approach the monsoon.

This "Strategic Sobriety" in storage levels ensures that India has a decent buffer for summer irrigation, provided that the distribution remains focused on water-use efficiency through the "**More Crop Per Drop**" initiative.

4. The Irrigational Projects

Classification of Irrigation Projects: The Role of CCA



In India, irrigation projects are not classified by the height of the dam or the length of the canal, but by their **Culturable Command Area (CCA)**. The CCA is the total area which can be physically irrigated by a project and is fit for cultivation.

The Three-Tier Classification:

- 1. Major Irrigation Projects:** These projects have a CCA of **more than 10,000 hectares**. They usually involve large multipurpose dams and extensive canal networks.
- 2. Medium Irrigation Projects:** These have a CCA between **2,000 and 10,000 hectares**. They often consist of smaller dams and local canal systems.

3. **Minor Irrigation Projects:** These have a CCA of **up to 2,000 hectares**. This category includes wells, tube wells, tanks, and micro-irrigation systems. Minor irrigation is the backbone of Indian agriculture, accounting for nearly 75% of the total irrigated area because it is controlled directly by the farmer.

Surface Irrigation: The traditional foundation

Surface irrigation is the oldest and most widely practiced method in India. It involves the distribution of water over the soil surface by the force of gravity.

- **Definition:** Water is applied to the field and allowed to move across the land through gravity to wet the soil.
- **Role of Soil Type:** This method is highly dependent on the soil's "Infiltration Rate." In heavy **Clayey (Black) Soils**, water moves slowly, allowing for deep soaking. In **Sandy Soils**, water drains too fast, making surface irrigation wasteful as the water reaches the groundwater before the roots can catch it.
- **Advantages:**
 - **Low Cost:** It requires very little capital investment in machinery.
 - **Ease of Use:** No specialized training or high-tech equipment is needed.
 - **Low Energy Demand:** Since it relies on gravity, there is no need for expensive electricity or diesel pumps.

Flood Irrigation: The method of abundance (and waste)

Flood irrigation is a specific type of surface irrigation where the entire field is essentially "drowned" in water.

- **Definition:** Water is released into the field without any barriers or "furrows," covering the entire surface like a pond.
- **Conditions in India:** This is the dominant method in the "Green Revolution" belt (Punjab, Haryana, UP) for water-guzzling crops like Paddy and Sugarcane. It is often fueled by free or subsidized electricity.
- **Merits:**
 - **Leaching:** It helps wash away salts from the topsoil in areas with high salinity.
 - **Simplicity:** It is the least labor-intensive method for the farmer.
- **Demerits:**
 - **High Wastage:** Nearly 50-60% of the water is lost to evaporation or deep percolation.
 - **Soil Degradation:** Over-flooding leads to **Waterlogging**, which cuts off oxygen to the roots and eventually turns the soil barren (Alkalinity).

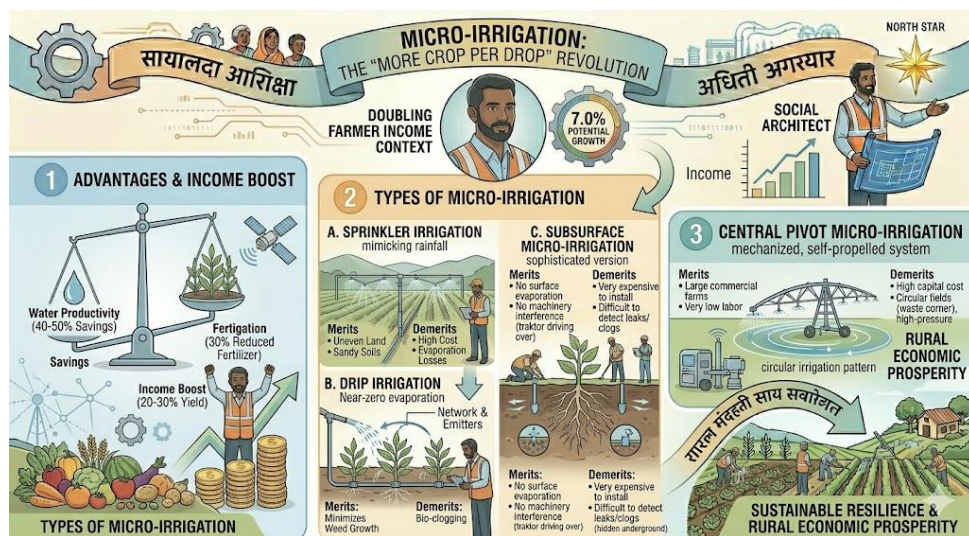
Furrow Irrigation: Controlled Surface Flow

To improve upon flood irrigation, farmers often use "Furrows"—small, parallel channels made between crop rows.

- **Definition:** Water is directed into small trenches (furrows), and the crops are grown on the "ridges" between these trenches.
- **Merits:**
 - **Water Saving:** Only the furrows are wetted, not the entire field, reducing evaporation.
 - **Aeration:** The roots on the ridges stay moist but not "drowned," allowing for better air circulation.
- **Demerits:**

- **Labor Intensive:** Making and maintaining furrows requires significant manual or tractor labor.
- **Inequality:** The "head" of the furrow often gets more water than the "tail," leading to uneven crop growth.

Micro-Irrigation: The "More Crop Per Drop" Revolution



Micro-irrigation represents the transition from "irrigation as a ritual" to "irrigation as a science." It delivers water slowly and directly to the plant's root zone.

Advantages and the "Doubling Farmer Income" Context

The **Dalwai Committee Report on Doubling Farmer Income** highlighted micro-irrigation as a primary driver for rural prosperity.

- **Water Productivity:** It can save up to 40-50% of water compared to flood irrigation.

- **Fertigation:** Fertilizers can be dissolved in the water (Fertigation), reducing fertilizer use by 30% while increasing its efficiency.
- **Income Boost:** By reducing the cost of electricity, water, and labor, while increasing yield by 20-30%, micro-irrigation directly impacts the farmer's bottom line.

Types of Micro-Irrigation

A. Sprinkler Irrigation

Water is sprayed into the air through nozzles, mimicking rainfall.

- **Merits:** Excellent for uneven land where canals can't reach; suitable for "Sandy Soils" where flood water would just vanish.
- **Demerits:** High initial cost; high evaporation losses if used during hot, windy afternoons.

B. Drip Irrigation

The "Gold Standard" of efficiency. Water is delivered drop-by-drop through a network of pipes and "emitters" directly at the base of the plant.

- **Merits:** Near-zero evaporation; minimizes weed growth as only the crop's roots get water.
- **Demerits:** High technical complexity; emitters can get clogged by salts or dirt (Bio-clogging).

C. Subsurface Micro-Irrigation

A sophisticated version of drip where the pipes are buried under the soil.

- **Definition:** Emitters are placed below the soil surface to deliver water directly to the root zone.
- **Merits:** No surface evaporation at all; no interference with farm machinery (tractors can drive over the field without hitting pipes).
- **Demerits:** Very expensive to install; extremely difficult to detect leaks or clogs because they are hidden underground.

D. Central Pivot Micro-Irrigation

A high-tech system where a long arm with sprinklers rotates around a central pivot, creating a circular irrigation pattern.

- **Definition:** A mechanized, self-propelled system that moves in a circle to cover large areas.
- **Merits:** Excellent for massive, commercial farms; very low labor requirement as the system is automated.
- **Demerits:** High capital cost; creates "circular" fields which might waste the "corners" of a square plot; requires a constant, high-pressure water supply.

The 2026 Perspective: Digital and Sustainable

As of May 2026, the Indian irrigation landscape is being redefined by **Digital Public Infrastructure (DPI)**.

- **Smart Sensors:** IoT-based soil moisture sensors are now being integrated with micro-irrigation systems under the **Digital Agriculture Mission**.
- **Solar Integration:** The **PM-KUSUM** scheme has provided solar-powered pumps to millions, making micro-irrigation "energy independent" and reducing the carbon footprint of Indian agriculture.

- **Micro-Irrigation Fund (MIF):** With a corpus of over ₹10,000 crore through NABARD, the government is incentivizing states to move away from flood irrigation in "Dark Zones" (areas with over-exploited groundwater).

Conclusion: The Balanced Judgement

India cannot survive on the "Flood Irrigation" models of the 1970s. While surface irrigation served us well during the initial phase of the Green Revolution, it has led to a groundwater crisis and soil salinization.

The transition to **Micro-Irrigation** is not just an "option" but a "sovereign necessity." The success of the **Viksit Bharat @2047** vision depends on our ability to manage our most precious resource—water. By moving from Major Projects (Large Dams) to Micro-Projects (Drip/Sprinklers), we are empowering the individual farmer to become a manager of resources, rather than a gambler on the monsoon.

5.Major Challenges to Irrigation Projects in India

Despite massive capital investments, the return on investment in the irrigation sector has been sub-optimal due to four deep-seated hurdles.

1. Chronic Project Delays in completion

Many Major and Medium Irrigation (MMI) projects in India suffer from "Time and Cost Overruns." A project sanctioned today might take 20 to 30 years to complete.

- **The Problem:** Delays are usually caused by slow land acquisition, environmental clearances, and a lack of dedicated funding. By the time the project is finished, the

original cost has often quadrupled, and the technology used has become obsolete.

2. The Gap between Potential Created (IPC) and Potential Utilized (IPU)

This is the most significant "mismatch" in Indian irrigation.

- **IPC vs. IPU:** The **Irrigation Potential Created (IPC)** is the total area that a project *could* irrigate on paper. The **Irrigation Potential Utilized (IPU)** is the area that *actually* receives water.
- **The Reason for Mismatch:** Huge dams are built, but the "Distributaries" and "Field Channels" that carry water to the actual farms are often missing or poorly maintained. This results in billions of liters of water sitting in reservoirs without reaching the crops.

3. Inter-State Water Disputes

Most of India's major rivers (Cauvery, Krishna, Godavari, Yamuna) flow through multiple states.

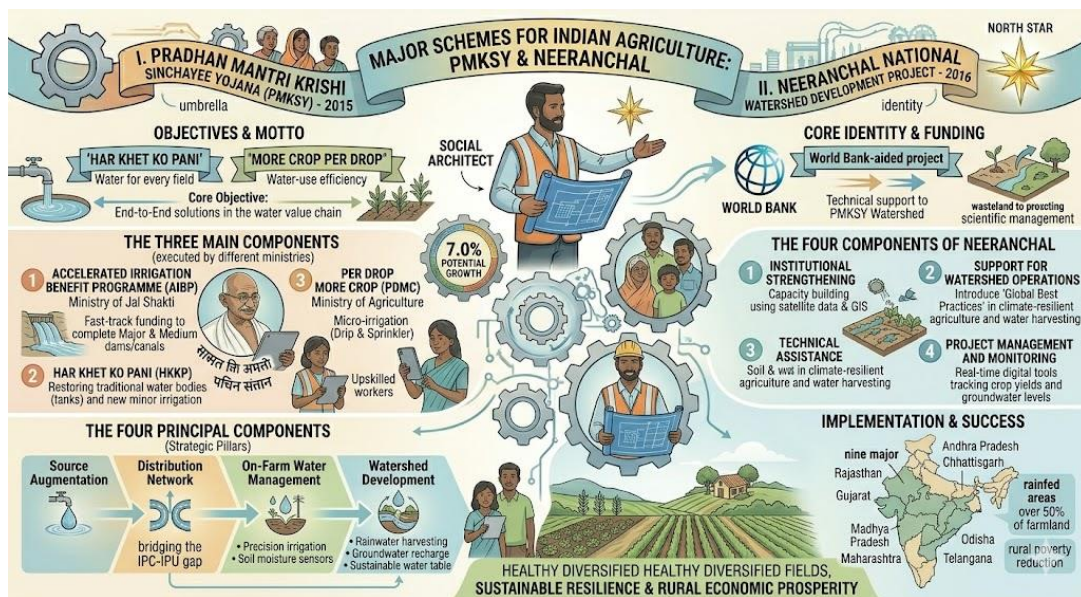
- **The Conflict:** States often compete to build dams upstream, which reduces water flow for states downstream. This leads to long-drawn legal battles in tribunals and the Supreme Court, stalling projects and preventing a "Basin-wide" approach to water management.

4. Depletion of the Underground Water Table

Because the public canal system is often unreliable, farmers have turned to private tube wells.

- **The Crisis:** Over-extraction, fueled by subsidized or free electricity, has led to a catastrophic drop in water tables, especially in Punjab, Haryana, and Tamil Nadu. We are essentially "mining" water that took thousands of years to accumulate.

Major Schemes



I. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) – 2015

To solve these fragmented problems, the government launched the **PMKSY** in 2015. It was designed to converge all existing irrigation schemes under one "umbrella."

Objectives and Motto

- **Motto:** "Har Khet Ko Pani" (Water for every field) and "More Crop Per Drop" (Focus on water-use efficiency).

- **Core Objective:** To achieve "End-to-End" solutions in the water value chain—from the source (dams/river) to the farm level (drip/sprinkler).

The Three Main Components

PMKSY is executed by three different ministries working in tandem:

1. **Accelerated Irrigation Benefit Programme (AIBP):** Managed by the Ministry of Jal Shakti. Its goal is to provide "Fast-track" funding to complete long-delayed Major and Medium irrigation projects.
2. **Har Khet Ko Pani (HKKP):** Focuses on creating new water sources through minor irrigation, restoring traditional water bodies (tanks), and improving command area development.
3. **Per Drop More Crop (PDMC):** Managed by the Ministry of Agriculture. It promotes **Micro-irrigation** (Drip and Sprinkler) to ensure that water is used with maximum efficiency.

The Four Principal Components (Strategic Pillars)

1. **Source Augmentation:** Creating new water sources and diverting water from surplus to deficit basins.
2. **Distribution Network:** Building the "last-mile" canals and field channels to bridge the IPC-IPU gap.
3. **On-Farm Water Management:** Encouraging farmers to use modern technology (precision irrigation) and soil moisture sensors.
4. **Watershed Development:** Focusing on "Rainwater Harvesting" and groundwater recharge to ensure that the water table remains sustainable.

II. Neeranchal National Watershed Development Project –

2016

While PMKSY focuses on "Irrigated Areas," **Neeranchal** was launched to address the challenges of **Rainfed Areas**, which constitute nearly 50% of India's farmland.

Core Identity and Funding

- **Nature:** It is a **World Bank-aided** project designed to provide technical support to the Watershed component of PMKSY.
- **Focus:** It specifically targets the transformation of **Wastelands** into productive land through scientific water management.

The Four Components of Neeranchal

1. **Institutional Strengthening:** Building the capacity of national and state-level institutions to plan and execute watershed projects using satellite data and GIS.
2. **Support for Watershed Operations:** Providing the actual funds and technology to implement soil and water conservation measures on the ground.
3. **Technical Assistance:** Introducing "Global Best Practices" in climate-resilient agriculture and water harvesting.
4. **Project Management and Monitoring:** Using real-time digital tools to track the impact on crop yields and groundwater levels.

Implementation and Success

Neeranchal was initially implemented in nine major states: **Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana**. These states were chosen because they have large tracts of rainfed land and high levels of rural poverty.

6.Irrigation in Union Budget - 2026-27

The **Union Budget 2026-27** has solidified India's transition from "irrigation expansion" to "precision water management," allocating record-breaking funds to bridge the persistent gap between Irrigation Potential Created (IPC) and Utilized (IPU).

1. Fiscal Push for PMKSY

The budget has provided an enhanced allocation for the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**, with a specific focus on completing 15 "legacy" major irrigation projects by 2027. The government has prioritized the **Har Khet Ko Pani** component to ensure that minor irrigation reaches the tail-end of command areas.

2. Digital Public Infrastructure (DPI) in Irrigation

A standout feature is the launch of the **"Smart Water-Stack."** This initiative integrates IoT-based soil moisture sensors with the **Digital Agriculture Mission**, allowing for automated, demand-based water release. This is aimed at reducing water wastage in the high-consumption Northwest belt.

3. Solarization and Sustainability

The budget has significantly expanded the **PM-KUSUM** scheme, aiming to de-dieselize the farm sector completely. By providing 3.5 million more standalone solar pumps, the government is linking water security with energy sovereignty.

4. Climate-Resilient Watersheds

Following the success of **Neeranchal**, the budget introduced the "**Amrit Sarovar 2.0**" initiative. This focuses on desilting 50,000 traditional water bodies using drone-mapping technology to restore their original storage capacity, particularly in the drought-prone Deccan plateau.

These measures reflect a "Strategic Maturity," where the state is no longer just a builder of dams but a manager of every drop, ensuring that irrigation becomes a resilient shield against climate volatility.

Amrit Sarovar 2.0 (also referred to as Phase II of Mission Amrit Sarovar) is the evolution of the original water conservation mission launched in 2022. While the first phase focused on the rapid construction and rejuvenation of 50,000 ponds across India, Amrit Sarovar 2.0 shifts the strategy toward **sustainability, multi-sectoral utility, and technology-driven management**.

As of the **Union Budget 2026-27**, the initiative has been significantly integrated into India's blue economy and rural infrastructure goals.

1. The Core Vision: From "Creation" to "Maintenance"

The primary shift in Phase 2.0 is the transition from just building ponds to ensuring their long-term health through **Jan Bhagidaari** (community participation).

- **User Groups:** Every Sarovar is now mapped to a specific voluntary "User Group," often comprising local Self-Help Groups (SHGs). These groups are responsible for voluntary desilting after every monsoon and general upkeep.

- **Sustainability:** A major focus of 2.0 is **catchment area treatment**, ensuring that the pathways feeding water into the ponds are not blocked or polluted.

2. Strategic Integration: The Blue Economy

In the 2026-27 Budget, the government proposed the integrated development of **500 reservoirs and Amrit Sarovars** specifically to strengthen the **fisheries value chain**.

- **Coastal Focus:** Integration with the coastal fisheries ecosystem to improve market linkages.
- **Livelihood Diversification:** Moving beyond just "water storage" to active income generation through fisheries, duckery, water chestnut (*singhara*) cultivation, and water tourism.

3. Key Features of Amrit Sarovar 2.0

- **Scale and Success:** Building on the success of Phase I—which surpassed its 50,000 target by completing over **68,000 Sarovars**—Phase II aims to deepen the impact in hilly and water-stressed districts.
- **Whole-of-Government Approach:** It continues the convergence of multiple schemes, including:
 - **MGNREGA:** For labor and pond construction.
 - **PMKSY (Watershed sub-scheme):** For catchment management.
 - **15th Finance Commission Grants:** For local funding.
- **Technological Monitoring:** Utilization of the **Amrit Sarovar Portal** and mobile app for geo-tagging, satellite mapping, and third-party verification to ensure real-time progress tracking.

4. Implementation and Social Impact

- **Environmental Stewardship:** The mission mandates planting trees like **Neem, Peepal, and Banyan** around the water bodies to bolster biodiversity.
- **Cultural Hubs:** These Sarovars are designated as community gathering points and sites for flag hoisting on Independence and Republic Days, fostering a sense of ownership and patriotism.
- **Climate Resilience:** By increasing the collective water storage capacity (approximately 10,000 cubic meters per pond), the mission acts as a massive decentralized shield against droughts and groundwater depletion.

Suggestions to Improve Indian Irrigation

To move from "Survival" to "Strategic Prosperity" by 2047, we need to implement the following structural shifts:

1. **Shift to "Demand-Side" Management:** We have focused too long on "Supply" (building more dams). We must now focus on "Demand"—teaching farmers to grow less water-intensive crops in dry areas (e.g., moving away from Sugarcane in Maharashtra).
2. **Conclusive Water Rights:** Just as we need land titles, we need "Water Accounts." Each farmer should know exactly how much water they are entitled to, encouraging them to trade surplus water or save it.
3. **Solarization of Irrigation:** Scaling up the **PM-KUSUM** scheme. Solar pumps allow farmers to irrigate during the day (avoiding dangerous night shifts) and provide an incentive to save water, as surplus solar power can be sold back to the grid.

4. **Desilting and Restoration:** Instead of building new large dams, we should focus on "Restoring the Old." De-silting traditional tanks and lining existing canals can increase the IPU by 20% at a fraction of the cost.
5. **Digital Public Infrastructure (DPI):** Using IoT soil sensors and AI-based weather forecasting to automate irrigation. By 2026, "Smart Irrigation" should be the norm rather than the exception.

Conclusion: A Balanced Judgement

The story of Indian irrigation is a story of "**Potential vs. Performance.**" We have the technology (Drip) and the funding (PMKSY), but we lack the "Administrative Will" to finish projects on time and the "Social Will" to stop wasting groundwater.

The transition from 2014 to 2026 shows a clear trend: the government is moving away from being a "Civil Engineer" (building dams) to becoming a "Resource Manager" (promoting efficiency). For an aspirant, the takeaway is clear—the future of Indian food security lies not in the "Quantity" of our water, but in the "Quality" of our management. Only by bridging the IPC-IPU gap and embracing the spirit of "**More Crop Per Drop**" can India truly become a resilient, \$30 trillion economy.

Previous Year Questions.

1. What are the major challenges faced by the Indian irrigation system in recent times? State the measures taken by the government for efficient irrigation management. **[2024]**
 2. How does e-Technology help farmers in production and marketing of agricultural produce? Explain it. [150 Words] [10 Marks] [2023]
 3. What are the main constraints in transport and marketing of agricultural produce in India? [150 Words] [10 Marks] [2020]
 4. What is water-use efficiency? Describe the role of micro-irrigation in increasing the water-use efficiency.[200 Words] [12.5 Marks] [2016]
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Agricultural Marketing in India

THE INDIAN AGRO-MARKETING MAZE

How the existing marketing structure, despite state regulation (APMC), acts as a constraint, leading to a long value chain and high price realization gaps for the farmer.



Agricultural marketing in India is the critical bridge between the farmer's field and the consumer's plate. While India has achieved record-breaking production in food grains, horticulture, and livestock, the ability of the farmer to "realize value" depends entirely on the efficiency of the marketing infrastructure. For an aspirant, understanding this sector is vital because it is where "food security" meets "income security."

The following notes analyze the significance, structural constraints, and the modern digital shift in agricultural marketing based on the **Economic Survey 2025-26**.

1. Significance of Agricultural Marketing in India

Marketing is not just the act of selling; it includes everything from grading and standardization to storage, transport, and price discovery.

- **Value Realization:** Effective marketing ensures that the farmer gets a fair share of the consumer's rupee. Without it, the "middlemen" absorb the profits, leaving the farmer in a cycle of debt.
- **Multiplier Effect:** Modern marketing infrastructure, such as cold chains and processing units, reduces post-harvest losses (which can be as high as 15-20% in perishables), effectively increasing the national food supply without using more land.
- **Incentive for Productivity:** When a farmer knows they can sell their produce at a competitive price, they are more likely to invest in high-quality seeds, irrigation, and technology.
- **Consumer Welfare:** Efficient marketing stabilizes food prices in cities, protecting the urban poor from sudden inflationary spikes.

2. The Necessity of State Regulation

In an ideal world, markets are free. However, in the Indian context, state regulation is a "sovereign necessity" for several reasons:

- **Weak Bargaining Power:** 86% of Indian farmers are small and marginal. Individually, they cannot negotiate with large traders or corporate buyers. The state provides **Agricultural Produce Market Committees (APMCs)** to create a "level playing field."

- **Preventing Monopolies:** Regulation prevents "cartelization" where a few powerful traders at a mandi (market) decide the price among themselves, forcing farmers into "distress sales."
- **Quality Assurance:** State agencies provide "Assaying" and "Grading" services, ensuring that farmers get paid more for higher-quality produce.
- **Price Discovery:** Through platforms like **e-NAM**, the state ensures that the price is determined by transparent bidding rather than secretive negotiations.

3. Major Constraints in Agricultural Marketing

Despite decades of reform, the Indian marketing system faces deep-seated hurdles that act as a "tax" on both the farmer and the consumer.

A. Fragmented and Outdated Infrastructure

- **The Constraint:** Most mandis lack basic facilities like electronic weighing scales, scientific storage, or sorting and grading units.
- **Example:** In many rural mandis, grain is still kept in the open, vulnerable to rain and pests, leading to high "quantitative and qualitative" losses.

B. The "Middleman" Dominance (The Intermediary Trap)

- **The Constraint:** A long chain of intermediaries (commission agents, wholesalers, retailers) exists between the farm-gate and the consumer.
- **Example:** A farmer might sell onions at ₹8/kg at the mandi, but the consumer in the city pays ₹40/kg. The vast majority of this difference is pocketed by middlemen who add little value to the product.

C. Information Asymmetry

- **The Constraint:** Farmers often do not have real-time information about the prices in distant markets.
- **Example:** A farmer in Odisha might sell their pulses at a low local price, unaware that there is a shortage and a much higher price in a neighboring state.

D. The "Cereal Bias" in Procurement

- **The Constraint:** Public procurement is heavily focused on Rice and Wheat. This discourages farmers from marketing other essential crops like oilseeds and pulses.
- **Example:** Persistent high buffer stocks of wheat and rice lead to rising "carrying costs" (interest and storage), while India remains structurally dependent on expensive edible oil imports.

4. Implications of These Constraints

- **Low Farmer Income:** The "price-spread" (the difference between what the farmer gets and the consumer pays) remains high, limiting the farmer's ability to move out of poverty.
- **High Wastage:** Inadequate cold chains mean that India wastes a significant portion of its horticulture produce annually.
- **Ecological Stress:** The bias toward rice and wheat marketing encourages water-guzzling monocropping in water-stressed regions.

5. Government Measures: The Multi-Pronged Reform

The government is currently implementing a "Credit-Linked, Technology-Driven" strategy to modernize marketing.

A. Agriculture Infrastructure Fund (AIF)

Launched in 2020 with a financing facility of **₹1 lakh crore**, the AIF provides debt for post-harvest management.

- **Progress:** As of November 2025, it has mobilized over **₹1.23 lakh crore**.
- **Impact:** It has supported over 25,000 processing units, 17,000 warehouses, and 2,700 cold storage projects, shifting the focus to "farm-gate" infrastructure.

B. e-NAM (National Agriculture Market)

Launched in 2016, this is a pan-India virtual market.

- **Integration:** By December 2025, it covered **1,522 mandis** across 23 states.
- **Scale:** It has registered **1.79 crore farmers**, allowing them to sell to traders across the country, thus breaking local monopolies.

C. Formation of 10,000 FPOs

To solve the problem of "small scale," the government is promoting **Farmer Producer Organizations (FPOs)**.

- **The Goal:** By December 2025, all **10,000 FPOs** were registered. Collective marketing allows small farmers to "act like a big company," reducing their transaction costs and increasing their bargaining power.

D. Digital Agriculture Mission (DAM)

Launched in September 2024, this aims to create **Digital Public Infrastructure (DPI)** for agriculture.

- **AgriStack:** A digital identity for farmers linked to their land and crops.
- **Decision Support:** Provides real-time information on soil fertility and market prices, eliminating "information asymmetry."

Measures in the Budget 2026-27: The Diversification Push

The latest budget has introduced a "Calibrated Diversification Approach" using procurement efficiencies.

1. **Using Savings for Diversification:** The government plans to use the "fiscal savings" from reduced wheat/rice stock management to provide incentives for farmers to switch to **Pulses and Oilseeds**.
2. **Animal Husbandry and Fisheries:** * The **AHIDF** is being expanded to strengthen dairy processing and animal feed marketing.
 - The **Vessel Communication and Support System (VCS)** is being deployed for 1 lakh fishing vessels to improve safety and market advisories for fishers.
3. **Formalization of Fisheries:** Under **PM-MKSSY**, performance-linked incentives are being provided to formalize the sector, supported by the National Fisheries Digital Platform.

Conclusion: From Procurement to Market Development

The era of the government being a mere "Grain Merchant" is ending. The **Economic Survey 2025-26** suggests that public intervention is evolving from physical procurement toward **enabling markets**.

To achieve **Viksit Bharat @2047**, the way forward is:

- **Market-Led Growth:** Moving toward **Price-Deficiency Payments** (like Bhavantar Bhugtan Yojana) rather than physical stockpiling.
- **Integrated Value Chains:** Reinvesting procurement savings into oilseed processing, pulse milling, and ethanol linkages.
- **Centre-State Partnership:** Developing state-level diversification missions tailored to local agro-climatic conditions.

By combining **Physical Infrastructure (AIF)** with **Digital Infrastructure (AgriStack)** and **Institutional Infrastructure (FPOs)**, India is building a marketing ecosystem that is resilient, transparent, and capable of converting "participation into economic value" for the smallest farmer.

7. E-technology in Agriculture

E-technology in Agriculture

E-technology not merely as a tool for connectivity, but as the "New Infrastructure" of the 21st century. In an economy where 86% of farmers are small and marginal, technology acts as a great equalizer, bridging the gap between the isolated farm-gate and the global market.

The following notes analyze the digital transformation of Indian agriculture, synthesized for the requirements of the Civil Services Main Examination.

1. Defining the Role of E-technology in Farmer Welfare

E-technology in agriculture refers to the use of **information and communication technologies (ICT)** to enhance the efficiency, productivity, and profitability of farming. It is the application of digital tools—ranging from simple SMS alerts to complex satellite imaging and AI-based decision systems—to solve the age-old problems of Indian agriculture.

The Core Domains of E-technology

a) Information & Extension:
Providing real-time weather forecasts, pest alerts, and agronomic advice.

b) Market Linkages:
Creating virtual platforms where farmers can discover prices and sell directly to buyers.

c) Financial Inclusion:
Using digital identities and land records to facilitate instant credit and insurance claims.

d) Precision Farming:
Using IoT (Internet of Things) and drones to apply water and fertilizers only where needed.

e) Supply Chain Management:
Digitally tracking the movement of produce from farm to cold storage to consumer to reduce wastage.

E-technology is empowering farmers, making agriculture more productive, profitable and sustainable—building a stronger and self-reliant India.

E-technology not merely as a tool for connectivity, but as the "New Infrastructure" of the 21st century. In an economy where 86% of farmers are small and marginal, technology acts as a great equalizer, bridging the gap between the isolated farm-gate and the global market.

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2. The Significance of E-technology for Farmers

For decades, the Indian farmer suffered from "Information Asymmetry" and "Market Isolation." E-technology addresses these structural flaws directly.

- **Democratic Price Discovery:** Technology breaks the monopoly of local middlemen. A farmer in a remote village can now see the prices in 1,500 different mandis across India, ensuring they are not cheated at the local level.

- **Resource Efficiency:** Tools like soil health cards and sensor-based irrigation help farmers reduce the cost of inputs. By knowing exactly how much urea or water is needed, the farmer saves money and protects the soil.
- **Risk Mitigation:** Satellite-based crop monitoring allows insurance companies to settle claims faster and more accurately after a natural disaster, providing a vital safety net.
- **Scale through Collectivization:** Digital platforms allow **Farmer Producer Organizations (FPOs)** to aggregate the produce of thousands of small farmers, giving them the bargaining power of a large corporation.

3. The Cornerstone of Digital Marketing: e-NAM

Launched in April 2016, the **National Agriculture Market (e-NAM)** is a pan-India virtual market platform. It is designed to create a "Unified National Market" for agricultural commodities.

How it Works

- **Virtual Integration:** It does not replace the physical APMC mandi; rather, it creates a digital layer over it.
- **Infrastructure Support:** Each integrated mandi receives **₹75 lakh** for hardware, software, and "quality assaying" equipment.
- **The Process:** A farmer brings their produce to the mandi; it is tested for quality; the results are uploaded to the platform; and traders from across India bid for the produce online.

Present Conditions and Progress (As of December 2025)

- **Reach:** e-NAM has successfully integrated **1,522 mandis** across 23 states and 4 Union Territories.
- **Stakeholder Base:** It has registered approximately **1.79 crore farmers** and **2.72 lakh traders**.
- **Collective Strength:** Over **4,698 FPOs** are now registered on the platform, allowing for bulk sales.
- **Economic Impact:** The total value of trade handled by e-NAM has surpassed **₹3 lakh crore**, signifying its growing acceptance as a mainstream marketing channel.

4. Government Policies and Support Schemes

The digital transformation is supported by a "Triple-Pillar" policy framework:

Infrastructure, Collectivization, and Data.

Pillar 1: Digital Agriculture Mission (September 2024)

This is the government's most ambitious tech project. It seeks to create **Digital Public Infrastructure (DPI)** for agriculture, similar to how UPI changed payments.

- **AgriStack:** A federated identity for every farmer, linked to their land records, crop data, and benefits.
- **Krishi Decision Support System:** Using geospatial data and remote sensing to help the government and farmers make better decisions about sowing and water management.
- **Soil Fertility Mapping:** A comprehensive digital map that tells a farmer the health of their specific plot of land.

Pillar 2: The FPO Scheme (2020)

To ensure that technology benefits the smallest farmer, the government launched a scheme with a budget of **₹6,860 crore** to form **10,000 FPOs**.

- **Status:** As of December 2025, the target of **10,000 registered FPOs** has been achieved. These organizations act as the "Digital Hubs" where small farmers access e-NAM and other tech tools.

Pillar 3: Agriculture Infrastructure Fund (AIF)

The AIF provides the "bricks and mortar" that support the digital "clicks."

- **The Logic:** You cannot have e-marketing without warehouses and sorting units.
- **Mobilization:** By late 2025, AIF had mobilized over **₹1.23 lakh crore**, supporting 39,000 custom hiring centers and thousands of cold storage projects.

5. Provisions in the Budget 2026-27: The Roadmap to 2047

The latest budget has shifted the focus from "creating platforms" to "ensuring depth and reliability."

1. **AI-Driven Extension Services:** The budget allocated specific funds for **Generative AI bots** that provide personalized agricultural advice to farmers in 22 regional languages.
2. **Drone-as-a-Service (DrAAS):** To promote mechanization, the budget has subsidized the creation of "Drone Hubs" at the PACS (Primary Agricultural Cooperative Societies) level for crop spraying and soil mapping.

3. **Modernizing Extension (SMAE):** The **Sub-Mission on Agricultural Extension** is being digitized. In 2024-25 alone, 39 lakh farmers were supported through digital training and "Kisan Melas."
4. **Vessel Communication & Fisheries Digital Platform:** For the allied sector, the budget has funded the **National Fisheries Digital Platform**, onboarding 28 lakh stakeholders to provide digital identity and credit access.

Conclusion: The "Strategic Maturity" of Ag-Tech

The evolution of e-technology in Indian agriculture has reached a state of **Strategic Maturity**. We have moved from the "Pilot Project" phase to a "National Ecosystem" phase.

For the Civil Services aspirant, the balanced judgment is this: **Technology is a tool, not a cure-all**. While e-NAM and AgriStack solve the problems of information and market access, they must be supported by physical infrastructure (roads and cold chains) and institutional strength (FPOs).

The success of the **Viksit Bharat @2047** vision depends on converting the Indian farmer into a "Global Agri-Entrepreneur." This requires the state to continue its role as an **Enabler of DPI**, ensuring that the "Digital Divide" does not become a "Development Divide." By linking the soil to the satellite and the farmer to the smartphone, India is ensuring that its agricultural growth is not just high, but also inclusive and resilient.

9.Agricultural Subsidies

Defining Agricultural Subsidies: The Economic Rationale

An agricultural subsidy is a financial incentive or a form of government support extended to the farm sector to ensure remunerative returns, stable food prices, and national self-sufficiency. In the Indian context, it represents a deliberate transfer of resources from the industrial and service sectors to the primary sector to correct market failures.

The Necessity of Subsidies

The rationale for state intervention in agriculture is rooted in the inherent vulnerabilities of the sector:

1. **Income Volatility:** Farm incomes are unstable due to weather shocks (monsoons), market price fluctuations, and rising input costs.
2. **Low Bargaining Power:** Small and marginal farmers lack the scale to negotiate with large traders; subsidies act as a protective shield.
3. **Food Security:** Subsidies ensure that basic staples remain affordable for the 81.35 crore beneficiaries under the National Food Security Act (NFSA).
4. **Incentive for Investment:** By reducing the cost of modern inputs (fertilizers, seeds, technology), subsidies encourage farmers to adopt higher-yielding practices that they otherwise could not afford.

The Architecture of Indian Agricultural Subsidies

Based on the **Economic Survey 2025-26**, agricultural subsidies are classified into two broad functional categories: Direct and Indirect.

1. Direct Agricultural Subsidies

These are "Direct Benefit Transfers" (DBT) where financial assistance is credited directly to the farmer's bank account. This model minimizes leakages and enhances the liquidity

of the household.

- a) **PM-KISAN:** An income support scheme providing assured liquidity. Over **₹4.09 lakh crore** has been released to date, supporting investment and growth.
- b) **PMKMY (Kisan Maandhan Yojana):** A social security/pension framework for vulnerable farmers, ensuring long-term financial dignity.
- c) **PMFBY DigiClaim:** Direct payment of insurance claims via the Public Financial Management System (PFMS), totaling over **₹1.90 lakh crore**.
- d) **Food Subsidy DBT:** Direct cash transfers to PDS beneficiaries (e.g., in Chandigarh and Puducherry) as a choice-based alternative to physical grain.

2. Indirect Agricultural Subsidies

These are "hidden" or service-based supports where the government absorbs a portion of the cost of inputs or provides price guarantees.

- a) **Minimum Support Price (MSP):** The state keeps MSP at **1.5 times the cost of production**, acting as a "floor price" that absorbs market risk.
- b) **Input Subsidies:** The government subsidizes the cost of **fertilizers (Urea), water (canal irrigation), and energy (power)**.
- c) **Procurement & Distribution:** Under **PMGKAY**, the government absorbs the entire cost of storage, handling, and interest to provide free foodgrains to the poor.
- d) **Interest Subvention:** Under the **Agriculture Infrastructure Fund (AIF)**, the government reduces the interest burden on medium-term loans for post-harvest assets.
- e) **Credit Guarantees:** Schemes like the **CGS-NPF** absorb the risk of lending against electronic Negotiable Warehouse Receipts (e-NWRs).

Categories of Price Subsidies

In the Indian administrative framework, price subsidies are operationalized through three distinct channels:

1. **Output Price Subsidies (MSP):** These ensure that the market price does not fall below a remunerative level. It provides the farmer with a guaranteed return of at least 50% over the cost of production.
2. **Input Price Subsidies:** These keep the cost of production low by providing subsidized electricity, water, and fertilizers. The content notes that "reduced input subsidies" are now being leveraged to fund diversification missions.
3. **Consumer Price Subsidies (PDS):** These ensure that the surplus procured at high prices from farmers is sold at low or zero prices to the vulnerable sections of society.

The Impact of Subsidies on Agriculture

The impact of these fiscal interventions is a "double-edged sword," yielding both spectacular successes and structural distortions.

Positive Impacts:

- **Productivity Gains:** Subsidies on seeds and fertilizers were the primary drivers of the Green Revolution, making India food-secure.
- **Risk Mitigation:** Crop insurance (PMFBY) and MSP have "de-risked" agriculture, allowing farmers to recover quickly from weather shocks and continue investing.

- **Poverty Alleviation:** PM-KISAN and free foodgrains under PMGKAY have significantly boosted the "disposable income" of rural households, enabling them to diversify their consumption into proteins and dairy.

Negative Impacts (The Distortionary Effect):

- **Environmental Degradation:** Excessive fertilizer subsidies have led to soil health depletion, while free power has caused catastrophic groundwater depletion in the Northwest.
- **Cereal Monoculture:** The safety of MSP has trapped farmers in a "Rice-Wheat" loop, discouraging the cultivation of much-needed pulses and oilseeds.
- **Market Crowding Out:** High public procurement volumes have sometimes hindered the growth of private investment in processing and logistics.

Implications of Subsidies on the National Economy

The fiscal burden of agricultural subsidies (which includes food and input subsidies) has profound implications for India's macro-economic health.

1. **Fiscal Deficit:** Expenditure on storage, handling, and stock rotation (carrying costs) absorbs a massive volume of public resources. The **Food Subsidy** bill remains one of the largest items in the union budget.
2. **Opportunity Cost:** Every rupee spent on "carrying excess stocks" of wheat and rice is a rupee not spent on agricultural research, cold chains, or high-tech extension services.
3. **WTO Compatibility:** India's high procurement levels often face scrutiny at the WTO under "Aggregate Measurement of Support" (AMS) norms. The shift toward

"Area-based, decoupled payments" for diversification is a strategic move to ensure WTO compatibility.

4. **Resource Inefficiency:** Persistent high buffer stocks lead to rising carrying costs, while India remains structurally dependent on imports for edible oils and pulses.

Government Policies and Strategies: The "Calibrated Shift"

Recognizing the limitations of the old subsidy regime, the government is adopting a "Calibrated Diversification Strategy" for 2026:

- **From Physical to Digital:** Moving away from physical stockpiling toward **Price-Deficiency Payments** and **AgriStack-linked DBT**.
- **Leveraging Efficiencies:** The government is utilizing savings from "improved stock management" to fund **voluntary crop diversification**. If a farmer shifts from rice to pulses, they receive a "diversification bonus" funded by the savings in storage costs.
- **Modernizing Extension:** Through the **Digital Agriculture Mission (DAM)**, the state is providing targeted information, which is a "Knowledge Subsidy," aimed at reducing input costs and enhancing yields.
- **Strengthening Cooperatives:** By computerizing **67,930 PACS**, the state is creating decentralized infrastructure that allows farmers to aggregate their produce and reduce marketing costs.

Conclusion: The Balanced Judgement

The narrative of **Dutt & Sundaram** underscores that subsidies in a developing economy are not a "charity" but a "sovereign investment" in human capital and food security.

However, the path to **Viksit Bharat @2047** requires a transition from "**Input-Intensive**"

to "**Knowledge-Intensive**" agriculture.

The intervention of the **Economic Survey 2025-26** suggests that the era of "unlimited procurement" is evolving. The future lies in **Decoupled Support**—where farmers are compensated for being "resource-efficient" and "diversified" rather than just for growing more cereals.

By using procurement efficiencies to finance diversification, India is ensuring that its agricultural system remains food-secure, fiscally sustainable, and market-oriented. For the Indian farmer, the goal is to shift from "Subsidy-Dependency" to "Income-Certainty," powered by technology, cooperatives, and transparent markets.

10.WTO & Subsidies

The Agreement on Agriculture (AoA) and the Subsidy Conflict

The WTO's **Agreement on Agriculture (AoA)**, which came into effect in 1995, sought to liberalize global trade by reducing trade-distorting subsidies. It classifies subsidies into three "Boxes":

1. **Green Box:** Research, pest control, and environmental protection (Permitted - not trade-distorting).
2. **Blue Box:** Subsidies linked to production-limiting programs (Permitted with conditions).

3. **Amber Box:** All domestic support measures considered to distort production and trade, such as **Minimum Support Price (MSP)** and input subsidies.

The 10% De Minimis Ceiling

Under the AoA, developing countries like India are allowed an **Amber Box** subsidy (Aggregate Measurement of Support - AMS) of up to **10% of the total value of production**.

- **The Fatal Flaw (The 1986-88 Base):** The WTO calculates this 10% limit based on **1986-88 reference prices**.
- **India's Argument:** Using prices from four decades ago is economically irrational. Inflation and the rising costs of inputs make the 1986-88 baseline an obsolete metric that artificially inflates the perceived "subsidy" provided by India.

The 7th Trade Policy Review and Public Stock Holdings

India's **7th Trade Policy Review** at the WTO highlighted the global scrutiny of our **Public Stock-Holding (PSH)** programs. The WTO views India's massive procurement of wheat and paddy at MSP as a trade-distorting practice because it encourages overproduction and can lead to the "dumping" of surplus grains in the international market, hurting farmers in other countries.

The Conflict of Interest: WTO vs. Developing Nations

- **The WTO Perspective:** Agriculture should be market-led. Subsidies should be "decoupled" from production to prevent global price distortions.

- **The Developing World Perspective:** For nations like India, agriculture is a source of **Livelihood**, not just trade. The subsidy cap is seen as a "new form of colonialism" that prevents states from protecting their poorest citizens from hunger.

India's Problem: The Imperative of Food Security

India's defense is anchored in the **National Food Security Act (NFSA), 2013**, and the **PMGKAY**.

1. **Human Rights vs. Trade Rules:** India argues that food security is a non-negotiable human right. Providing free or highly subsidized grain to 81.35 crore people is a social safety net, not a commercial trade strategy.
2. **Farmer Livelihood Support:** With 86% of farmers being small and marginal, the **MSP** and **Buffer Stock operations** are the only mechanisms that prevent widespread rural distress and mass migrations.
3. **Stability:** Public stocks act as a "strategic buffer" against global price volatility and domestic weather shocks (Monsoon Gamble).

The Bali Ministerial Conference and the "Peace Clause"

The 9th WTO Ministerial Conference in **Bali (2013)** was a landmark event. India, leading the G-33 group of developing nations, refused to sign the Trade Facilitation Agreement (TFA) unless its food security concerns were addressed.

The Peace Clause (2013)

- **What it is:** An interim agreement that protects developing countries from being legally challenged at the WTO even if they breach the 10% subsidy cap for their public stock-holding programs for traditional staples.
- **Conditionality:** Countries using the peace clause must provide extensive data and notifications to the WTO, ensuring their stocks do not distort international trade.

India's Stand: The Demand for a "Permanent Solution"

India has consistently maintained that the **Peace Clause is a temporary bandage**, not a cure. India demands a **Permanent Solution** that:

- Updates the 1986-88 base prices to reflect current market realities.
- Clearly excludes public procurement for food security from the Amber Box calculations.
- Allows developing nations to manage stocks for domestic consumption without fear of international litigation.

Recent Developments and the "Diversification Pivot"

The **Economic Survey 2025-26** reveals a sophisticated shift in India's strategy to harmonize domestic needs with WTO norms.

1. **The Diversification Incentive:** By using "Procurement Efficiencies" to fund **voluntary crop diversification**, India is moving toward "**Decoupled Payments.**" If a farmer is paid per acre to switch from rice to pulses, this is seen as a **Green Box** (permissible) subsidy rather than a trade-distorting Amber Box subsidy.
2. **Digital Transparency (AgriStack):** The **Digital Agriculture Mission** and Aadhaar-based deduplication have flagged 8.51 crore records, allowing the government to

prove to the WTO that food subsidies are "sharply targeted" and not leaking into the commercial export market.

3. **The Shift to Oilseeds and Pulses:** By reducing the surplus procurement of wheat and rice (which triggers WTO alarms) and encouraging oilseeds, India is solving its import dependency while simultaneously cooling down the WTO conflict.

Conclusion: A Balanced Judgement

The narrative of **Dutt & Sundaram** reminds us that economic policies must serve the people, not the other way around. India's stand at the WTO is a legitimate exercise of its **Economic Sovereignty**.

While the WTO's 10% cap based on 1986-88 prices is an administrative absurdity, India's recent strategy of "**Calibrated Diversification**" shows maturity. By moving from "Unlimited Cereal Procurement" to "Targeted Income and Diversification Support," India is building a WTO-defensible agricultural model without sacrificing the welfare of its 81 crore vulnerable citizens.

To achieve **Viksit Bharat @2047**, India must continue to demand a Permanent Solution at the WTO, ensuring that the global trade rules recognize **Food Security as a Public Good**, not a market distortion. The future lies in balancing the "Rights of the Consumer" (Food Security) with the "Dignity of the Producer" (Farmer Income) through technology, efficiency, and unwavering sovereign will.

11. The Crucial Aspects of Subsidies

In the Indian socio-economic milieu, subsidies are not peripheral fiscal outlays; they are foundational to the social contract. Three crucial aspects define this regime:

1. **The Price-Income Shield:** Subsidies on inputs (fertilizer, power, water) and the guarantee of the Minimum Support Price (MSP) protect the farmer from the "Triple Risk" of weather shocks, rising production costs, and market volatility.
2. **The Welfare-Nutrition Linkage:** Food subsidies (PDS/NFSA) bridge the gap between the producer's need for remunerative prices and the consumer's need for affordable calories. It is the primary instrument for maintaining social stability in a high-inflation environment.
3. **The Fiscal-Ecological Paradox:** While subsidies have made India food-surplus, they have also led to fiscal stress and ecological distortions (e.g., groundwater depletion in the Northwest). The current era (2026) is defined by the attempt to resolve this paradox through "**Calibrated Diversification.**"

Evolution of Subsidy Policies and Strategies

1. The Pre-Globalization Era (1950–1990): The Era of "Food Sovereignty"

During this period, the state adopted a protective and interventionist stance to escape the "Ship-to-Mouth" trap.

- **The Strategy:** The primary focus was on the **Green Revolution** package. Subsidies were "indirect" and "input-heavy."
- **Mechanisms:** Massive investments in canal irrigation, highly subsidized urea (N), and the birth of the **Food Corporation of India (FCI)** in 1964 to procure grains at MSP.

- **The Goal:** Self-sufficiency in rice and wheat. During this era, subsidies were seen as "Social Investments" to build a resilient national food base.

2. The Post-Globalization Era (1991–2013): Transition to "Targeted Welfare"

With the 1991 reforms and the subsequent Agreement on Agriculture (AoA) at the WTO, India faced pressure to liberalize its farm sector.

- **The Shift:** In 1997, the **Targeted Public Distribution System (TPDS)** replaced the universal system, dividing the population into BPL and APL categories.
- **Legal Shield:** The era culminated in the **National Food Security Act (NFSA), 2013**, which turned food security into a legal right for 67% of the population, effectively shielding the subsidy regime from global market fluctuations.

3. The Digital and Diversification Era (2014–2026): "Smart Subsidies"

The current era is characterized by a shift from "physical offtake" to **Direct Benefit Transfer (DBT)** and a focus on "Crop Neutrality."

- **Strategy:** Leveraging the **JAM Trinity** (Jan Dhan, Aadhaar, Mobile) to eliminate leakages.
- **The 1.5x Principle:** Since 2018-19, the state has institutionalized the principle of keeping MSP at 1.5 times the cost of production.
- **Recent Pivot (2026):** Utilizing "Procurement Efficiencies" to fund diversification. The government is now using savings from reduced wheat/rice stocks to pay farmers to switch to oilseeds and pulses, addressing both WTO concerns and nutritional imbalances.

Key Subsidy and Support Schemes

Based on the **Economic Survey 2025-26**, the subsidy architecture is now divided into **Direct Income Support** and **Market-Linkage Support**.

1. Direct Subsidy Instruments

- **PM-KISAN:** An income support scheme providing ₹6,000 annually. It has released over **₹4.09 lakh crore** in 21 installments, providing a critical liquidity buffer for small farmers.
- **PMKMY:** A contributory pension scheme for 24.92 lakh farmers, ensuring old-age social security.
- **PMFBY (Crop Insurance):** It de-risks agriculture against natural calamities. In 2024-25, it insured **4.19 crore farmers**, with over ₹1.90 lakh crore disbursed in claims via the **DigiClaim** module.

2. Indirect and Price-Based Supports

- **MSP (Amber Box):** Guaranteed price for 22 mandated crops. The **RMS 2026-27** and **KMS 2025-26** increases ensure a return of at least 50% over the weighted average cost of production.
- **NFSA & PMGKAY:** The world's largest food security operation. Grain is provided **free of cost** to 81.35 crore beneficiaries.
- **Interest Subvention (AIF):** Lowering the cost of credit for building warehouses and cold chains.

Recent Programs: Technology as the New Subsidy

Technology is being used as a "Knowledge Subsidy" to improve the **Targeting and Transparency** of fiscal outlays.

- **ONORC (One Nation One Ration Card):** Enabled across all 36 States/UTs, it allows 80 crore beneficiaries to access their food rights anywhere in India, essential for the migrant workforce.
- **AgriStack & Digital Agriculture Mission (2024):** Creating a **Digital Public Infrastructure (DPI)**. This includes Aadhaar-based seeding (99.8% of ration cards) and the "**Anna Chakra**" tool to optimize logistics and reduce carbon emissions.
- **VLTS (Vehicle Location Tracking System):** To prevent diversion, GPS monitoring of foodgrain transport is being fully implemented in states like Delhi, UP, and Bihar, with a national target of March 2026.
- **PACS Transformation:** Computerizing **67,930 PACS** to turn them into multipurpose centers for credit, storage, and processing.

WTO Relations and the Global Subsidy Debate

India's subsidy regime remains a point of contention at the WTO under the **Agreement on Agriculture (AoA)**.

1. **The 10% Challenge:** The WTO cap on "Amber Box" subsidies (10% of production value at 1986-88 prices) is seen as an administrative absurdity by India.
2. **The Peace Clause:** India has successfully utilized the "Bali Peace Clause" to protect its public stock-holding programs from legal challenge, but continues to demand a **Permanent Solution**.
3. **The Diversification Strategy:** By shifting toward area-based incentives (Green Box) for oilseeds and pulses, India is moving toward a WTO-compliant model without sacrificing domestic food security.

Conclusion: A Balanced Judgement

The evolution of food and agricultural subsidies in India reflects the transition from "Quantity" to "Quality and Targeting." In the Dutt & Sundaram narrative, the "Social Cost" of withdrawing subsidies far exceeds the "Fiscal Cost" of maintaining them.

- **For the Poor:** Subsidies are the difference between nutrition and hunger.
- **For the Farmer:** They are the difference between a viable livelihood and a debt trap.
- **For the Nation:** They are the foundation of sovereign strength.

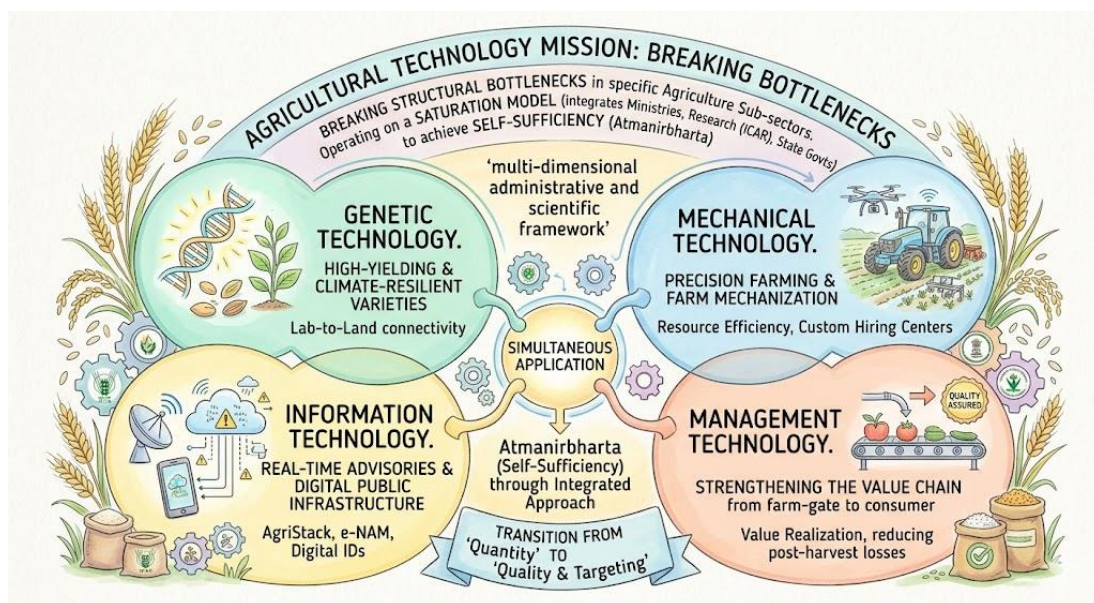
As of 2026, the success of the **Viksit Bharat @2047** vision depends on making these subsidies "**Resource-Efficient**." The pivot toward using procurement savings for crop diversification—incentivizing oilseeds and pulses while protecting cereal buffers—is a strategic masterpiece. It preserves the core of the foodgrain system while adapting it to a market-oriented, climate-resilient future. By linking the soil to the satellite and the farmer to the digital platform, India is ensuring that its subsidies are no longer "drips" in a leaky bucket, but "targeted fuel" for a high-growth agricultural economy.

Previous Year Question

1. What are the direct and indirect subsidies provided to farm sector in India?
Discuss the issues raised by the World Trade Organization (WTO) in relation to agricultural subsidies. [2023]
2. In what way could replacement of price subsidy with direct benefit Transfer (DBT) change the scenario of subsidies in India? Discuss. [200 Words] [12.5 Marks] [2015]

3. There is also a point of view that Agricultural Produce Market Committees [APMCs] set up under the State Acts have not only impeded the development of agriculture but also have been the cause of food inflation in India. Critically examine. [200 Words] [12.5 Marks] [2014]
4. What are the different types of agriculture subsidies given to farmers at the national and at state levels? Critically analyse the agricultural subsidy regime with reference to the distortions created by it.[200 Words] [10 Marks] [2013]

12. Technology Missions



Defining Technology Missions in Agriculture

A Technology Mission is a multi-dimensional administrative and scientific framework designed to break structural bottlenecks in specific sub-sectors of agriculture. Unlike general schemes, a "Mission" operates on a **Saturation Model**, integrating various ministries, research institutions (ICAR), and state governments to achieve self-sufficiency

(*Atmanirbharta*).

It involves the simultaneous application of:

- **Genetic Technology:** High-yielding and climate-resilient varieties.
- **Mechanical Technology:** Precision farming and farm mechanization.
- **Information Technology:** Real-time advisories and digital public infrastructure.
- **Management Technology:** Strengthening the value chain from farm-gate to consumer.

The Strategic Significance of Technology Missions

The overarching significance of these missions lies in their ability to resolve the "**Agrarian Crisis**" by focusing on four critical dimensions:

1. Enhancement of Productivity

By introducing nucleus-to-farmer seed chains (as seen in NMAET), these missions bridge the "Yield Gap." They ensure that the genetic potential of the laboratory is actually realized in the farmer's field.

2. Sustainability and Climate Resilience

Modern missions like the **National Animal Disease Control Programme (NADCP)** and **Soil Profile Mapping** focus on the long-term health of the ecosystem. They aim to reduce chemical dependency through Integrated Pest Management (IPM) and ensure that agriculture remains viable amidst climate-induced supply disruptions.

3. Transition to Scientific Farming

These missions act as the "Nerve Centers" that replace traditional "Rule of Thumb" methods with data-driven decision-making. Utilizing satellite imaging and soil health data converts a "Monsoon Gamble" into a "Calculated Risk."

4. Doubling and Stabilizing Farmer Income

By reducing the **Cost of Production** (through mechanization) and increasing **Household Liquidity** (through livestock assets), technology missions provide a structural shield against rural poverty.

A Panorama of Technology Missions in India

India's agricultural strategy is currently executed through several specialized missions, each targeting a specific sector of the rural economy.

No	Mission Name	Primary Objective	Key Component
1	National Mission on Edible Oils (NMEO)	Self-sufficiency in Oilseeds/Palm	Reducing 60% import dependency.
2	National Mission on Agricultural Extension (NMAET)	Lab-to-Land connectivity	Custom Hiring Centres & Seed Chain.
3	National Livestock Mission (NLM)	Entrepreneurship in Animal Husbandry	50% capital subsidies for breeding.

4	Rashtriya Gokul Mission (RGM)	Indigenous Breed Development	IVF and Sex-Sorted Semen.
5	National Animal Disease Control (NADCP)	Disease Eradication	100% vaccination for FMD & Brucellosis.

The Digital Agriculture Mission (DAM): The New Frontier

Approved in September 2024 with an outlay of **₹2,817 Crore**, the Digital Agriculture Mission is the "Umbrella Scheme" for the 21st century. It aims to build a **Digital Public Infrastructure (DPI)** that mirrors the success of UPI in the financial sector.

1. AgriStack: The Digital Identity

The core of DAM is the creation of a unique **Farmer ID** (Kisan ki Pehchaan).

- **Mechanism:** Linked to land records, livestock ownership, and crops sown.
- **Target:** Creating digital identities for **11 crore farmers** by 2027.
- **Impact:** It enables "Paperless MSP-based procurement" and "Instant Credit," obviating the need for the farmer to physically visit government offices.

2. Krishi Decision Support System (Krishi-DSS)

A comprehensive geospatial system that unifies remote sensing data on crops, soil, and weather. It allows for:

- Real-time drought and flood monitoring.

- Technology-based yield assessment for faster insurance claim settlements.

3. Digital General Crop Estimation Survey (DGCES)

By digitizing crop-cutting experiments, the DGCES provides scientifically accurate yield estimates. This is the cornerstone of the **YES-TECH** (Yield Estimation System based on Technology) currently revolutionizing the **PMFBY** insurance framework.

4. Soil Profile Mapping

The mission envisages completing detailed maps (1:10,000 scale) for **142 million hectares** of agricultural land. This ensures that the "Balanced use of Fertilizers" becomes a ground reality rather than just a policy objective.

Achievements through Agricultural Revolutions

The success of these missions is reflected in the historical and ongoing "Revolutions" that have redefined the Indian table:

- **The Green Revolution:** Attained through the early technology missions in cereals, making India a food-surplus nation.
- **The White Revolution:** Powered by Operation Flood and continued by the **Rashtriya Gokul Mission**, making India the world's largest milk producer.
- **The Yellow Revolution:** Revived by the **NMEO-OS**, focusing on oilseeds to achieve *Atmanirbharta*.
- **The Blue Revolution:** Transforming fisheries into a high-tech export sector through the **PM-Matsya Sampada Yojana**.
- **The Silver Fiber Revolution:** Modernized by the **Kapas Kisan App**, ensuring transparent MSP procurement for cotton farmers.

An assessment of India's technology missions in 2026 reveals a landscape of "Digital Maturity" tempered by "Structural Inequities." Based on the **Economic Survey 2025-26** and recent performance audits, the following evaluation serves as a necessary caveat to the optimistic policy narrative. While the achievement of "Atmanirbharta" (Self-Reliance) is closer, the "Last-Mile" journey remains fragmented.

1. The Digital Agriculture Mission (DAM): A Critical Audit

While DAM is hailed as the "UPI moment" for agriculture, its assessment highlights a divide between data generation and data utility.

- **AgriStack Success:** As of February 2026, over **8.62 crore Farmer IDs** have been generated. States like Chhattisgarh and Maharashtra have successfully used this for transparent MSP procurement and disaster relief.
- **The Tenant Farmer Gap:** A significant caveat is that **20% of farm households are tenants**. Since AgriStack is linked to land records, tenant farmers (who utilize 60% of fertilizers) remain largely invisible in the digital database, limiting their access to institutional credit.
- **Digital Literacy Paradox:** Despite the launch of AI-powered multilingual tools like '*Bharat Vistar*', over **40% of smallholders** still struggle with app-based navigation, leading to a continued dependence on human intermediaries (Common Service Centres).

2. National Mission on Edible Oils (NMEO): The Import Challenge

The mission has successfully increased domestic production, but India's import dependency remains a "sticky" economic problem.

- **Achievements:** Domestic oilseed output has risen toward the **70 million tonne target**, with 40 lakh hectares of rice-fallow land being repurposed.
- **The Constraint:** Despite these gains, India still spends nearly **\$20 billion annually** on edible oil imports (covering ~60% of demand). The mission faces the "Volatility Trap"—whenever international prices of palm oil crash, domestic oilseed farmers face price pressure, necessitating higher MSP interventions that strain the budget.

3. Animal Husbandry & AHIDF: The Value-Addition Wall

The livestock sector has grown at an annual rate of **5.3%**, but value addition remains low compared to global standards.

- **Infrastructure Progress:** The **AHIDF** (outlay of ₹29,110 crore) has successfully funded IVF centers and breed multiplication farms. The **NADCP** has reduced FMD outbreaks by over **70%** as of 2026.
- **Processing Constraints:** Only about **10-15%** of India's meat and dairy is processed into high-value products. Inadequate cold chains and residue testing laboratories in rural areas remain a bottleneck for export growth, preventing India from capturing a larger share of the global halal and organic markets.

1. Summary Table of Performance Caveats (2026)

No	Mission	Key Achievement	The "Caveat" / Challenge
1	Digital Agriculture	8.6+ Crore Digital IDs created.	Exclusion of landless/tenant farmers.

2	NMEO (Edible Oils)	Double output target nearly met.	High import bill (\$20bn) persists.
3	NADCP (Disease Control)	FMD outbreaks near eradication.	Low penetration of quality processing.
4	Namo Drone Didi	15,000+ SHG drones deployed.	High maintenance costs for rural groups.

Conclusion: A Balanced Judgement

The narrative of technology missions in 2026 is one of **"Strategic Saturation."** For the Indian farmer, these missions represent the transition from "Managing Scarcity" to "Optimizing Value." By linking the soil to the satellite through **AgriStack** and the cow to the digital ledger through **NDLM**, the Indian state has created a "Social Safety Net" that is both modern and resilient.

The "Technology is a tool, not a cure-all." The success of the Digital Agriculture Mission depends on bridging the "Digital Divide." While we target digital identities for 11 crore farmers, the grassroots implementation must ensure that the "last person in the queue"—the small, tenant farmer—is not left behind due to a lack of digital literacy.

Ultimately, the goal of these missions is the shift from **Food Security** to **Nutritional and Income Security**. As India marches toward **Viksit Bharat @2047**, these technology missions will be the primary drivers of a \$30 trillion economy, ensuring that Indian agriculture remains not just the backbone of the economy, but its most innovative and prosperous limb.

Previous Year Questions

Q.10) How can the Digital India program help farmers to improve farm productivity and income? What step has the government taken in this regard? [200 Words] [12.5 Marks] [2015]

Answering Guidelines

I. Introduction (Approx. 30–40 words)

- **Objective:** Define the convergence of the Digital India program with the agricultural ecosystem.
- **Key Guidelines:**
 - Frame the Digital India program not merely as a tech initiative, but as a primary engine to tackle the traditional structural vulnerabilities of Indian farming.
 - Establish the thesis: By replacing information deficits with real-time data connectivity, digital tools act as a force multiplier to structurally lift farm productivity and double farmers' income.

II. Body Paragraph 1: How Digital India Improves Productivity & Income (Approx. 80–90 words)

Use specific economic and technological pathways to explain the mechanism of improvement:

- **Eradicating Information Asymmetry:** Real-time data on weather anomalies, pest outbreaks, and price trends shifts farming from a defensive gamble to a predictive science.
- **Precision Agriculture:** Integrating AI, Internet of Things (IoT) sensors, and drone mapping allows for target-specific application of water, fertilizers, and pesticides, lowering input costs.

- **Direct Market Access and Financial Inclusion:** Digital platforms bypass traditional intermediaries ("Middleman Raj"), connecting smallholders directly to agri-businesses and national buyers to improve price discovery.

III. Body Paragraph 2: Concrete Steps Taken by the Government (Approx. 80–90 words)

Provide explicit, real-world examples of state-led digital initiatives:

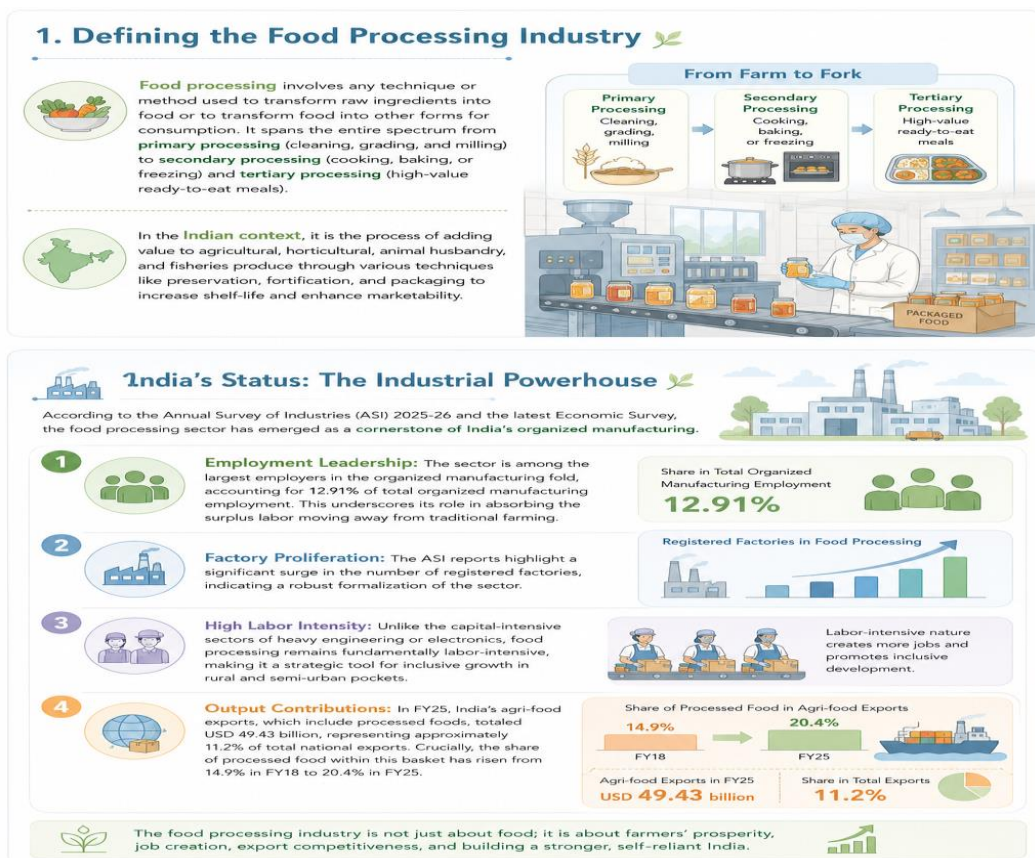
- **The AgriStack / Digital Agriculture Mission:** Building a unified digital ecosystem that provides a unique farmer ID, linked to land records and crop patterns, to streamline formal credit delivery.
- **e-NAM (Electronic National Agriculture Market):** A pan-India electronic trading portal that networks existing APMC mandis to create a unified national market for agricultural commodities.
- **PM-KISAN Direct Benefit Transfer:** Utilizing the **JAM Trinity** (Jan Dhan, Aadhaar, Mobile) to clear implementation bottlenecks, depositing income support directly into bank accounts without leakage.
- **Mobile-First Advisory Extensions:** Platforms like the *Kisan Suvidha* app and *Bhuvan* satellite imaging offer localized soil health monitoring and tailored weather alerts directly to smartphones.

IV. Conclusion & Way Forward (Approx. 30 words)

- **Objective:** Conclude with an analytical forward-looking statement.
- **Key Guidelines:**
 - Conclude that while digital architecture provides an excellent "Sail" for agrarian reform, its success requires closing the digital divide in rural areas.
 - Emphasize that turning smallholders into tech-empowered entrepreneurs is the final milestone in securing long-term food security and achieving an inclusive, thriving economy.

Section – VIII - Food Management

1. Food Processing.



To understand the structural transformation of the Indian economy, one must look at the **Food Processing Industry (FPI)** not as a mere extension of agriculture, but as the "Sunrise Sector" that serves as the essential bridge between the primary farm-gate and the sophisticated industrial consumer. In the classical tradition of Indian economic thought,

this sector represents the ideal synthesis of labor-intensive manufacturing and rural value addition.

Defining the Food Processing Industry

Food processing involves any technique or method used to transform raw ingredients into food or to transform food into other forms for consumption. It spans the entire spectrum from **primary processing** (cleaning, grading, and milling) to **secondary processing** (cooking, baking, or freezing) and **tertiary processing** (high-value ready-to-eat meals).

In the Indian context, it is the process of adding value to agricultural, horticultural, animal husbandry, and fisheries produce through various techniques like preservation, fortification, and packaging to increase shelf-life and enhance marketability.

India's Status: The Industrial Powerhouse

According to the **Annual Survey of Industries (ASI) 2025-26** and the latest Economic Survey, the food processing sector has emerged as a cornerstone of India's organized manufacturing.

1. **Employment Leadership:** The sector is among the largest employers in the organized manufacturing fold, accounting for **12.91% of total organized manufacturing employment**. This underscores its role in absorbing the surplus labor moving away from traditional farming.
2. **Factory Proliferation:** The ASI reports highlight a significant surge in the number of registered factories, indicating a robust formalization of the sector.

3. **High Labor Intensity:** Unlike the capital-intensive sectors of heavy engineering or electronics, food processing remains fundamentally **labor-intensive**, making it a strategic tool for inclusive growth in rural and semi-urban pockets.
4. **Output Contributions:** In FY25, India's agri-food exports, which include processed foods, totaled **USD 49.43 billion**, representing approximately **11.2% of total national exports**. Crucially, the share of *processed* food within this basket has risen from 14.9% in FY18 to **20.4% in FY25**.

India's Global Footprint

While India is the world's largest producer of milk, pulses, and several fruits, its share in the global value-added market remains modest, signaling both a challenge and a massive opportunity for "Global Leadership."

- **Export Share:** India currently accounts for approximately **2.3% of world food exports**.
- **Import Share:** India accounts for **1.30% of world food imports**, primarily driven by the structural dependency on edible oils and specific pulses.
- **The Growth Potential:** With the shift toward "Global Value Chain" integration, India is rapidly moving from being a provider of raw commodities to a provider of "Branded and Processed" products under the *Aatmanirbhar Bharat* vision.

The Multi-Dimensional Significance of Food Processing

The socio-economic importance of the food processing industry can be summarized through its ability to solve the "Triple Crisis" of the Indian farm: **Low Income, High Wastage, and Price Volatility**.

1. The Vital Link: Agriculture-Manufacturing Synergy

Food processing acts as the structural glue between the rural farm-gate and the urban factory. It converts a "seasonal agricultural commodity" into a "year-round industrial product," thereby industrializing the rural landscape.

2. Reduction in Food Wastage and Inflation

India suffers from staggering post-harvest losses, particularly in perishables. By creating "Cold Chains" and "Mega Food Parks," the FPI captures the surplus during harvest seasons. This not only **reduces food wastage** but also **curbs food inflation** by ensuring a steady supply during lean months.

3. Raising Farmer Income and Providing Incentives

Processing creates a "Demand Pull." When a farmer knows their tomatoes will be purchased by a ketchup plant or their milk by a cheese unit, they have a **price-certainty** that traditional markets cannot offer. This provides a direct incentive for the farmer to increase productivity and adopt modern technology.

4. Rural Employment and Migration Reversal

By establishing processing units in rural districts, the sector promotes **Rural Employment**. When a young person finds a manufacturing job in their own village or district, the pressure for **Rural-Urban Migration** decreases, leading to more balanced regional development.

5. Diversification and Export Earnings

FPI allows for the **diversification of income**. A farmer is no longer dependent solely on

the harvest of a single cereal; they can participate in the "Value Chain" of processed snacks, beverages, and oils. Furthermore, the shift toward processed exports brings in valuable foreign exchange, moving India up the global trade hierarchy.

Regulatory Agencies and Legal Frameworks

To ensure that "Value Addition" does not compromise "Public Health," India has established a rigorous regulatory ecosystem.

A. FSSAI and the 2006 Act

The **Food Safety and Standards Authority of India (FSSAI)** is the apex regulatory body. It was established under the **Food Safety and Standards Act, 2006**, which consolidated multiple older laws (like the PFA Act) into a single, comprehensive framework.

- **Mandate:** It sets science-based standards for articles of food and regulates their manufacture, storage, distribution, and sale.
- **Institutional Alignment:** FSSAI functions under the administrative control of the **Ministry of Health & Family Welfare**, reflecting the government's priority of linking food processing with "Nutrition and Public Safety."

Government Policy Interventions: The 2026 Landscape

The government's strategy for 2026 is defined by a "Triple-S" approach: **Scale, Standardization, and Support.**

I. Pradhan Mantri Kisan Sampada Yojana (PMKSY)

This is the flagship "Umbrella Scheme" focused on modern infrastructure.

- **Progress:** As of November 2025, **1,185 projects** had been completed. It focuses on creating "Farm-to-Retail" supply chains and Mega Food Parks to reduce losses and expand processing capacity.

II. Production Linked Incentive (PLI) Scheme

Launched in 2021, the **PLISFPI** aims to build globally competitive Indian brands.

- **Incentive Power:** By December 2025, beneficiaries reported investments of **₹9,207 crore**. It supports branding and marketing in international markets, helping Indian firms compete with global giants.

III. PM-FME: Formalizing the Micro Sector

Recognizing that millions of micro-units exist in the unorganized sector, the **PM Formalisation of Micro Food Processing Enterprises** scheme provides a "hand-holding" approach.

- **Financial Reach:** As of late 2025, **1.72 lakh loans** have been sanctioned, totaling ₹14.19 thousand crore.
- **Women Empowerment:** Seed capital support has reached **3.65 lakh women SHG members**, turning local "Self-Help" into "Micro-Entrepreneurship."

Conclusion: The Path Forward to 2047

The Food Processing Industry in India is at a state of "**Strategic Maturity**." It has evolved from a small-scale, traditional activity to a sophisticated manufacturing sector that holds the key to India's **Viksit Bharat @2047** vision.

The balanced judgment for an aspirant is this: **The FPI is the only sector capable of**

absorbing the surplus labor of agriculture while simultaneously solving the problem of rural poverty. However, to reach its full global potential (beyond the current 2.3% export share), India must address the persistent infrastructure gaps in remote regions and strengthen aquatic and animal health standards as production intensifies.

By linking the "Soil to the Shelf" through technology and standardization, India is ensuring that its agricultural bounty is not just harvested, but effectively monetized for the benefit of the farmer, the consumer, and the global market.

2. The Aspects of Food Processing

The Core Aspects of Food Processing

Food processing is not merely an industrial activity; it is a socio-economic strategy that transforms a raw biological produce into a durable economic asset. We can identify four foundational pillars of this sector:

1. Conversion: From Harvest to Edible Product

The primary function is the transformation of raw agricultural or animal produce into a form that is fit for human consumption. Many agricultural commodities are not palatable or digestible in their raw state.

- **The Process:** Conversion involves cleaning, husking, milling, or grinding. It ensures that the "produce" of the farm becomes the "product" for the kitchen.

2. Preservation: Conquering Time and Decay

The most critical economic contribution of food processing is the extension of shelf-life. Agricultural produce is inherently perishable.

- **The Mechanism:** By using techniques such as dehydration, canning, freezing, or pasteurization, processing inhibits the growth of microorganisms and slows down enzyme activity. This allows food grown in the harvest season to be available during the lean season, thus stabilizing prices and ensuring national food security.

3. Allocation: Ensuring Affordability and Reach

Processing allows for the efficient "spatial and temporal allocation" of food.

- **The Utility:** By reducing the bulk of raw materials and making them shelf-stable, processing allows food to be transported over long distances without spoilage. This makes high-quality nutrition **affordable** and accessible to urban centers and remote regions alike, effectively bridging the geographical gap between the producer and the consumer.

4. Value Chain Addition

Every step of processing adds a layer of economic value to the original raw material.

- **The Economic Multiplier:** When a farmer sells raw potatoes, the value is low. When those potatoes are converted into dehydrated flakes or branded chips, the value increases exponentially. This "Value Addition" is what creates the surplus needed to raise farmer incomes and fund rural infrastructure.

The Sequential Stages in Food Processing

The industry is structured into three distinct stages, each requiring different levels of

technology and capital investment.

1. Primary Processing: The Foundation

This is the initial stage where the raw produce is cleaned, graded, and prepared for the next phase. It often happens close to the farm-gate.

- **Explanation:** It involves basic operations that do not substantially change the physical form of the food but make it transportable or ready for secondary processing.
- **Example in Animal Food:** In the dairy sector, the collection of milk from various farms followed by **Chilling and Pasteurization** at a village collection center is primary processing. In the meat sector, it includes slaughtering and cleaning in regulated abattoirs to ensure the meat is safe for further handling.

2. Secondary Processing: The Transformation

This stage involves the physical or chemical modification of the primary processed material into a more complex ingredient or a semi-finished product.

- **Explanation:** It often involves the use of energy (heat/cold) and ingredients like salt, sugar, or oil to create a new product form.
- **Example (Baking a Cake):** Transforming flour (primary processed wheat), sugar, and eggs into a **Cake** through the process of baking is a classic example of secondary processing. Similarly, converting milk into butter, cheese, or curd falls into this category.

3. Tertiary Processing: The Ready-to-Eat Stage

This involves the final preparation of "convenience foods" or ready-to-eat meals that require minimal preparation by the consumer. It is the fastest-growing segment in urban India due to changing lifestyles.

The Scope of Food Processing in India

The scope of FPI in India is arguably the largest in the world, rooted in India's status as a "Global Food Factory."

- **Agricultural Abundance:** India is the world's largest producer of milk, pulses, and spices, and the second-largest producer of rice, wheat, fruits, and vegetables. Yet, we process less than **10%** of our total produce. This gap represents a massive frontier for industrial expansion.
- **Demographic Dividend and Urbanization:** A burgeoning middle class, rising female workforce participation, and rapid urbanization are creating a massive internal market for processed, packaged, and "instant" foods.
- **Employment Potential:** As noted in the Economic Survey, the sector accounts for **12.91% of organized manufacturing employment**. It is a unique sector that can create millions of "off-farm" jobs in rural areas, reducing the disguised unemployment in agriculture.
- **Export Frontiers:** India's agri-food exports reached **USD 49.43 billion** in FY25. With the share of processed foods rising to **20.4%**, there is significant scope to capture the "Global Value Chain" by moving from raw exports to branded, processed goods under the **PLISFPI** scheme.

Structural Problems and Constraints

Despite the massive scope, the "Dutt & Sundaram" style analysis reveals deep-seated bottlenecks that act as a drag on the sector's potential.

1. The Vagaries of Weather and Seasonality

The FPI is entirely dependent on agricultural raw materials, which are subject to the

"Monsoon Gamble."

- **The Constraint:** Droughts or unseasonal rains can lead to sudden shortages of raw materials (like tomatoes or onions), causing processing plants to operate below capacity and leading to high price volatility in the consumer market.

2. Infrastructural Deficiencies: The "Missing Cold Chain"

The most significant bottleneck is the lack of a seamless "Farm-to-Fork" cold chain.

- **Cold Storage Gaps:** While India has large-scale cold storage for potatoes, it lacks specialized multi-commodity cold chains and refrigerated transport (reefer vans).
- **The Result:** This leads to staggering post-harvest losses, particularly in fruits and vegetables. Without a reliable temperature-controlled environment, the "linkage" between the rural market and the urban processor remains broken.

3. Fragmented Supply Chains and Small Scale

- **Intermediary Trap:** As discussed in marketing notes, the long chain of middlemen reduces the margins for the processor and increases costs for the consumer.
- **Micro-Enterprise Dominance:** A large part of the industry is in the unorganized sector. These micro-enterprises lack access to formal credit, modern technology, and global safety standards (FSSAI), making them uncompetitive.

Government Interventions: A Summary of 2026 Status

The government has moved into a "Mission Mode" to address these constraints:

1. **PMKSY (Kisan Sampada Yojana):** Focuses on "Infrastructure." By November 2025, 1,185 projects were completed, creating Mega Food Parks and Integrated Cold Chains to reduce wastage.
2. **PLISFPI:** Focuses on "Global Branding." With an investment of over **₹9,207 crore**, it is helping Indian firms scale up and compete in international markets.
3. **PM-FME:** Focuses on "Formalization." By the end of 2025, it had sanctioned over **1.72 lakh loans** to upgrade micro-enterprises, with a special emphasis on women's Self-Help Groups (SHGs).

Conclusion: A Balanced Judgement

The Food Processing Industry in India is at a state of "**Strategic Maturity**." It is no longer just an adjunct to agriculture; it is a vital manufacturing engine. However, the path to **Viksit Bharat @2047** requires us to solve the "Infrastructure Paradox." We cannot be a global food hub if our fruits rot at the farm-gate while our cities face food inflation.

The transition from 14.9% to 20.4% in processed exports is an encouraging sign, but the future lies in **Digitization and Standardization**. By linking the **Digital Agriculture Mission (AgriStack)** with the food processing value chain, India can ensure that its agricultural bounty is not just harvested, but effectively processed, preserved, and marketed to the world. For the Indian farmer, the FPI is the ultimate "Incentive Provider," converting their labor into a stable, high-value income.

3.The challenges and Solutions of Food Processing

Qualitative Challenges: The Crisis of Inputs and Safety

While the quantity of food produced in India has seen record growth, the quality of raw materials entering the processing chain remains a grave concern. The transition from "Farm to Fork" is often compromised by chemical residues and poor safety standards.

1. Excessive Use of Fertilizers and Chemicals

The "Green Revolution" package encouraged a heavy reliance on chemical inputs. Today, this has become a burden for the processing industry.

- **Chemical Residues:** High levels of Nitrogenous fertilizers and pesticides leave residues in fruits and vegetables. When these are processed (e.g., into juice or pulp), the concentration of chemicals often exceeds the Maximum Residue Limits (MRLs) set by global markets like the EU or USA. This leads to the rejection of Indian consignments, hampering our global competitiveness.
- **Soil Health Degradation:** Excessive chemicals alter the natural brix (sugar) content and texture of produce, making it less suitable for high-end secondary processing.

2. Adulteration and Synthetic Additives

In a highly fragmented and unorganized market, the temptation for illicit profit leads to **Adulteration**.

- **The Problem:** The use of non-permitted synthetic colors, harmful preservatives (like formalin), and "fillers" (like starch in milk or brick powder in spices) poses a systemic risk.

This not only violates the **Food Safety and Standards Act, 2006** but also erodes consumer trust in domestic brands.

3. Nutritional Imbalance

Modern food processing often focuses on "palatability" rather than "nutrition."

- **The Paradox:** Highly processed foods are often stripped of essential fibers and micronutrients while being loaded with excessive salt, sugar, and trans-fats. This has led to a "Dual Burden" in India: while we fight malnutrition in rural areas, we face an explosion of obesity and non-communicable diseases (NCDs) in urban centers due to a lack of balanced, processed options.

4. Low Consumer Awareness

In the Indian market, the "Price-Value" equation often outweighs the "Quality-Safety" equation.

- **The Constraint:** Most consumers lack the awareness to read nutritional labels or check for FSSAI certifications. Consequently, there is little "market pressure" on processors to maintain high quality, allowing substandard micro-units to survive alongside professionalized enterprises.

The Requirements: Upstream and Downstream Linkages

A successful food processing unit does not exist in isolation; it requires a seamless "conveyor belt" of logistics and services.

I. Upstream Requirements (From Farm to Factory)

Upstream refers to everything required to ensure a steady supply of quality raw materials.

1. **Quality Inputs:** Access to high-quality, processing-grade seeds (e.g., potatoes with low sugar content for chips).
2. **Contract Farming:** Legal frameworks that allow processors to provide technology and inputs to farmers in exchange for an assured buy-back of the produce.
3. **Farm-Gate Infrastructure:** Primary processing centers, collection hubs, and **Pre-cooling units** are essential to stop the "biological clock" of decay as soon as the crop is harvested.

II. Downstream Requirements (From Factory to Consumer)

Downstream refers to the logistics of moving the processed product to the shelf.

1. **The Cold Chain:** Refrigerated transport (reefer vans) and multi-commodity cold storages are the lifeblood of the industry. Without them, even the best processed product will spoil before reaching the market.
2. **Marketing and Branding:** As the **PLISFPI** scheme recognizes, Indian brands need significant investment in global marketing to compete with multinational giants.
3. **Retail Integration:** Efficient linkages with supermarkets and e-commerce platforms to ensure rapid turnover of inventory.

The Institutional Roles: Supermarkets vs. Small Units

The Indian food processing landscape is a dual economy: the highly modern organized sector exists alongside a vast, struggling unorganized sector.

1. The Role of Supermarkets

Supermarkets and modern retail chains act as the "Quality Gatekeepers" of the economy.

- **Standardization:** They demand standardized packaging, grading, and safety certifications, which forces the processing units to modernize.
- **Efficient Discovery:** By consolidating demand, supermarkets allow for better price discovery and reduce the "Price-Spread" between the farm and the consumer.
- **Inventory Management:** Advanced "Just-in-Time" inventory systems in supermarkets reduce the wastage that typically occurs in traditional, overcrowded wholesale mandis.

2. The Role of Small and Micro Processing Units

As noted in the **PM-FME** scheme data, micro-enterprises are the largest employers in rural areas.

- **Significance:** They are the first point of value addition in a village. They process local surpluses (like pickling or oil milling) and provide local employment, particularly for women's Self-Help Groups (SHGs).

3. Problems Facing Small Units

Despite their social importance, small units face a "Crisis of Viability":

- **Lack of Credit:** As the survey shows, while loans are being sanctioned (₹14.19 thousand crores), many units still struggle to provide collateral for the expansion of technology.
- **Obsolete Technology:** Most micro-units use outdated machinery that leads to high wastage and inconsistent quality.
- **Compliance Burden:** Meeting the rigorous standards of FSSAI or international quality norms (HACCP) is often too expensive for a unit with a turnover of less than ₹1 crore.

- **Scale Inefficiency:** Because they are small, they cannot negotiate better prices for packaging materials or electricity, leading to higher costs per unit.

The Path Forward: A Balanced Judgement

The **Economic Survey 2025-26** presents a sector that is growing (20.4% share in agri-exports) but remains structurally vulnerable. To achieve the **Viksit Bharat @2047** vision, we must move beyond "Infrastructure Creation" to "**Quality Governance.**"

1. **Strengthening the "Digital Public Infrastructure" (DPI):** By linking **AgriStack** with the food processing chain, we can ensure "Traceability." A consumer in London should be able to scan a QR code on an Indian mango pulp bottle and know which farm in Maharashtra it came from and what chemicals were used.
2. **Formalization through PM-FME:** The continued formalization of micro-units is essential. We must move them from "subsistence processing" to "professional entrepreneurship" through sustained training and seed capital.
3. **Green Processing:** Incentivizing "Green STPs" and solar-powered cold chains—as seen in recent water management projects—will reduce the carbon footprint of the industry.
4. **Awareness Campaigns:** The state must invest in mass awareness regarding food safety and nutrition (e.g., "Eat Right India" campaign) to create market pressure for better standards.

Conclusion: The Food Processing Industry is the bridge between a "subsistence farm" and a "prosperous nation." While the challenges of chemical usage, adulteration, and fragmented supply chains are significant, the institutional momentum provided by **PMKSY, PLISFPI, and PM-FME** is creating a resilient foundation. For the Indian farmer, this sector is the ultimate "Incentive Provider," and for the economy, it is the engine of rural industrialization.

The Strategic Philosophy: From "Survival" to "Value Realization"

The government's strategy is no longer confined to providing simple price supports. Instead, it has pivoted toward a **Market-Led, Infrastructure-Heavy** approach. The core philosophy rests on three pillars:

1. **Infrastructure Creation:** Building the "physical bridge" between the farm-gate and the factory.
2. **Global Competitiveness:** Scaling up domestic firms to compete with multinational giants.
3. **Formalization:** Bringing the vast, unorganized "cottage" processing units into the formal financial and regulatory fold.

Flagship Schemes and Programmatic Interventions

The State's intervention is characterized by a "Whole-of-Value-Chain" approach, spanning from the post-harvest stage to global retail shelves.

1. Pradhan Mantri Kisan Sampada Yojana (PMKSY)

Launched as an umbrella scheme, PMKSY is the cornerstone of India's food processing infrastructure. It is designed to create a seamless supply chain through several sub-components:

- **Mega Food Parks:** Providing state-of-the-art infrastructure for food processing units through a "Cluster Approach."

- **Integrated Cold Chain & Value Addition:** Focusing on specialized transport and storage to reduce the staggering post-harvest losses in perishables.
- **Agro-Processing Clusters:** Promoting localized processing to reduce transportation costs for small farmers.
- **Achievements (Status 2025):** As of November 30, 2025, **1,185 projects** under PMKSY have been successfully completed, significantly expanding India's processing capacity and reducing waste in the "Farm-to-Retail" chain.

2. Production Linked Incentive Scheme (PLISFPI)

Recognizing that Indian brands often lack the scale to compete globally, the PLISFPI (launched in 2021) provides fiscal incentives linked to incremental sales and investment.

- **Objectives:** To support the creation of "Global Food Champions" and promote Indian brands in international markets.
- **Achievements (Status 2025):** By December 31, 2025, **169 applications** were approved. The scheme has successfully triggered investments worth **₹9,207 crore**, with incentives amounting to **₹2,162.55 crore** already disbursed. This has directly contributed to the rise of processed food exports from 14.9% (FY18) to **20.4% (FY25)**.

3. PM Formalisation of Micro Food Processing Enterprises (PMFME)

Since the majority of Indian processing happens in the unorganized sector, the PMFME scheme (launched in 2020) provides a "Hand-holding" mechanism for micro-units.

- **Credit Access:** Providing technical, financial, and business assistance to upgrade local units.
- **Women Empowerment:** A massive focus on Self-Help Groups (SHGs). Seed capital support has reached **3.65 lakh women SHG members**, totaling ₹1,277.45 crore.

- **Achievements (Status 2025):** Over **1.72 lakh loans** have been sanctioned with a total term loan amount of **₹14.19 thousand crore**. The program has built a formidable human resource base, training over **1.36 lakh beneficiaries** across all 36 States and Union Territories.

Institutional and Regulatory Measures

Beyond direct fiscal support, the government has overhauled the regulatory environment to attract private capital.

1. **100% FDI:** The government allows **100% Foreign Direct Investment** under the automatic route in food processing, and 100% FDI through the government-approval route for retail trading (including e-commerce) of food products produced or manufactured in India.
2. **Formalization of Safety Standards:** The integration of **FSSAI** standards with global benchmarks has improved the "Brand India" image, reducing the frequency of export rejections.
3. **Digitization:** The launch of the **National Fisheries Digital Platform** and other sector-specific portals has brought transparency to the value chain, allowing for easier credit and insurance access.

4. Food Processing in the Budget - 2026-27.

The **Union Budget 2026-27** has taken the food processing narrative toward the "Allied Sectors" and "Digital Integration."

1. The "Blue Economy" Integrated Value Chain

The budget introduced a specific initiative to integrate **500 reservoirs and Amrit Sarovars** with the fisheries value chain. This involves:

- Developing local processing hubs for fish and marine products.
- Providing performance-linked incentives to fishers under the **PM-MKSSY** to formalize the unorganized catch sector.

2. Reinvesting Procurement Savings

In a landmark policy shift, the budget announced using the "fiscal savings" from reduced wheat and rice storage (carrying costs) to fund **Processing Clusters for Pulses and Oilseeds**. This is aimed at reducing India's import bill for edible oils by creating local milling and solvent extraction plants.

3. "Digital Public Infrastructure" (DPI) for Processing

The Budget 2026-27 allocated funds to link the **Digital Agriculture Mission (AgriStack)** with food processing units.

- **Traceability:** Ensuring that every processed product can be traced back to its farm origin, meeting the stringent "ESG" (Environmental, Social, and Governance) norms of western markets.
- **AI in Quality Assaying:** Promoting AI-based grading at the mandi level to ensure that only the best raw materials enter the secondary processing stage.

Achievements: A Macro-Economic Assessment

The cumulative impact of these measures is evident in the structural data of the **Economic Survey 2025-26:**

- **Employment:** FPI now accounts for **12.91% of total organized manufacturing employment**, making it the "Social Safety Net" of the industrial sector.
- **Export Resilience:** Despite global geopolitical volatility, agri-food exports reached **USD 49.43 billion** in FY25.
- **Value Addition:** The steady rise in the share of *processed* food exports (now over 20%) indicates that India is successfully moving away from being a "Commodity Exporter" to a "Product Exporter."

Conclusion: The Balanced Judgement

It is a process of "harmonious development." The government's measures in promoting food processing represent a bridge between the village and the world.

However, the balanced judgment for an aspirant is this: **Physical infrastructure (PMKSY) and Fiscal incentives (PLI) are necessary but not sufficient.** The future of the sector depends on **Standardization**. While we have successfully registered 10,000 FPOs and sanctioned 1.72 lakh micro-loans, the qualitative challenge of chemical residues and adulteration remains.

To achieve **Viksit Bharat @2047**, the state must continue to act as a **Strategic Enabler**, shifting focus from "subsistence processing" to "high-precision manufacturing." The integration of the **Digital Agriculture Mission** with processing hubs in the 2026-27 Budget is a step in the right direction. It ensures that the Indian farmer is not just a producer of calories, but a stakeholder in a sophisticated, global, and highly profitable value chain.

Previous year Questions.

1. Examine the scope of the food processing industries in India. Elaborate the measures taken by the government in the food processing industries for generating employment opportunities. [2025]
2. Elaborate the scope and significance of the food processing industry in India.[150 Words] [10 Marks] [2022]
3. What are the main bottlenecks in upstream and downstream process of marketing of agricultural products in India?[250 Words] [15 Marks] [2022]
4. What are the challenges and opportunities of food processing sector in the country? How can income of the farmers be substantially increased by encouraging food processing? [150 Words] [10 Marks] [2020]
5. Elaborate the policy taken by the Government of India to meet the challenges of the food processing sector? [250 Words] [15 marks] [2019]
6. Examine the role of supermarkets in supply chain management of fruits, vegetables and food items. How do they eliminate number of intermediaries? [150 Words] [10 Marks] [2018]
7. What are the reasons for poor acceptance of cost-effective small processing unit? How the food processing unit will be helpful to uplift the socio-economic status of poor farmers? [150 Words][10 Marks] [2017]
8. What are the impediments in marketing and supply chain management in developing the food processing industry in India? Can e-commerce help in overcoming this bottleneck? [200 Words][12.5 Marks] [2015]

5. M.S.P – Minimum Support Price

Definition of Minimum Support Price (MSP)

Minimum Support Price (MSP) is a form of market intervention and price guarantee extended by the Government of India to insulate agricultural producers against any sharp fall in farm prices. Announced at the beginning of the sowing season, MSP acts as an economic safety net or "floor price." If market prices drop below this declared threshold due to a bumper harvest or market volatility, government agencies (such as the Food Corporation of India) step in to procure the produce from farmers at this guaranteed price, thereby preventing distress sales.

Since the Union Budget 2018–19, the administrative framework has institutionalized the **1.5x Principle**, ensuring that the MSP is set at a minimum of 50% margin over the weighted average cost of production, calculated using the **A2+FL methodology** (which covers all actual paid-out expenses plus the imputed value of family labor).



Seasons of Announcement

The government traditionally announces the MSP **twice a year**, strictly timed **before the sowing season begins**. This timing acts as a vital "Market Signal," allowing farmers to make an informed "Rational Choice" regarding which crops to prioritize based on their remunerative potential.

The two primary corporate marketing seasons are:

1. Kharif Season (Summer Crops)

- **Timing of Announcement:** Usually announced in **June**, just prior to the arrival of the Southwest Monsoon.
- **Nature of Crops:** These are autumn-harvested crops that require high water volumes and temperatures.
- **Key Mandated Crops Included:** Paddy (Rice), Maize, Jowar, Bajra, Ragi, Tur (Arhar), Moong, Urad, Groundnut, Soybean, Sunflower seed, Nigerseed, Cotton.

2. Rabi Season (Winter Crops)

- **Timing of Announcement:** Usually announced in **October**, ahead of the winter sowing window.
- **Nature of Crops:** These are spring-harvested crops grown during the dry, cooler months under controlled irrigation.
- **Key Mandated Crops Included:** Wheat, Barley, Gram (Chickpea), Masur (Lentil), Rapeseed & Mustard, Safflower.

The Significance of MSP in the Indian Economy

For the Indian farmer—86% of whom are small and marginal—agriculture is a high-risk enterprise. MSP addresses three critical structural vulnerabilities:

1. **Price Certainty & Market Stability:** By announcing a pre-determined price before the sowing season, the government provides a "psychological and financial buffer." It prevents "distress sales," where farmers are forced to sell their produce at throwaway prices to local middlemen during peak harvest.
2. **Incentive for Investment:** An assured return encourages farmers to invest in high-quality seeds, fertilizers, and technology. It converts agriculture from a "subsistence activity" into a "viable commercial enterprise."
3. **National Food Security:** By incentivizing the production of staples like rice and wheat, MSP has allowed India to build massive buffer stocks, ensuring that the **National Food Security Act (NFSA)** and **PM-GKAY** can support 81.35 crore citizens without depending on volatile international imports.

The Operational Architecture: CACP and the Timing of Support

The determination of MSP is a sophisticated exercise in balancing the interests of the producer (the farmer) and the consumer (the public).

- **Role of CACP:** The **Commission for Agricultural Costs & Prices (CACP)** is the apex advisory body. It functions as an expert technical wing that analyzes a multitude of factors, including demand-supply dynamics, domestic and international price trends, inter-crop price parity, and terms of trade between agricultural and non-agricultural sectors.
- **The Announcement Cycle:** MSP is traditionally announced **before the sowing season** for both Kharif (summer) and Rabi (winter) crops. This timing is crucial as it acts as a "Market Signal," guiding farmers on which crops to prioritize based on remunerative potential.
- **Approval Process:** While CACP recommends the prices, the final decision rests with the **Cabinet Committee on Economic Affairs (CCEA)**, chaired by the Prime Minister.

Coverage and Categorization: The 22 Mandated Crops

The government currently provides price support for **22 mandated agricultural crops**, categorized into four groups:

1. **Cereals (7):** Paddy, Wheat, Maize, Sorghum (Jowar), Pearl Millet (Bajra), Barley, and Ragi.
2. **Pulses (5):** Gram, Tur (Arhar), Moong, Urad, and Lentil (Masur).
3. **Oilseeds (7):** Groundnut, Rapeseed-Mustard, Soyabean, Sesamum, Sunflower, Safflower, and Nigerseed.
4. **Commercial Crops (3):** Copra, Sugarcane, Cotton, and Jute.

Note: For *Toria* and *De-husked Coconut*, the MSP is fixed based on the MSPs of Rapeseed-Mustard and Copra, respectively.

The Methodology of Calculation: The 1.5 x Principle

In a landmark policy shift in the Union Budget 2018-19, the government institutionalized the principle of setting MSP at **at least 1.5 times the cost of production**.

The Cost Formula (A2+FL vs C2)

The CACP uses a comprehensive cost-accounting framework:

- **A2 Cost:** Includes all "paid-out" expenses incurred by the farmer (seeds, fertilizers, pesticides, hired labor, fuel, irrigation, and leased-in land rent).
- **FL (Family Labour):** This is the "imputed value" of the labor provided by the farmer's family members.
- **MSP Determination:** The government currently sets MSP at **1.5 times the (A2+FL) cost**. For instance, in the RMS 2026-27, the margin over cost for **Wheat** has reached a peak of **109%**, and for **Rapeseed & Mustard**, it stands at **93%**.

Different Forms and Specialized Procurement Systems

MSP is operationalized through different institutional "vehicles" depending on the commodity:

1. The Sugar Sector: FRP and SAP

Unlike other crops, sugarcane is governed by the **Fair and Remunerative Price (FRP)**. This is the minimum price that sugar mills are legally mandated to pay to farmers. Some states also announce a **State Advised Price (SAP)**, which is generally higher than the Central

FRP.

2. PM-AASHA: The Umbrella for Pulses and Oilseeds

The **Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)** was launched to ensure that the benefits of MSP actually reach non-cereal farmers. It has three components:

- **Price Support Scheme (PSS):** Physical procurement of pulses and oilseeds by agencies like **NAFED** and **NCCF** when market prices fall below MSP.
- **Price Deficiency Payment Scheme (PDPS):** Farmers are paid the difference between MSP and the market price, without the government physically taking the stock (as seen in some state models).
- **Private Procurement & Stockist Scheme (PPSS):** Involving private players in procurement on a pilot basis.

3. Cotton and Jute: Institutional Support

- **Cotton:** Procured through the **Cotton Corporation of India (CCI)**. The **Kapas Kisan App** has recently been introduced to ensure digital transparency and direct payments.
- **Jute:** Procured through the **Jute Corporation of India (JCI)**. Notably, there is no upper limit on the quantity of jute or cotton the government can procure to protect farmers from distress sales.

MSP Presently: Status in 2025-26 and 2026-27

According to the latest data, the MSP regime has moved toward "**Targeted Self-Sufficiency.**"

- **Rabi 2026-27:** The highest absolute increase was announced for **Safflower** (₹600/quintal) and **Lentil** (₹300/quintal) to incentivize crop diversification away from water-intensive wheat.
- **Kharif 2025-26: Nigerseed** saw the highest hike (₹820/quintal). Procurement for the season is estimated to benefit over **1.84 crore farmers**.
- **The 100% Commitment:** For achieving *Atmanirbharta* in pulses, the government has committed to **100% procurement** of Tur, Urad, and Masur until 2028-29.

The Impact of MSP in India: A Balanced Judgement

The impact of MSP is a tapestry of spectacular successes and complex distortions.

The Positive Impact:

- **Rural Liquidity:** MSP payouts have more than tripled from ₹1.06 lakh crore in 2014-15 to **₹3.33 lakh crore in 2024-25**, providing massive purchasing power to rural India.
- **Poverty Reduction:** By ensuring remunerative prices, it has prevented millions of smallholders from falling into the debt trap, thereby slowing rural-to-urban migration.
- **Self-Sufficiency:** The recent push for pulses and oilseeds is finally reducing India's structural import dependence, saving billions in foreign exchange.

The Structural Distortions (The Unintended Consequences):

- **Ecological Stress:** The safety of MSP for Paddy and Wheat led to the "monoculture" of the Northwest, causing a catastrophic drop in the water table.
- **Nutritional Imbalance:** For decades, MSP ignored millets and pulses, leading to a cereal-heavy diet.

- **Fiscal Carrying Costs:** As noted in the **Economic Survey 2025-26**, the carrying cost of excess buffer stocks now absorbs a large volume of public resources.

Conclusion: The Path Toward "Calibrated Diversification"

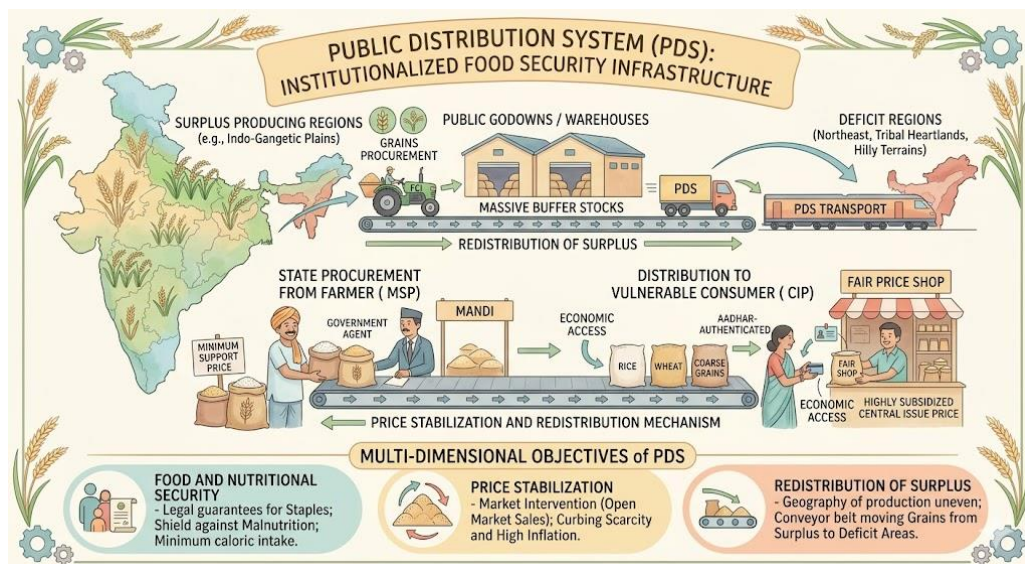
The evolution of MSP in the **Economic Survey 2025-26** represents a state of "Strategic Maturity." The government is no longer just a passive buyer of cereals; it is using MSP as a tool for **voluntary crop diversification**. By offering higher margins for pulses and oilseeds and utilizing the "Digital Public Infrastructure" (AgriStack, e-Samriddhi), the state is ensuring that the "Safety Net" of the 1960s becomes the "Launchpad" for a \$30 trillion economy.

In the final analysis, for the Indian poor and the small farmer, MSP is the ultimate guarantor of dignity. While the **WTO** may view these as trade distortions, for a nation of 1.4 billion, they are non-negotiable instruments of human welfare. The future of Indian agriculture lies in making MSP "**Crop Neutral**" and "**Digitally Transparent**," ensuring that the "Prosperity through Cooperation" (*Sahkar se Samriddhi*) vision reaches every last field.

Previous Year question

1. What are the reformative steps taken by the Government to make food grain distribution system more effective? [250 Words] [15 marks] [2019]
2. What do you mean by Minimum Support Price (MSP)? How will MSP rescue the farmers from the low-income trap? [150 Words] [10 Marks] [2018]

6.Public Distribution System (PDS).



Defining the Public Distribution System (PDS)

The PDS is an institutionalized food security infrastructure designed to ensure the physical and economic access of the population to essential foodgrains. At its core, it is a **price stabilization and redistribution mechanism**.

It functions through a dual-price architecture: the state procures foodgrains from the farmer at the **Minimum Support Price (MSP)**—thereby protecting the producer—and distributes them to the vulnerable consumer at a highly subsidized **Central Issue Price (CIP)**. This system is the practical manifestation of the "Welfare State," intervening in the market to ensure that no citizen is denied basic sustenance due to a lack of purchasing power.

The Multi-Dimensional Objectives of PDS

The PDS is designed to address a triad of economic and social challenges:

1. **Food and Nutritional Security:** The primary objective is to act as a shield against malnutrition. By providing legal guarantees for staples like wheat, rice, and coarse grains, it ensures a minimum caloric intake for nearly two-thirds of the population.
2. **Price Stabilization:** By maintaining massive **Buffer Stocks**, the state can intervene in the open market during periods of scarcity or high inflation (through measures like Open Market Sales), ensuring that food prices remain affordable for the masses.
3. **Redistribution of Surplus:** India's geography of production is uneven. The PDS acts as a conveyor belt, moving grains from "surplus" regions like the Indo-Gangetic plains to "deficit" regions in the Northeast, the hilly terrains, and the tribal heartlands.
4. **Farmer Incentivization:** The guaranteed offtake of grains for the PDS provides a stable market for millions of farmers, encouraging them to invest in technology and productivity.

The Historical Evolution: From Rationing to Legal Rights

The evolution of the PDS reflects the changing priorities of the Indian developmental strategy:

1. The Era of Universal Rationing (Pre-1992)

Introduced during the scarcity of World War II, the PDS remained a "Universal" entitlement scheme for decades. However, this lack of targeting led to "thin spreading" of resources, where the relatively well-off in urban centers often benefited more than the

rural poor.

2. The Revamped PDS (RPDS - 1992)

Recognizing the geographical barriers to food access, the RPDS focused on the "Far-flung and Hilly areas." It was the first step toward acknowledging that food security is as much about **Logistics** as it is about **Production**.

3. The Targeted PDS (TPDS - 1997)

This marked a philosophical shift. In 1997, the state introduced "Targeting," dividing the population into **Below Poverty Line (BPL)** and **Above Poverty Line (APL)** categories. This was aimed at concentrating the subsidy on those with the least resilience.

- **Antyodaya Anna Yojana (AAY - 2000):** To address the "Poorest of the Poor," AAY was launched to ensure that even the most destitute families received 35 kg of grain at highly subsidized rates.

4. The NFSA Era (2013-Present)

The **National Food Security Act (NFSA), 2013**, converted PDS from a "Welfare Policy" to a "**Justiciable Right**." It covers 75% of the rural and 50% of the urban population. Under the current **PMGKAY** (Pradhan Mantri Garib Kalyan Anna Yojana), these entitlements are provided **free of cost**, fully funded by the Central Government.

The Functional Architecture: A Shared Sovereignty

The PDS is a masterclass in **Cooperative Federalism**, operated through a clear division of labor between the Center and the States.

The Role of the Central Government

- **Procurement:** Through the **Food Corporation of India (FCI)**, the Center procures grains from farmers at Mandis.
- **Storage & Movement:** It manages massive warehouses and the interstate transportation of grains to "State Depots."
- **Allocation:** It determines the bulk allocation for each state based on the number of verified beneficiaries.

The Role of the State Governments

- **Identification:** The critical task of identifying eligible families and issuing **Ration Cards** rests with the States.
- **Last-Mile Delivery:** States transport grains from the depots to the **5.43 lakh Fair Price Shops (FPS)**.
- **Monitoring:** Ensuring that the FPS owners do not divert grain to the black market.

The Logic of Targeting: Significance and Challenges

Targeting is based on the economic principle of "**Subsidiarity**"—that resources should be concentrated where the marginal utility is highest.

The Significance of Targeting

- **Fiscal Efficiency:** By excluding the wealthy (APL), the state can afford to provide grain free of cost to the truly vulnerable without bankrupting the exchequer.
- **Nutritional Targeting:** It allows for the distribution of **Fortified Food** (enriched with iron and folic acid) specifically to women and children, addressing the "Hidden Hunger" of micronutrient deficiency.

- **Inclusive Growth:** Targeting migrants and the urban poor ensures that the "Floaters" of the economy are not left behind.

The Challenges of Targeting

Despite its logic, targeting suffers from two major "Type Errors":

1. **Exclusion Errors:** Where a genuine poor person is left out due to a lack of documentation (Aadhaar/Ration Card).
2. **Inclusion Errors:** Where ineligible "ghost" beneficiaries siphon off subsidies.

*Recent data (2025-26) shows that the government has flagged 8.51 crore records through inter-database integration, leading to the removal of **2.12 crore ineligible beneficiaries**.*

The Structural Challenges of the PDS

Despite the monumental scale of the PDS, its journey from the godowns of the Food Corporation of India (FCI) to the plates of the poor is riddled with "leakages" and "exclusionary shadows."

1. **The Crisis of Targeting (Exclusion & Inclusion Errors):** The logic of targeting—while fiscally prudent—suffers from significant misclassification. The "ghosts" in the machine (ineligible beneficiaries) often siphon off subsidies, while the truly destitute are left at the gates due to a lack of documentation or lack of a permanent address (migrants).
2. **The Leakage Pipeline:** Leakages occur at two levels—during transportation (transit loss) and at the Fair Price Shop (FPS) level (diversion to the open market). Historically, nearly one-third of the grain was lost to this "informal economy."

3. **Storage and Rot:** India faces a "Storage Paradox." While procurement has broken records, reaching **1,175 LMT** in 2024-25, covered storage remains insufficient. A CAG performance audit highlighted that a significant portion of grains still rots under "Cap and Plinth" (CAP) storage, turning "national wealth" into "wastage."
4. **Ecological and Crop Distortions:** The "Rice-Wheat" bias of the PDS procurement has trapped farmers in an environmentally unsustainable monoculture. Water-intensive crops are being grown in semi-arid zones like Punjab and Haryana, leading to a catastrophic 33 cm per year drop in the water table.

The PDS in the NFSA Era: A Legal Renaissance

The enactment of the **National Food Security Act (NFSA), 2013**, converted the PDS from a discretionary welfare scheme into a **justiciable right**.

- **Legal Entitlement:** It covers 75% of the rural and 50% of the urban population, totaling approximately 81.35 crore beneficiaries.
- **Nutritional Focus:** Beyond calories, the NFSA mandates the distribution of **Fortified Rice** (enriched with iron and folic acid) to combat the "hidden hunger" of micronutrient deficiency.
- **Women's Empowerment:** The NFSA mandates that the **eldest woman** of the household (aged 18 or above) be the head of the household for the purpose of issuing ration cards.

Landmark Schemes: AAY and PMGKAY

The state has introduced specialized interventions to reach the "Antyodaya" (the last person in the line).

1. Antyodaya Anna Yojana (AAY)

Launched in 2000, AAY is designed for the **poorest of the poor** (approx. 2.5 crore households). While standard NFSA beneficiaries receive 5 kg per person, AAY households are entitled to **35 kg per family**, ensuring that the most destitute have a deep safety net.

2. Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)

Initially a COVID-19 relief measure, PMGKAY has become a permanent pillar of Indian food security.

- **The "Zero-Cost" Revolution:** Under PMGKAY, foodgrains are provided **completely free of cost** to all NFSA beneficiaries.
- **Fiscal Commitment:** This is fully funded by the Central Government, turning the PDS into a massive income-transfer mechanism that allows the poor to spend their meager earnings on other essential proteins (dairy, pulses, eggs).

The Digital Transformation: Reforms in PDS

As of 2026, the PDS is no longer a paper-based bureaucracy; it is a high-tech **Digital Public Infrastructure (DPI)**.

1. **Deduplication and Aadhaar Seeding:** Aadhaar seeding has been achieved for **99.8% of ration cards**. By integrating databases (CBDT, GSTN, PM-KISAN), the government flagged **8.51 crore records**, leading to the removal of **2.12 crore ineligible beneficiaries**.
2. **One Nation One Ration Card (ONORC):** This has ended the "geographical bondage" of the PDS. Migrant laborers can now claim their ration in any state via

biometric authentication, ensuring that the subsidy follows the person, not the place.

3. **ePoS and Biometric Security:** 99.6% of Fair Price Shops are equipped with **Electronic Point of Sale (ePoS)** devices. Over **98% of monthly distribution** is now conducted via Aadhaar-authenticated digital transactions, making black-marketing nearly impossible.
4. **Logistics Tracking (VLTS & Anna Chakra):** GPS-based **Vehicle Location Tracking Systems (VLTS)** monitor the real-time movement of grain trucks. The "Anna Chakra" tool further optimizes routes to reduce carbon emissions and ensure timely arrival.

Suggestions to Improve the PDS: A Way Forward

To achieve the **Viksit Bharat @2047** vision, the PDS must evolve from "Grain Management" to "**Nutritional Management.**"

1. The "Bio-Fortified" Diversification

The PDS should move beyond rice and wheat to include **Shree Anna (Millets)**. Millets are climate-resilient and nutritionally superior. Distributing millets through the PDS will simultaneously solve the groundwater crisis and the malnutrition crisis.

2. Decentralized Storage (The PACS Revolution)

Instead of centralized "Mega-Godowns," the state should scale up the **PACS-based storage model**. By setting up godowns at the village level (as inaugurated in February 2024), we can reduce transportation leakages and allow farmers to store their produce locally through the **e-NWR Pledge Financing** system.

3. Transition to "Smart Choice" (Hybrid DBT)

A total shift to cash (DBT) is risky due to rural price volatility. However, a **Hybrid Model** can be adopted:

- In urban areas with good bank access, offer **Direct Cash Transfers** to empower consumers.
- In remote areas, continue **Physical Distribution** but include "Food Coupons" for dairy and vegetables to enhance dietary diversity.

4. Community-Led Social Audits

Transparency cannot be achieved by sensors alone. Empowering **Women's Self-Help Groups (SHGs)** and Cooperatives to manage Fair Price Shops—as seen in states like Chhattisgarh—ensures that the "social audit" happens at the point of delivery.

The Modern Transformation: Technology and Transparency

As of 2026, the PDS is being redefined by **Digital Public Infrastructure (DPI)**.

- **One Nation One Ration Card (ONORC):** This has achieved "Portability." A migrant laborer from Bihar can now draw their ration in Bengaluru using Aadhaar-based biometric authentication. This has effectively ended the "Geographical Lock" of the PDS.
- **ePoS and Aadhaar Seeding:** 99.6% of Fair Price Shops are now equipped with **Electronic Point of Sale (ePoS)** devices. Aadhaar seeding has reached 99.8%, ensuring that the "Ration belongs to the Person, not the Card."

- **Anna Chakra & VLTS:** To solve the problem of "Leakages during Transit," the government has deployed GPS-based **Vehicle Location Tracking Systems (VLTS)**. The "Anna Chakra" tool further optimizes logistics to reduce the carbon footprint of food movement.

CGS-NPF: To empower farmers within the food management cycle, the **Credit Guarantee Scheme** for e-Negotiable Warehouse Receipts allows small and marginal farmers to get loans against their stored produce, preventing distress sales.

Conclusion: The Synthesis of Strategic Maturity and Resilience

The evolutionary journey of the **Public Distribution System (PDS)** in India—from its rudimentary origins as a wartime rationing measure in the 1940s to its current manifestation as a sophisticated, digitally-governed legal entitlement—represents the defining success of the Indian developmental story.

In the classical tradition of Indian economic thought, the narrative of the PDS in 2026 is one of "**Strategic Maturity**" and "**Resilience**." It is no longer a mere system of managing scarcity; it has successfully navigated the transition into an era of managed abundance, effectively shielding **81 crore people** from the volatile storms of global inflation and the "Monsoon Gamble."

While critics frequently point toward the burgeoning **Food Subsidy bill** and the fiscal burden of "Buffer Stock" carrying costs, a balanced judgment necessitates viewing these outlays not as a drain on the exchequer, but as a sovereign **investment in human capital**. A well-fed nation is the prerequisite for a productive and competitive economy.

The primary reason India could navigate the unprecedented global shocks of the 2020s without a systemic hunger crisis is the robustness of this internal food management architecture. By providing free grain under **PM-GKAY**, the state has performed a massive transfer of "Disposable Income" to the poor, fundamentally allowing rural and urban marginalized households to diversify their consumption baskets toward proteins, dairy, and higher nutrition.

The future of the PDS now lies at the intersection of "**Bio-Fortification**" and "**Choice**." The ongoing shift toward providing fortified rice and the progressive pilot projects for **Direct Benefit Transfer (DBT)** suggest that the PDS is evolving beyond simple caloric security to meet the broader nutritional aspirations of a modernizing India.

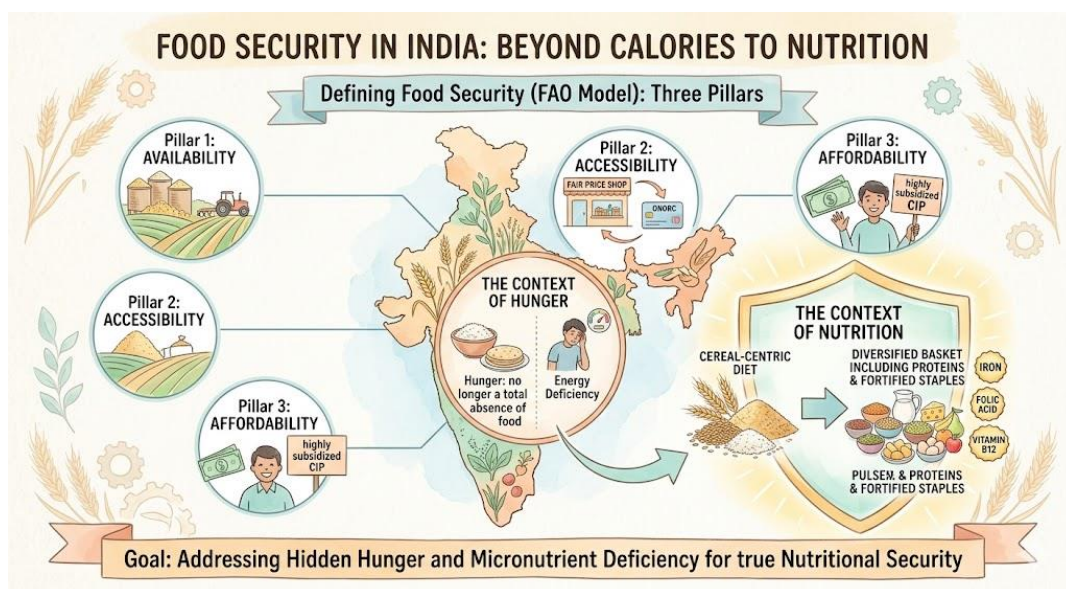
Furthermore, the move toward using "**procurement efficiencies**" to support voluntary crop diversification is a masterstroke of fiscal engineering. It preserves the core food security architecture while nudging the Indian farmer toward a more diverse, market-oriented, and climate-resilient future.

Ultimately, for the Indian poor, the PDS remains the physical proof of a **compassionate and inclusive state**. For the nation at large, it remains the bedrock of social peace and the essential foundation for achieving the vision of **Viksit Bharat @2047**. The journey from "rationing scarcity" to "distributing abundance" stands as a testament to India's ability to link the soil of the farm-gate to the digital pulses of a \$30 trillion economy.

Previous Year Questions

1. What are the major challenges of Public Distribution System (PDS) in India? How can it be made effective and transparent? [150 Words] [10 Marks] [2022]
2. What are the reformative steps taken by the Government to make food grain distribution system more effective? [250 Words] [15 marks] [2019]

7. Food Security.



Defining Food Security: Beyond Calories to Nutrition

Food security, in its modern maturity, is defined by the **Food and Agriculture Organization (FAO)** and adopted by the Indian state through three distinct pillars: **Availability, Accessibility, and Affordability.**

- **The Context of Hunger:** Hunger in India is no longer defined by a total absence of food, but by "Energy Deficiency."
- **The Context of Nutrition:** A significant shift in the 2020s has been the focus on "Hidden Hunger" or micronutrient deficiency. Food security today encompasses the transition from a "Cereal-centric" diet to a diversified basket including proteins (pulses/dairy) and fortified staples (iron, folic acid, and Vitamin B12).

The Necessity of Food Security in India

The imperative for a robust food security architecture in India is rooted in three socio-economic realities:

1. **Vulnerability of the Poor:** With a significant portion of the population being low-income, the "Income Elasticity of Demand" for food is high. Any spike in global food inflation can push millions into malnutrition.
2. **Structural Rural-Urban Migration:** Food security ensures that migrants and the urban poor—who lack the safety net of ancestral farms—have a guaranteed supply of affordable sustenance.
3. **Climate Resilience:** In an era of unseasonal rains and "Monsoon Gambles," a state-led food security system acts as a macroeconomic stabilizer against supply shocks.

The National Food Security Act (NFSA), 2013: The Legal Renaissance

The NFSA 2013 represents the most significant shift in India's developmental history, moving food from a "Welfare Policy" to a "**Justiciable Right.**"

1. Objectives

The primary objective is to provide for food and nutritional security in the human life cycle approach, by ensuring access to adequate quantities of quality food at affordable prices.

2. Important Features

- **Coverage:** It legally covers 75% of the rural population and 50% of the urban population (totaling nearly 81.35 crore beneficiaries).
- **Entitlements:** Priority Households (PHH) receive 5 kg of foodgrains per person per month at subsidized rates (now provided **free** under PMGKAY). The poorest of the poor (Antyodaya Anna Yojana or AAY) receive 35 kg per family per month.
- **Women's Empowerment:** The NFSA mandates that the **eldest woman** (18+ years) be the head of the household for issuing ration cards.
- **Maternity Benefits:** Pregnant women and lactating mothers are entitled to a nutritious meal and maternity benefits of at least ₹6,000.

3. Implementation Framework

The implementation follows a model of "**Cooperative Federalism.**" The Center (through FCI) procures and transports grains to State depots, while States identify beneficiaries, issue ration cards, and manage the 5.43 lakh Fair Price Shops (FPS).

Government Instruments of Food Security: The Challenges

The state utilizes several instruments to maintain this legal guarantee, each facing unique structural bottlenecks.

1. **MSP and Procurement:** The government buys wheat, paddy, and coarse grains at Minimum Support Prices.
 - *Challenge:* This creates a "Cereal Bias," encouraging farmers to ignore water-efficient millets and pulses.
2. **Buffer Stock Operations:** FCI maintains stocks to ensure supply during lean periods.
 - *Challenge:* High "Carrying Costs" (interest and storage) and the risk of grain rotting in open CAP storage.
3. **Public Distribution System (PDS):**
 - *Challenge:* Leakages during transportation and "Inclusion/Exclusion" errors where ineligible people get benefits while the poor are left out.

Strategic Government Measures and Recent Reforms

As of 2026, the food management system has undergone a "**Digital Revolution**" to address historical leakages.

1. Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)

Initially a crisis response, PMGKAY has become a permanent pillar. It provides foodgrains **completely free of cost** to all NFSA beneficiaries, fully funded by the Central Government. This effectively increases the "Disposable Income" of the poor, allowing them to buy milk and eggs.

2. One Nation One Ration Card (ONORC)

By enabling "Portability" across all 36 States/UTs, ONORC has decoupled food rights from a fixed location. A migrant worker from Bihar can now draw their ration in Bengaluru

using Aadhaar-based biometric authentication.

3. Technology Integration (DPI)

- **Aadhaar Seeding:** Achieved for 99.8% of ration cards, leading to the removal of **2.12 crore ineligible beneficiaries** through database integration (GSTN, PM-KISAN, etc.).
- **ePoS Devices:** 99.6% of Fair Price Shops are now digitally linked, ensuring that over 98% of monthly transactions are biometric-authenticated.
- **Anna Chakra & VLTS:** GPS-based tracking of trucks and AI-based logistics tools (Anna Chakra) are optimizing the movement of grains and reducing carbon emissions.

Suggestions for Improved Food Management

To achieve the **Viksit Bharat @2047** vision, the state must move toward "**Nutritional Quality**" and "**Fiscal Efficiency**."

1. **Promoting "Shree Anna" (Millets):** Integrating more millets into the PDS will solve the "Dual Crisis" of groundwater depletion (in Punjab/Haryana) and nutritional deficiency.
2. **Decentralized Storage:** Instead of centralized mega-godowns, the state should utilize the **PACS (Primary Agricultural Credit Societies)** to create village-level storage, reducing transit leakages.
3. **Direct Benefit Transfer (DBT) Expansion:** In highly urbanized pockets, moving toward cash transfers (DBT) will reduce the cost of physical grain movement while giving beneficiaries the "Choice" of their food basket.

4. **Credit for Farmers:** Strengthening the **e-NWR (Electronic Negotiable Warehouse Receipt)** pledge financing will ensure that farmers (especially Divyangjan and Women) do not engage in "Distress Sales."

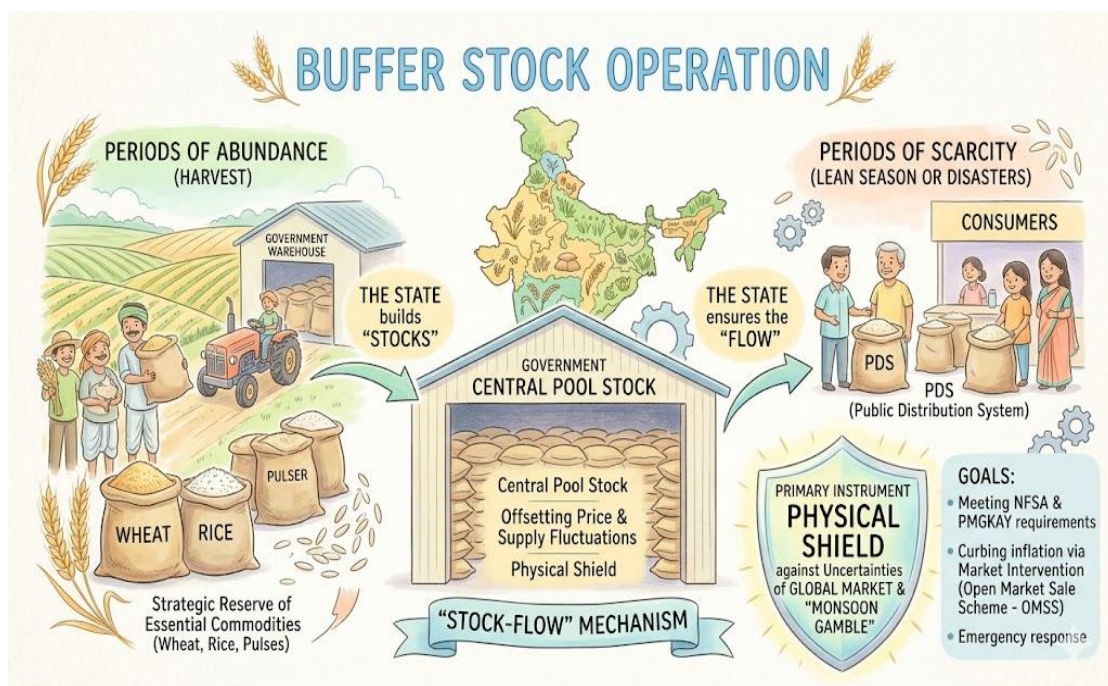
Conclusion: A Balanced Judgement

The narrative of food security in India in 2026 is one of "**Strategic Maturity**." The transition from managing a "Ship-to-Mouth" crisis in the 1960s to distributing **free, fortified food** to 81 crore citizens today is the defining achievement of the Indian developmental story.

While the fiscal cost (Food Subsidy) is significant, it must be viewed as a "**Human Investment**." A well-fed nation is a productive nation. The move toward using "procurement efficiencies" to support crop diversification—as highlighted in the latest Economic Survey—is a masterstroke of policy.

It preserves the core food security architecture while nudging the agricultural system toward a more diverse, resilient, market-oriented, and nutrition-focused future. For the Indian poor, the PDS remains the ultimate proof of a **compassionate and inclusive state**.

8. Buffer Stock Operation



Defining the Buffer Stock Operation

A **Buffer Stock** refers to a strategic reserve of essential commodities—primarily foodgrains like wheat and rice, and increasingly pulses—maintained by the State to offset sharp fluctuations in price and supply. In economic terms, it is a "Stock-Flow" mechanism: the government builds "Stocks" during periods of abundance (harvest) and ensures the "Flow" during periods of scarcity (lean season or disasters). It is the primary instrument of the **Central Pool**, acting as a physical shield against the uncertainties of the global market and the "Monsoon Gamble."

The Necessity for India: The Sovereign Imperative

The imperative for maintaining buffer stocks in India is rooted in three structural realities:

1. **High Dependency on Monsoons:** Despite technological advances, nearly half of India's agriculture remains rain-fed. Buffer stocks provide a safety net against the annual uncertainty of rainfall.
2. **Protecting Vulnerable Consumers:** With a significant population spending over 40% of their income on food, even a minor spike in cereal prices can lead to a nutritional crisis.
3. **Preventing Distress Sales:** Without a state-guaranteed purchase for the buffer, a record harvest would lead to a supply glut, forcing small farmers into debt-inducing distress sales.

The Multi-Dimensional Objectives

The Buffer Stock policy operates with three distinct but interconnected goals:

- **Food Security:** meeting the minimum norms to ensure that the **National Food Security Act (NFSA)** and **PMGKAY** can deliver free or subsidized food to 81.35 crore people without interruption.
- **Price Stabilization:** Actively intervening in the market through the **Open Market Sale Scheme (OMSS)**. By releasing wheat or chana into the market during price spikes, the government "curbs soaring inflation," as seen in recent 2025-26 data.
- **Emergency Response:** Meeting unforeseen requirements arising from natural disasters (floods/droughts) or global crises (as seen during the COVID-19 pandemic).

Significance of the Buffer Stock Operation

- The significance of this operation is "Anti-Cyclical." During the global food price shocks of the 2020s, India's buffer stocks allowed the government to provide **free grain under PMGKAY**, shielding 81 crore citizens from poverty. It provides the "Strategic Depth" required for a \$30 trillion economy to remain resilient against climate-induced supply disruptions.

Components of Buffer Stock Operations

As per the latest 2026 stocking norms, the Central Pool is categorized into two functional layers:

1. **Operational Stocks:** These are dynamic reserves meant to meet the **monthly distributional requirements** under the Targeted Public Distribution System (TPDS) and Other Welfare Schemes (OWS).
2. **Food Security Stocks / Strategic Reserves:** These are long-term reserves (prescribed since 2008 for wheat and 2009 for rice) meant to meet emergency shortfalls in procurement.
3. **Specialized Buffers:** Since 2015, the government has created specific buffers for **Pulses** (initially 1.5 lakh tonnes, now expanded) and is currently planning buffers for perishables like **Onions** using irradiation technology to extend shelf life.

The Federal Architecture: Role of Central and State Governments

The operation follows a model of "**Cooperative Federalism**" through a shared division of labor:

- **The Central Government:** Acts through the **Food Corporation of India (FCI)**. Its role is "Macro": fixing buffer norms (via the Cabinet Committee on Economic Affairs), interstate transportation, and bulk allocation. It also engages agencies like **NAFED** and **SFAC** for pulses.
- **The State Governments:** Act as "Micro" managers. Under the **Decentralized Procurement Scheme (DCP)**, states like Madhya Pradesh and Chhattisgarh procure and store grains locally, reducing the transport burden on the FCI. They are responsible for the last-mile delivery via 5.43 lakh Fair Price Shops.

Present Conditions: The "Abundance Challenge"

In 2024-25, India's foodgrain procurement reached a staggering **1,175 LMT**, benefitting 1.84 crore farmers. While this ensures "Atmanirbharta," it has created a situation where **stocks often exceed the minimum norms**.

- **The Tripling of Payouts:** MSP payouts have risen from ₹1.06 lakh crore (2014-15) to **₹3.33 lakh crore (2024-25)**.
- **High Carrying Costs:** The expenditure on storage, interest, and handling now absorbs a vast volume of public resources. The latest Economic Survey (2025-26) notes that these costs could be used more productively for agricultural diversification.

The Challenge of Public Stock Holdings at the WTO

India's buffer stock policy is a point of recurring friction under the **Agreement on Agriculture (AoA)** at the WTO.

2. **The 10% De Minimis Ceiling:** The WTO restricts "Amber Box" subsidies (like MSP) to 10% of the value of production based on **1986-88 prices**. India's massive procurement for buffer stocks often breaches this obsolete limit.
3. **The Peace Clause:** While India utilizes the "Bali Peace Clause" to prevent legal challenges, it continues to demand a "**Permanent Solution**" that recognizes food security as a non-negotiable sovereign right.
4. **Export Concerns:** G-10 and other nations often allege that India's public stocks might leak into the international market, distorting global prices—a claim India counters with digital transparency (AgriStack).

Challenges and Structural Bottlenecks

- **Storage Inefficiency:** India continues to face a shortage of modern **Silo storage**. Grains stored in "Cap and Plinth" (CAP) are vulnerable to moisture and rodents.
- **The Cereal Bias:** The over-emphasis on rice and wheat buffer stocks has discouraged **Crop Diversification**, leading to groundwater depletion in states like Punjab.
- **Quality Degradation:** Ensuring the "Fair Average Quality" (FAQ) of grains over extended storage periods (beyond 2-3 years) remains a logistical hurdle.

Recent Revamp and Digital Integration

The government has launched a "Digital Reform" to modernize buffer management:

- **e-Samridhi & e-Samyukti:** Digital portals for NAFED and NCCF to streamline pulse procurement and buffer management.
- **Anna Chakra:** An AI-based tool to optimize the movement of stocks from surplus to deficit regions, reducing carbon footprints.

- **Onion Irradiation:** A technological shift to store 4-5 lakh tonnes of onions, preventing sprouting and reducing perishability.
- **Blockchain & GPS:** Implementing **Vehicle Location Tracking Systems (VLTS)** to monitor the real-time movement of buffer stocks to prevent diversion.

Conclusion & Forward-Looking Suggestions

The assessment suggests that the next phase of technology missions must move from **"Access" to "Agency."**

1. **Inclusive Data:** AgriStack must evolve to recognize **"Cultivator Status"** independent of land ownership to include tenants.
2. **Climate-Smart Buffers:** Procurement must shift from just "Cereals" to **"Nutri-Cereals and Oilseeds"** to reflect climate-induced supply risks.
3. **Local Tech Ecosystems:** Promoting village-level **"Drone Clinics"** and **"Mobile IVF Labs"** will reduce the high maintenance burden currently faced by individual SHGs and small farmers.

While the technology missions have provided the "Hardware" of progress, the "Software" of human capacity and land reform is what will ultimately determine the success of **Viksit Bharat @2047**.

Conclusion: A Balanced Judgement

The narrative of the Buffer Stock policy in 2026 is one of **"Strategic Maturity."** It has evolved from a wartime rationing measure to a sophisticated macroeconomic tool. However, the path toward **Viksit Bharat @2047** requires an "Unbundling of Objectives."

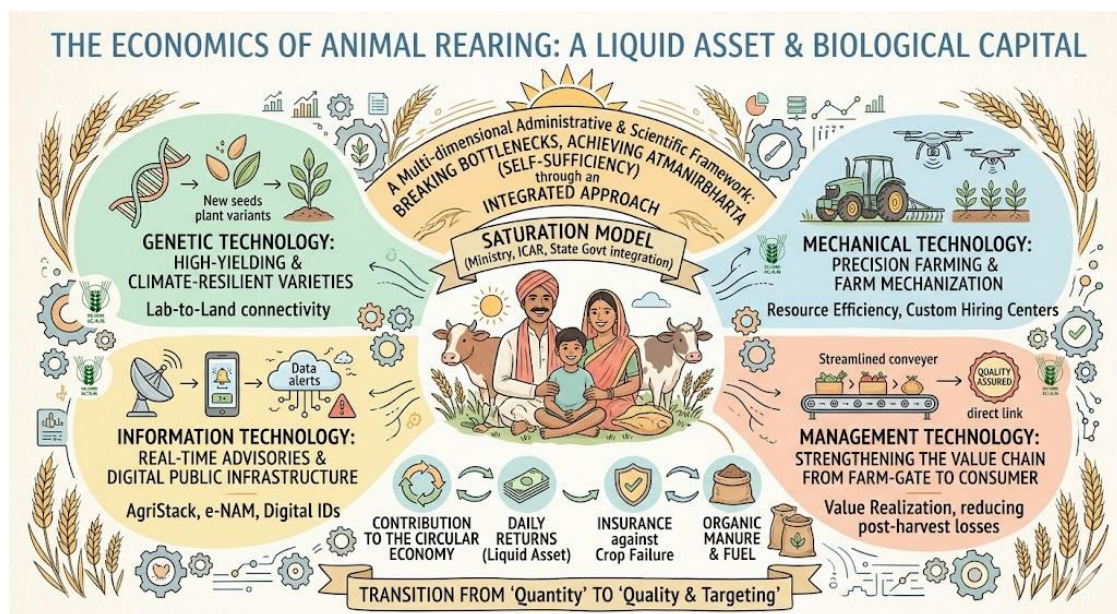
The state must separate the goals of **Price Stabilization** from **Farmer Incentivization**. As

suggested by the latest Economic Survey, the future lies in "**Calibrated Diversification**"—using the fiscal savings from excess cereal stocks to build buffers of oilseeds, pulses, and even skimmed milk powder. By moving from "Cereal-Centric" to "Nutrition-Centric" buffers, and integrating technology like **AgriStack** and **Blockchain**, India can ensure that its public stocks are not just a "Reserve of Grains," but a "Guarantee of Livelihood and Health" for every citizen. The journey from "Managing Scarcity" to "Distributing Abundance" is complete; the next journey is toward "Optimizing Nutrition."

Previous Year Questions

1. Elucidate the importance of buffer stocks for stabilizing agricultural prices in India. What are the challenges associated with the storage of buffer stock? Discuss. **[2024]**
 2. What are the salient features of the National Food Security Act 2013? How has the Food security Bill helped in eliminating hunger and malnutrition in India? [250 Words] [15 Marks] [2021]
 3. What are the reformative steps taken by the Government to make food grain distribution system more effective? [250 Words] [15 marks] [2019]
 4. India needs to strengthen measures to promote the pink revolution in food industry for ensuring better nutrition and health. Critically elucidate the statement. [200 Words] [10 Marks] [2013]
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9.The Economics of Animal rearing.



Defining the Economics of Animal Rearing

The economics of animal rearing refers to the study of the production, distribution, and consumption of goods and services derived from the livestock sector. It encompasses the **value-chain management** of animals raised for milk, meat, eggs, fiber (wool/silk), and draft power.

Unlike the crop sector, which is seasonal, the livestock sector represents a **"liquid asset"** for the farmer. It is a biological capital that provides daily returns, acts as an insurance against crop failure, and contributes to the circular economy through organic manure and fuel.

Significance in the Rural Economy: The Social Safety Net

In the Indian rural landscape, where landholdings are increasingly fragmented, animal rearing is the primary vehicle for **inclusive growth**.

1. **Risk Mitigation and Resilience:** For the small and marginal farmer, a cow or a goat is a "mobile bank." When crops fail due to unseasonal rains or drought, livestock products provide the necessary cash flow to sustain the household.
2. **Women's Empowerment:** Animal rearing is a gender-neutral activity. Women constitute approximately **31%** of the membership in dairy cooperatives. It provides them with independent financial agency, as seen in the success of the "Amul" model.
3. **Nutritional Security:** Livestock rearing directly addresses the "Hidden Hunger" of the rural population by integrating high-quality proteins and fats into the daily diet, essential for improving India's standing in the Global Hunger Index.

Impact on Farmer Income and the National Economy

The macro-economic data for 2024-2026 underscores the sector's "Sunrise" status.

- **GVA Contribution:** Livestock Gross Value Added (GVA) has grown at a CAGR of **7.9%**, significantly outpacing the crop sector. It now contributes over **30%** of the total Agricultural GVA and approximately **5.7%** of the total National GVA.
- **Farmer Income:** Livestock productivity has been identified as a core pillar for doubling farmers' income. It provides employment to over **20.5 million people**, many of whom are landless laborers.
- **Export Earnings:** Fisheries and Buffalo meat have emerged as the single largest agricultural export commodities, with fisheries alone contributing over **₹47,000 crore** in foreign exchange.

Diversified Economic Activities of Animal Rearing

The sector is no longer just about "cows and milk." It has branched into high-value specialized industries:

No	Industry	Status & Success Story
1	Dairy	India is 1st in milk production (23% of global supply). Milk value now exceeds the combined value of rice and wheat.
2	Poultry	India is 3rd in egg production (130 billion eggs), providing a per capita availability of 95 eggs per year.
3	Meat	India is 5th in meat production, with buffalo meat exports dominating the global "halal" market.
4	Sericulture	2nd largest silk producer globally, providing high-value employment in states like Karnataka and Tamil Nadu.
5	Fishing	World's 2nd largest producer; a major driver of the "Blue Economy."

Special emphasis on Live Stock Sector

1. The Productivity Paradox

India possesses the world's largest livestock population, yet it suffers from some of the lowest per-animal productivity globally.

- **The Reality:** While India is the top milk producer, our average yield per cow is approximately **1,777 kg/year**, compared to a global average of **2,699 kg/year**.
- **The Caveat:** High volumes are driven by **numbers**, not **efficiency**. This leads to a massive "biological burden" on land and water resources to maintain millions of low-yielding animals.

2. The Fodder-Food Conflict

The most significant bottleneck to the livestock revolution is the chronic scarcity of feed and fodder.

- **The Deficit:** India faces a persistent deficit of **12% in green fodder** and **30% in concentrated feed grains**.
- **The Caveat:** As human population pressure increases, land is prioritized for food grains (Rice/Wheat), leaving livestock to survive on poor-quality crop residues. This "nutritional poverty" of the animal directly leads to higher susceptibility to diseases and lower reproductive health.

3. The "Hidden" Environmental Cost

Animal rearing is increasingly under the global scanner for its contribution to climate

change.

- **Methane Emissions:** Enteric fermentation in India's massive bovine population is a leading source of **Methane (\$CH_4\$)**, which has a global warming potential significantly higher than \$CO_2\$.
- **Manure Management:** Improper handling of animal waste leads to groundwater contamination and ammonia emissions, posing a challenge to India's "Green Growth" and "Net Zero" commitments.

4. The Disease Barrier

The surge in contagious diseases serves as a recurring "economic shock" to the rural poor.

- **The Impact:** Outbreaks like **Lumpy Skin Disease (LSD)** and **Foot and Mouth Disease (FMD)** do not just kill animals; they lead to long-term "production morbidity"—reduced milk yield and infertility.
- **The Caveat:** Despite the **NADCP** (National Animal Disease Control Programme), the "last-mile" vaccination coverage in remote hilly or tribal areas remains patchy, leaving the most vulnerable farmers exposed to total asset loss.

5. Structural Disparities and Credit Gaps

Unlike the crop sector, which enjoys a robust (though flawed) MSP and credit architecture, livestock remains an "under-banked" sector.

- **Institutional Credit:** The livestock sector receives only about **4% of total agricultural credit**, despite contributing over 30% to the agricultural GVA.

- **The Caveat:** Small farmers often rely on informal moneylenders to purchase cattle or feed, leading to high-interest debt traps. Furthermore, the absence of an **MSP-equivalent** for meat and eggs leaves producers at the mercy of volatile market prices and local "trader cartels."
-

Structural Challenges and Constraints

Despite its spectacular growth, the sector faces several "growth pains" that reflect the broader inefficiencies of the Indian agrarian system.

1. **The Productivity Gap:** The average annual productivity of Indian cattle (~1777 kg) remains significantly lower than the world average (~2699 kg). This is primarily due to poor genetic germplasm and inadequate nutrition.
2. **Feed and Fodder Scarcity:** India faces a chronic deficit—**12% in green fodder** and **30% in concentrated feeds**. As land is diverted for human food, the "fodder-food" competition intensifies.
3. **The "Subsidy Bias":** Historically, agricultural subsidies (Food/Fertilizer) have been skewed toward the crop sector. In recent budgets, while crops receive trillions, the Department of Animal Husbandry has received relatively modest allocations (~₹4,328 crore).
4. **Climate and Disease Stress:** Contagious diseases like **Lumpy Skin Disease (LSD)** and **Foot and Mouth Disease (FMD)** cause massive economic losses. Furthermore, enteric fermentation in cattle is a major source of **Methane emissions**, posing a challenge to India's Net-Zero commitments.

Government Measures and Recent Reforms

As of 2026, the state has adopted a "Mission Mode" approach to catalyze the sector.

1. Rashtriya Gokul Mission (RGM)

Focuses on the conservation of indigenous breeds. The recent decision to import **40,000 doses of Gir bull semen from Brazil** is a strategic move to use "re-imported" genetics (Brazil's Gir cattle originated in India) to boost domestic milk volumes.

2. National Animal Disease Control Programme (NADCP)

The most ambitious health mission, aiming to vaccinate over **600 million animals** to eradicate FMD and Brucellosis by 2030. It is 100% centrally funded.

3. Digital Public Infrastructure (NDLM)

The **National Digital Livestock Mission** uses ear-tagging (Pashu Aadhar) to track vaccination, breeding, and health history on a unified digital portal, enabling better credit and insurance access.

Relation with the Budget 2026-27: The "Blue and White" Expansion

The **Union Budget 2026-27** has specifically focused on the **"Blue Economy"** and **"Genetic Enhancement."**

- **Amrit Sarovar 2.0 Integration:** The budget announced the integration of 500 reservoirs with the fisheries value chain, aiming to double the income of coastal and inland fishers.

- **Sex-Sorted Semen Subsidy:** Following the Uttarakhand model for **Badri Cows**, the budget has expanded subsidies for **sex-sorted semen and embryo transfer technology (ETT)**. This ensures a higher birth rate of female calves, reducing the economic burden of "unproductive" stray cattle.
- **AHIDF Expansion:** The Animal Husbandry Infrastructure Development Fund has been extended to 2027, focusing on "**Micro-Processing Clusters**" for rural SHGs.

Conclusion: A Balanced Judgement

Conclusion: From Quantity to Quality

The "Strategic Maturity" of the livestock sector depends on moving away from a "**Number-Driven**" model to a "**Yield-Driven**" model. The recent initiatives to import **Gir bull semen** and enhance **Badri cow genetics** are steps toward solving the productivity crisis. However, without solving the **Fodder Deficit** and the **Credit Gap**, the sector risks becoming a "bubble" of high growth but low sustainability.

For the Indian farmer, livestock remains the "ultimate safety net," but for the state, the challenge is to ensure this net is not weighed down by the very biological and infrastructural constraints it seeks to solve.

The transition from "managing animals" to "managing genetics and value chains" is the next frontier. The shift toward **Sex-Sorted Semen** and **Embryo Transfer** represents a "Genetic Revolution" that can bridge the productivity gap. However, the caveat remains: technology alone cannot solve the fodder crisis. The future of the livestock sector depends on "**Circular Bio-Economy**"—where crop residues are efficiently converted to feed, and animal waste is converted to bio-energy (Galvanizing Organic Bio-Agro Resources Dhan - GOBARDhan).

For the Indian smallholder, a high-yielding cow is a ticket out of poverty. For the nation, the livestock sector is the bedrock of **Atmanirbhar Bharat**, ensuring that the march toward a \$30 trillion economy is inclusive, nutritional, and grounded in the rural heartland.

Previous Questions

1. Livestock rearing has a big potential for providing non-farm employment and income in rural areas. Discuss suggesting suitable measures to promote this sector in India. [200 Words] [12.5 Marks] [2015]

Model Answer

The structural transformation of the Indian agrarian economy hinges significantly on diversification. As crop agriculture faces increasing climate vulnerability and land fragmentation, livestock rearing has emerged as a resilient financial anchor for rural households.

I. Potential for Non-Farm Employment and Income

- **Year-Round Income Cushion:** Unlike the seasonal nature of crop cycles, livestock provides a continuous, daily cash flow through milk, eggs, and meat, insulating smallholders against crop failures.
- **Empowering the Marginalized Shadow:** Livestock farming is deeply equitable. Over 70% of the sector's workforce consists of small, marginal farmers and landless laborers, acting as a direct economic vehicle for women's social empowerment.
- **High Multiplier Effect:** The growth of the livestock sector directly stimulates rural non-farm employment in ancillary industries, including animal feed

manufacturing, veterinary pharmaceuticals, cold-chain logistics, and leather processing.

II. Measures to Promote the Sector

- **Strengthening Veterinary Infrastructure:** Scale up mobile veterinary units and genetic improvement programs, such as artificial insemination, to protect indigenous breeds from disease outbreaks and boost productivity.
- **Formal Credit and Value-Chain Integration:** Extend the coverage of the **Kisan Credit Card (KCC)** specifically to livestock farmers. Simultaneously, replicate the cooperative dairy "Amul Model" in the meat and poultry sectors to eliminate exploitative local middlemen.
- **Climate-Resilient Fodder Security:** Establish regional fodder banks and promote community-led silvipasture (combining forestry and grazing) models to counter the chronic shortage of quality green fodder.

Conclusion

Livestock rearing applies the "**Person in the Last Row**" test to rural development by turning a traditional subsistence activity into a data-driven commercial enterprise. Elevating this sector through processing infrastructure and credit shields is an indispensable structural milestone on India's road to long-term inclusive growth.

Section - IX - Employment

1. Employment.

The paradox of modern India is not merely the absence of growth, but the absence of a livelihood for those who fuel it. To understand why our streets are filled with overqualified graduates seeking menial government jobs, we must dissect the very anatomy of our labor force. Employment is more than a labour activity; it is the "material well-being" of a society and the cornerstone of human development.

Here is a structural analysis of employment, the theoretical shadows of unemployment, and the specific malaise affecting the Indian labor market.

Defining Employment

In the strict economic sense, employment is a condition where a person is engaged in a productive activity that contributes to the **Gross Value Added (GVA)** of the economy. However, the true employment must provide "better wages and fixed working hours" to qualify as an instrument of economic development.

In India, we often mistake "economic activity" for "quality employment." A street vendor is economically active, but is he "employed" in a way that ensures a sustained improvement in his material well-being? If not, we are merely observing a survival tactic, not a developmental success.

The Mirage of Full Employment: Two Perspectives

The debate over "Full Employment" has historically divided economists into two camps.

I. The Classical View

The Classical economists believed that the economy naturally move toward full employment. To them, unemployment was a temporary glitch caused by wages being kept artificially high. They argued that if wages were allowed to fall, employers would hire more people, and the market would clear. In this view, "voluntary unemployment" exists (people refusing to work at the market rate), but "involuntary unemployment" is a statistical impossibility in the long run.

II. The Keynesian View (The Demand-Driven Reality)

John Maynard Keynes shattered this optimism during the Great Depression. He argued that an economy could get stuck in an equilibrium where there is high unemployment because there isn't enough "aggregate demand." Even if people are willing to work for low wages, factories won't hire them if nobody is buying the goods. Keynesians believe that "Full Employment" does not mean zero unemployment; it means the absence of **involuntary unemployment**. It requires "conscious public policy" and government spending to bridge the gap.

The absolute full employment in an economy is utopian, Full employment is always consistent with frictional unemployment for at least 3percent.

Measuring the Pulse: Unemployment Rates

In India, the measurement of labor is handled primarily by the **National Statistical Office (NSO)** under the Ministry of Statistics and Programme Implementation (MoSPI). The primary tool is the **Periodic Labour Force Survey (PLFS)**.

The Institutional Framework

The primary authority for estimating unemployment in India is the **National Statistical Office (NSO)**, which operates under the Ministry of Statistics and Programme Implementation (**MoSPI**). Since 2017, the NSO has moved away from the old quinquennial (five-yearly) surveys to the **Periodic Labour Force Survey (PLFS)**.

To calculate the unemployment rate, the NSO uses a specific hierarchy of classifications to ensure the data reflects "material well-being" and "human capital":

1. **Labour Force Participation Rate (LFPR):** This measures the percentage of the population that is either working or actively seeking work.
2. **Worker Population Ratio (WPR):** This represents the percentage of the total population that is actually employed in productive activity.
3. **Unemployment Rate (UR):** This is calculated as the percentage of persons unemployed among the persons in the labour force (those who are willing and looking for work but cannot find it).

Survey Methodologies

The PLFS employs two distinct time-frames to capture both long-term trends and short-term fluctuations:

- **Usual Status (ps+ss):** This approach looks at a person's activity over the last **365 days**. It helps identify "Structural Unemployment," where a person is unemployed due to a long-term mismatch in skills or technology.
- **Current Weekly Status (CWS):** This approach looks at the last **7 days**. A person is considered employed if they worked for at least one hour on at least one day during the week. This is often used to track urban unemployment and "Frictional Unemployment".

Digital Integration and the "New" Reality

As highlighted in the **2025 Human Development Report**, the methodology now integrates "digital footprints" for estimating unemployment.

- **Digital Data:** Estimates are increasingly cross-referenced with databases like **GST filings** and **EPFO** (Employees' Provident Fund Organisation) records to provide a more accurate view of the private and formal sectors.
- **Supply and Use Tables (SUT):** These are used to "balance the books" by matching the production of businesses with the actual employment and consumption of the people, reducing "statistical discrepancies".

Significance of Methodologies.

A dependable "thermometer" for unemployment is vital for **conscious public policy**.

Especially for

- **Targeting Inequality:** Accurate data reveals that inequality reduces India's Human Development Index (HDI) by **30.7%**.
- **Managing AI Transitions:** With 50% of people fearing that **Artificial Intelligence** will replace or transform their roles, the PLFS methodology is being refined to track how AI impacts the "future of work".
- **Viksit Bharat Goals:** Reliable data is the first step toward becoming a \$10 trillion economy, as it helps identify "jobless growth" and ensures that progress leads to "increased employment and poverty alleviation".

Structural vs. Frictional: The Indian problem of Unemployment.

When we look at the "Jobless Growth" occurring in India from 2008 to the present, we

are primarily dealing with two specific types of unemployment.

I. Structural Unemployment (The Skill Gap)

Structural unemployment is a long-term phenomenon. It occurs when there is a fundamental mismatch between the **skills** that workers possess and the **technology** or needs of the employers.

- **The Reasons:**

1. India skipped the labour-intensive manufacturing phase and jumped straight to high-skill services.

2. the distortive structure of economic growth. It has been a Service sector growth since 2000. The Service sector generated higher income, while the larger proportion of labour force concentrated in Agro and Manufacturing domains. Our education system produces millions of graduates, but they often lack the "skill and efficiency" required by modern industry.

3.The Status: This is the most dominant form of unemployment in India today. As noted in the 2025 Human Development Report, while India is a global leader in "AI skills growth," the lack of basic vocational training for the masses creates a massive "Structural Gap". We have a "degree-heavy" but "skill-poor" workforce.

II. Frictional Unemployment (The Transition)

Frictional unemployment is usually short-term. It is the time spent by a worker between leaving one job and finding another. In a healthy, dynamic economy, some frictional unemployment is actually a good sign—it means people are moving toward better opportunities.

- **The Reason:** In India, frictional unemployment is complicated by a lack of information. Job seekers in rural areas often don't know where the urban vacancies are.
- **The Status:** While less severe than structural issues, frictional unemployment in India is exacerbated by the "informal sector gap". Since 44% of our GVA comes from the informal sector, there are no formal "job boards" for these workers, making their transition between jobs long and painful.

Other type of Unemployment

Beyond structural and frictional, the Indian landscape is marred by:

- **Disguised Unemployment:** Primarily in agriculture, where more people are working on a piece of land than are actually required. Their marginal productivity is zero.
- **Cyclical Unemployment:** Linked to the "fragile growth" periods where global crises (like 2008 or 2020) cause temporary but sharp job losses.

What is the reason for the "Jobless Growth" in India recently?.

The phenomenon of "Jobless Growth" is perhaps the most significant structural puzzle in India's economic history. It describes a situation where the Gross Domestic Product (GDP) increases significantly, but this expansion does not result in a corresponding increase in the number of jobs. While the nation's wealth grows, the "material well-being" of a large section of the population remains stagnant because they are excluded from the productive labor force.

1. Time Period and Context

While India has faced employment challenges since the 1950s, the specific phase of "Jobless Growth" became most pronounced from **2008 to the present**. Even during the high-growth periods of the post-reform era (1991–2008), which were often "fragile" due to global sensitivities, the connection between GDP and jobs began to weaken.

In recent years, despite being one of the fastest-growing major economies, the "employment elasticity"—the measure of how much employment grows for every 1% of GDP growth is very weak and has fallen toward zero.

2. Core Reasons for Jobless Growth

The disconnect between growth and jobs is driven by three primary economic failures:

1. **Employment Inelasticity:** Modern growth is increasingly driven by "technology and skills" rather than manual labor. As industries automate, they produce more value with fewer people, meaning a 10% rise in output no longer requires a 10% rise in hiring.
2. **Distortive Structural Transformation:** India skipped the traditional path of development. Most nations move from agriculture to labor-intensive manufacturing and then to services. India jumped directly from agriculture to high-skill services (like IT and finance). These sectors contribute heavily to GDP but require fewer, highly specialized workers.
3. **Lack of Linkages:** Our growth is often concentrated in "urban pockets" or high-end services that lack strong forward and backward linkages to the rest of the economy. For example, a software export does not necessarily create thousands of secondary jobs in local factories or farms, unlike a garment factory or a construction project.

3. Structural Deficits

Several deep-seated gaps prevent growth from becoming inclusive:

- **Skill Deficit:** There is a fundamental mismatch between the "human capital" we produce and what the industry needs. Our education system produces degree holders, but many lack the "skill and efficiency" required for modern manufacturing or digital services.
- **Infrastructure Deficit:** High logistics and energy costs have historically made labor-intensive manufacturing uncompetitive. Major projects in energy and transport have often faced "implementation problems," hindering the growth of job-creating sectors.
- **Capital Deficit:** In many cases, capital is concentrated in large, "capital-intensive" firms rather than in the Micro, Small, and Medium Enterprises (MSMEs) that are the true engines of employment.

4. Implications of Jobless Growth

The impact of this trend goes beyond simple economics; it affects the very fabric of society:

- **Inequality:** Growth without jobs leads to a concentration of wealth, which reduces India's Human Development Index (HDI) score by as much as **30.7%**.
- **Demographic Anxiety:** With 50% of people fearing that **Artificial Intelligence** will transform or replace their roles, jobless growth creates a sense of vulnerability among the youth.
- **Social Instability:** When growth is "baseless"—failing to provide livelihoods—it creates frustration, as millions of educated youth compete for a handful of low-level positions.

Conclusion

The transition from a "Medium" to a "High" human development category requires us to solve the "Jobless Growth" puzzle. We need a "long chain of interconnected changes"—from reforming the **National Education Policy 2020** to ensuring that AI serves as a tool for inclusion rather than displacement. Inclusion is not a moral choice; it is the only path to sustainable progress. Employment must become the "pulse" by which we measure our success, not just the "GVA at market prices".

2.The Employment Status in India.

The Indian labor market stands at a historical crossroads, caught between the promise of a peaking demographic dividend and the structural frictions of a changing economy. As we move through 2026, the narrative of employment in India is no longer just about the number of hands at work, but the quality of the life those hands can sustain.

The Present Status: A Surface-Level Stability

On the surface, the numbers suggest a resilient recovery. India's working-age population (15-59 years) is expected to exceed 98 crore in the next decade, with the demographic dividend set to peak around 2030.

Official data from the Periodic Labour Force Survey (PLFS) for the first half of FY26 shows a declining unemployment rate (UR) and a stabilizing Labour Force Participation Rate (LFPR). In the second quarter of FY26 alone, a total of 56.2 crore people were employed, reflecting the creation of 8.7 lakh new jobs over the previous quarter.

However, the structural composition of this workforce remains deeply layered.

Agriculture continues to be the primary employer in rural India, absorbing 57.7 per cent of the workforce. In urban centers, the services sector dominates at 62 per cent, yet regular wage or salaried jobs—the gold standard of employment—make up less than half of urban work. At an aggregate national level, self-employment remains the dominant reality for 55.8 per cent of the workforce, a figure that often masks underemployment and economic vulnerability.

But, there are two main flaws in Indian Employment structure, they are

1. The Gender gap and Women's Dual Burden:

The most glaring imbalance in the Indian labor market is the gender gap. While the FLFPR (**Female Labour Force Participation**) has shown a positive upward trend—rising from 23.3 per cent in 2017-18 to 41.7 per cent in 2023-24—the path to parity is obstructed by "structural barriers".

The **Time Use Survey (TUS) 2024** reveals the "dual burden" that women face. On average, female participants spend 363 minutes a day on unpaid activities (primarily caregiving and domestic work), compared to just 123 minutes for men. This massive time poverty forces many highly educated women into low-productivity or part-time roles that offer the "flexibility" they need to manage home responsibilities.

Specific challenges include:

1. **Mobility Barriers:** Commuting is a major hurdle; 31 per cent of women cite it as a barrier to working. The "Pink Tax"—where women pay more for safer, more expensive transport—further drains their earnings.

2. **The STEM Gap:** Although women account for 43 per cent of STEM (Science, Technology, Engineering, and Mathematics) enrolment, those with advanced degrees make up only 2.9 per cent of the employed female workforce, reflecting a "leaky pipeline" caused by early marriage and care responsibilities.
3. **Safety and Infrastructure:** A lack of affordable housing and secure hostels in urban hubs restricts women's ability to migrate for higher-value jobs.

2. The Gig Paradox: Flexibility or Fragility?

The rise of the gig economy is the defining transformation of the modern era. Driven by smartphone penetration (80 crore users) and a massive UPI transaction volume, the gig workforce grew by 55 per cent between FY21 and FY25, reaching 120 lakh workers.

While the gig economy offers "unprecedented opportunities" for task-based flexibility, it introduces new forms of inequality:

1. **Income Volatility:** 40 per cent of gig workers report monthly earnings below ₹15,000.
2. **Credit Exclusion:** Many gig workers have "thin-file" credit histories, making it difficult to access the formal banking system to purchase productive assets like bikes or cars.
3. **Algorithmic Control:** Traditional employer-employee interactions have been replaced by platform algorithms that control work allocation and wages, leading to concerns about "algorithmic bias and burnout".
4. **The Skill Trap:** The workforce is highly segmented; while some are high-skilled "free agents," many are "reluctants" who rely on gig work only because they cannot find regular, stable jobs.

Measures Taken: to resolve these flaws

Recognizing these deep-seated issues, the state has moved from being a mere bystander to an active facilitator of labor market reform.

1. The Four Labour Codes

The implementation of the four consolidated Labour Codes—notified on November 21, 2025—represents a historic effort to streamline 29 central laws. These codes aim to balance business flexibility with worker protection:

- a) **Formalization:** They mandate appointment letters for all workers and provide equal benefits (like gratuity and leave) for fixed-term and contract employees.
- b) **Social Security for All:** For the first time, gig and platform workers are formally recognized, with provisions for social security funds financed by aggregators.
- c) **Gender-Centric Reforms:** The codes permit women to work night shifts with mandatory safeguards and allow for "work-from-home" options after maternity leave.

2. Institutional Mechanisms for the Unorganised

The **e-Shram portal** has emerged as a "comprehensive platform" for the informal workforce. By January 2026, it had registered over 31 crore unorganized workers, 54 per cent of whom are women. Each worker receives a Universal Account Number (UAN) that ensures the portability of social security benefits across states.

3. Addressing the Productivity Gap in Manufacturing

The **Annual Survey of Industries (ASI) FY24** highlights a 6 per cent increase in manufacturing employment, adding 10 lakh jobs. Crucially, employment is shifting toward "larger factories" (those with over 100 workers), which are associated with higher wages and higher labor productivity.

4. Urban Mobility and Care Infrastructure

To boost the FLFPR, states are experimenting with innovative models:

- **Safe Commute:** Initiatives like Hyderabad's "SHE Teams" and NCR's driver training for women aim to reduce mobility friction.
- **Thozhi Hostels:** Tamil Nadu's PPP model for women's hostels provides a blueprint for secure urban housing.
- **Entrepreneurship:** Hubs like Telangana's "WE-Hub" and Kerala's "Kudumbashree" are moving women from subsistence work into growth-oriented businesses.

The **Union Budget 2026-27** and the concurrent **Economic Survey 2025-26** emphasize a transition from focusing solely on the "quantity of jobs" to the "quality of work," reflecting a vision for a more inclusive and sustainable labor market. As India's demographic dividend is expected to peak around 2030, the government has introduced several supply-side policy levers and deregulation measures to catalyze this growth.

Here are the key highlights and mechanisms for employment promotion as outlined in the current economic framework:

1. Deregulation and Labor Reform

The government has prioritized the implementation of the **four new Labour Codes** (notified on November 21, 2025) to streamline regulations and encourage entrepreneurship.

- **Consolidation of Laws:** 29 central labor laws have been consolidated into four codes to simplify compliance and reduce administrative burdens for businesses.

- **Formalization Incentives:** The Codes mandate appointment letters for all workers and provide equal benefits, such as gratuity and leave after one year, for fixed-term and contract workers.
- **Impact on Hiring:** Compliance simplification is expected to reduce costs for Small and Medium Enterprises (SMEs) by 30-40%, fostering a virtuous cycle of job creation.

2. Women-Led Development and FLFPR

A central pillar of the current strategy is increasing the **Female Labour Force Participation Rate (FLFPR)** to reach a critical target of approximately 55% by 2050 to maintain a high GDP trajectory.

- **Legislative Support:** The new Labour Codes now formally allow women to work in all sectors, including hazardous industries and night shifts, provided mandatory safety safeguards are in place.
- **Flexible Work Models:** Provisions for "work-from-home" arrangements after maternity benefits have been enacted to help women balance caregiving responsibilities with paid employment.
- **Safe Mobility:** States are encouraged to scale safety infrastructure, such as Hyderabad's "SHE Teams" and specialized driver training programs, to reduce the "Pink Tax" on women's commute.

3. Strengthening the Unorganised Sector

The government is using digital infrastructure to bridge the gap between informal and formal employment.

- **e-Shram Evolution:** The portal has registered over 31 crore unorganized workers as of January 2026, assigning them a **Universal Account Number (UAN)** for portable social security benefits.
- **Gig Economy Recognition:** Gig and platform workers are now formally recognized, with mandates for aggregators to contribute 1-2% of their annual turnover to fund life, health, and pension benefits for these workers.
- **National Career Service (NCS):** The portal has been integrated with the Skill India Digital Hub and international systems like eMigrate to provide job seekers with access to verified domestic and global vacancies.

4. Human Capital and Skill Development

To address the **skill mismatch** in the labor market, the budget and survey emphasize re-strategizing the vocational education framework.

- **Lifelong Learning:** Policies now focus on acquiring skills across all ages to translate longer lifespans into sustained productivity, often referred to as the "longevity dividend".
- **Industry Alignment:** Skilling initiatives are being aligned with emerging sectors like green energy transition, digital services, and modern manufacturing.
- **Productivity Gains:** There is an observed shift toward larger factories (more than 100 workers), which are associated with higher labor productivity and higher wages compared to smaller units.

5. Sector-Specific Focus

- **Manufacturing:** Seven states, led by Tamil Nadu, Gujarat, and Maharashtra, contribute to 60% of manufacturing employment; the goal is to expand this by promoting labor-intensive sectors and gender inclusivity.

- **Agro-Processing and Green Jobs:** Targeted programs for women and youth are being integrated into the Micro, Small, and Medium Enterprises (MSMEs) ecosystem to move them from subsistence entrepreneurship to growth-oriented businesses.

The employment promotion strategy for 2026-27 moves beyond simple job creation to focus on **holistic well-being**—including mental, financial, and physical health—as a prerequisite for a resilient and productive workforce. By tackling inequality and regulatory frictions, the state aims to generate approximately 77 lakh jobs in the organized sector in the medium term.

3. India's Employment Challenges and measures

The Indian labor market is currently navigating a period of profound transition, caught between the tail end of a massive **demographic expansion** and the onset of a **technological revolution** that threatens to rewrite the rules of work. To understand the gravity of our situation, we must look beyond the simple headlines of GDP growth and examine the structural frictions that define the lives of nearly 56 crore workers.

The following shall dissect the nature of our current employment crisis and the strategic levers being pulled to ensure that our economic journey remains inclusive.

The Quadruple Challenge

The modern Indian economy is not facing a single crisis, but a convergence of four distinct structural challenges that require immediate policy intervention.

1. The Fading Demographic Dividend

India has long pinned its hopes on its large working-age population (aged 15-59), which is expected to exceed 98 crore in the next decade. This "dividend" occurs when the working-age population outnumbers non-working groups, creating massive potential for economic growth. However, this window is closing.

Projections suggest our demographic dividend will peak around 2030, after which nearly 65% of the population will begin to transition toward the older age brackets. If we do not create quality jobs now, we risk "growing old before we grow rich."

2. The Longevity Dividend and Aging

While the population is still young, it is gradually aging. Total fertility rates have fallen below replacement levels, and life expectancy is rising. This shift introduces the "Longevity Dividend"—the economic benefit gained from longer, healthier, and more productive lives.

The challenge here is twofold: we must manage a rising burden of non-communicable diseases (NCDs) like diabetes and mental health issues among the productive age groups, while also building social support systems for an aging workforce.

3. Technology Friction and the AI Paradox

The labor market is undergoing a "digitalization" shock. While technology can boost productivity, it also creates friction. In the gig economy, for example, platform algorithms now control work allocation and wages, raising concerns about "algorithmic biases and burnout". Furthermore, there is a deep-seated fear of job loss; while many believe AI will create opportunities, half the workforce fears it will replace or transform their current roles.

4. Distortive Structural Transformation

India's economic transition has been "distortive" because it skipped the labor-intensive manufacturing phase that helped other nations develop. We moved straight from agriculture to high-skill services. Even today, agriculture absorbs 42.4% of total employment, often acting as a "sponge" for workers who cannot find better opportunities. This creates a layered and unequal structure where rural work is dominated by low-paying self-employment, while urban regular wage jobs remain a privilege for the few.

The strategic measures to resolve Challenges

The Macro-Regulation Solutions

To address these challenges, the state has moved toward a "supply-side policy lever" strategy, focusing on deregulation and human capital.

1. Labor Market Reforms

The government has consolidated 29 central labor laws into **four comprehensive Labour Codes**. These codes aim to strike a balance between business flexibility and worker rights. By simplifying compliance, they encourage firms to grow larger. Data shows that large factories (more than 100 workers) pay higher wages and have higher labor productivity than smaller ones.

2. Social Security Coverage

For the first time, fiscal policy is extending a safety net to the "unorganized" and "gig" workforces.

- **The e-Shram Portal:** Serves as a national database for 31 crore unorganized workers, ensuring they have a Universal Account Number (UAN) for portable benefits.
- **Aggregator Contributions:** Under the Code on Social Security, digital platforms must contribute 1-2% of their turnover to fund health and life insurance for gig workers.

3. Healthcare Intervention

To harness the longevity dividend, we must extend the "health spans" of workers. This involves:

- **NCD Management:** Targeting the rise in cardiovascular and mental health challenges among the productive workforce.
- **Preventive Care:** Using workplace-based programs to improve awareness of reproductive and general health.

4. Workplace Adaptation

The nature of the workplace is being redefined to be more inclusive, especially for women.

- **Flexibility:** The new Labour Codes allow for "work-from-home" arrangements and hybrid models.
- **Night Shifts:** 22 states now permit night-time work for women in factories, provided there is mandatory safety infrastructure like CCTVs and secure transportation.

5. Continuous Development and Lifelong Learning

Realizing the potential of our workforce requires "re-strategizing the vocational education framework". We are moving toward **Lifelong Learning**—a continuous process of acquiring skills across all ages to bridge the "skill mismatch" in the market. This ensures that as technology changes, the worker does not become obsolete.

6. Economic Protection

To protect workers from income volatility, initiatives like **Earned Wage Access (EWA)** are being tested. This allows workers to access part of their wages as they earn them, reducing their reliance on high-interest informal loans and improving their financial bandwidth.

Budget 2026-27 Measures and Schemes

The current fiscal framework (Budget 2026-27) has introduced specific measures to solidify these structural changes.

1. **Implementation of Labour Codes:** The Codes were formally notified on November 21, 2025, marking a "major overhaul" of the labor regime to boost business growth.
2. **Skill India Digital Hub (SIDH):** This platform is now integrated with the National Career Service (NCS) to enable candidates to enhance their skills before applying for jobs.
3. **Women-Led Development:** Progress toward a 55% female labor participation rate is being driven by schemes like **Sakhi Niwas** (working women's hostels) and **Vigyan Jyoti** (promoting STEM participation).

4. **Empowering the Gig Sector:** The government is ensuring "algorithmic transparency" and setting minimum per-hour earnings for gig workers to curb exploitation.
5. **The Bhashini Project:** A digital tool that boosts multilingual communication, helping the government reach workers across different linguistic groups for policy outreach.
6. **Direct Benefit Transfers (DBT):** All major welfare payments are being shifted to direct cash transfers using the Aadhaar-linked bank account platform to ensure "targeted delivery" and reduce fraud.

Conclusion

As we move toward **Viksit Bharat 2047**, we must recognize that "employment is not a standalone metric but a downstream result of a thriving economy". The steady rise in our Human Development Index (ranking 130th in 2025) reflects a strong post-pandemic recovery, with life expectancy reaching 72 years.

However, the "material well-being" of the Indian worker is still undercut by inequality. Our success will not be measured by the peak of our demographic dividend in 2030, but by our ability to transform every minute of work into a "fair income, security in the workplace, and social protection for families". Inclusion is no longer just a moral goal; it is the absolute economic prerequisite for India's long-term transformation.

Previous Year Questions

1. Most of the unemployment in India is structural in nature. Examine the methodology adopted to compute unemployment in the country and suggest improvements. [250 Words] [15 Marks] [2023]
2. Economic growth in the recent past has been led by increase in labour activity.” Explain this statement. Suggest the growth pattern that will lead to creation of more jobs without compromising labour productivity. [250 Words] [15 Marks] [2022]
3. How globalization has led to the reduction of employment in the formal sector of the Indian economy? Is increased in formalization detrimental to the development of the country? [200 Words] [12.5 Marks] [2016]
4. The nature of economic growth in India in recent times is often described as a jobless growth. Do you agree with this view? Give arguments in favour of your answer. [200 Words][12.5 Marks][2015]

Answering Guidelines

I. Introduction (Approx. 30–40 words)

- **Objective:** Define structural unemployment and contextualize it within the Indian economic landscape.
- **Key Guidelines:**
 - Define structural unemployment as a persistent mismatch between the skills job seekers possess and the skills demanded by employers in the evolving market.
 - Establish the thesis: While India's macroeconomic headline growth shows expansion, the core challenge remains a structural mismatch—our "youth bulge" lacks the market-ready skills required for a digitalized economy.

II. Body Paragraph 1: Examining the Computing Methodology (Approx. 90–100 words)

Deconstruct the current official framework managed by the National Statistical Office (NSO):

- **The Periodic Labour Force Survey (PLFS):** Explain that the NSO calculates employment metrics through the PLFS, which replaced the old NSSO quinquennial (five-year) surveys to provide more regular data.
- **The Three Activity Status Approaches:**
 - **Usual Status (US):** Measures activity over a 365-day reference period (captures long-term structural trends).
 - **Current Weekly Status (CWS):** Measures activity over a 7-day reference period, defining a person as employed if they worked for even **1 hour** during that week.
- **The Informality Blindspot:** Highlight that the methodology struggles to accurately measure the informal sector (which employs over 85% of the workforce), frequently misclassifying seasonal underemployment or low-productivity distress labor as regular employment.

III. Body Paragraph 2: Strategic Improvements to the Methodology (Approx. 80–90 words)

Provide actionable, data-driven suggestions to make the computing process more accurate:

- **Real-Time Digital Integration:** Move beyond sample surveys by integrating administrative big data ecosystems—such as the **e-Shram portal**, EPFO filings, and GSTN transactions—to capture real-time formal and informal employment shifts.
- **Redefining the "Employed" Threshold:** Recalibrate the Current Weekly Status (CWS) criteria; the "one hour a week" metric is too low and masks severe underemployment and hidden structural displacement.
- **A Dedicated "Skill-Gap" Matrix:** Introduce regular, targeted industry-level surveys to map structural mismatches directly, measuring not just *if* a citizen is working, but whether their employment matches their educational qualifications.

IV. Conclusion & Higher Perspective (Approx. 30 words)

- **Objective:** Conclude with an analytical forward-looking statement.
- **Key Guidelines:**

- Conclude that fixing the measurement methodology is the first step toward fixing the structural crisis itself.
 - Emphasize that transitioning toward a thriving economy requires the state to use accurate, real-time data to bridge the digital divide, transforming the "Demographic Dividend" into highly skilled, market-ready human capital.
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References

I. Primary Reference Sources (The "Data Pillars")

- **Economic Survey 2025-26 & 2024-25:** The most critical annual documents for high-frequency data on GDP, GVA, and the "Strategic Sobriety" narrative.
- **Union Budget 2026-27 (Speech & Explanatory Memoranda):** Essential for understanding the "Three Kartavyas," fiscal deficit targets (4.3%), and new CapEx outlays.
- **NITI Aayog's "Viksit Bharat @ 2047" Vision Document:** The roadmap for India's transition into a \$30 trillion economy.
- **RBI Annual Reports & Monetary Policy Statements:** The definitive sources for the "Unified Lending Interface (ULI)," cost of capital, and inflation targeting.
- **National Accounts Statistics (MoSPI):** For historical and current data on Per Capita Income and sectoral growth.

II. Foundational & Narrative Texts

- **Dutt & Sundaram's "Indian Economy":** A classic for understanding the historical stages of planning and the social contract of Indian development.
- **Uma Kapila's "Indian Economy: Performance and Policies":** A foundational text widely used for understanding the impact of LPG on sectoral growth.
- **"India Unbound" by Gurcharan Das:** Provides a narrative on the psychological shift from the License-Permit Raj to a market-driven economy.
- **"Turn of the Tortoise" by T.N. Ninan:** An excellent analytical look at the steady, structural reforms that underpin India's resilience.

III. Sector-Specific Strategic Readings

- **Agriculture:** *Dalwai Committee Report on Doubling Farmers' Income* (Vol. IV on Marketing & Vol. VIII on Food Processing) and *CACP Reports* on the 1.5x MSP methodology.
- **Industry:** *DPIIT Guidelines on PLI Schemes* and the *National Semiconductor Mission (ISM) Roadmap*.
- **Infrastructure:** *Kelkar Committee Report on Revitalizing PPPs* (for understanding HAM and risk-sharing) and *PM GatiShakti National Master Plan Framework*.

IV. Global Context & Trade

- **WTO Agreement on Agriculture (AoA):** Technical reference for Amber/Green Box subsidies and the Bali Peace Clause.
- **UNCTAD World Investment Report 2025:** Essential for understanding trends in "Friend-shoring" and GVC realignments.
- **IMF World Economic Outlook (October 2025):** For global growth divergence and the "Fragile Synchrony" between major economies.

Suggested Reading for Civil Services Aspirants

1. **Development as Freedom** by Amartya Sen
2. **Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty** . by Abhijit V. Banerjee and Esther Duflo
3. NITI Aayog policy papers
4. RBI reports
5. UNDP Human Development Reports

6. For Current Affairs Integration

7. PIB
 8. PRS India
 9. RBI
 10. NITI Aayog
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List of Glossary

Macroeconomics & Growth

1. **Economic Growth:** A quantitative measure of the increase in a country's capacity to produce goods and services.
2. **Economic Development:** A qualitative improvement in living standards, including health, education, and political freedom.
3. **Inclusive Growth:** Growth that is broad-based across sectors and provides equitable opportunities for all sections of society.
4. **Real National Income:** The total value of final goods and services produced, adjusted for inflation to show actual production increases.
5. **Per Capita Income (PCI):** The average income earned per person in a given area in a specified year.
6. **LPG Paradigm:** The 1991 policy framework of Liberalization, Privatization, and Globalization.
7. **License-Permit Raj:** The pre-1991 system of elaborate licenses and regulations required to set up and run businesses.
8. **Strategic Sobriety:** A policy stance of maintaining domestic growth and fiscal discipline while preparing for global geopolitical shocks.
9. **Viksit Bharat @ 2047:** The national vision to transform India into a developed economy by the centenary of its independence.
10. **Hindu Rate of Growth:** A term used to describe the low annual growth rate (around 3.5%) of the Indian economy before 1991.

II. Government Budgeting & Finance

11. **Fiscal Deficit:** The difference between the government's total expenditure and its total receipts (excluding borrowing).
12. **Revenue Deficit:** Occurs when the government's revenue expenditure exceeds its revenue receipts.
13. **Effective Revenue Deficit (ERD):** Revenue deficit minus grants given to states for the creation of capital assets.
14. **Primary Deficit:** The fiscal deficit minus interest payments on previous borrowings.
15. **Capital Expenditure (CapEx):** Funds used by the government to acquire, upgrade, and maintain physical assets like roads and schools.
16. **Consolidated Fund of India:** The primary account where all government revenue is received and all expenses are met (Art. 266).
17. **FRBM Act:** The Fiscal Responsibility and Budget Management Act, designed to institutionalize fiscal discipline.
18. **Direct Benefit Transfer (DBT):** A mechanism to transfer subsidies directly into the bank accounts of beneficiaries to reduce leakages.
19. **JAM Trinity:** The integration of Jan Dhan (accounts), Aadhaar (identity), and Mobile (connectivity) for digital governance.
20. **Goods and Services Tax (GST):** A comprehensive, multi-stage, destination-based indirect tax that replaced many central and state taxes.

III. Infrastructure & Investment Models

21. **PM GatiShakti:** A digital platform integrating 16 ministries for coordinated planning of infrastructure projects.

22. **Logistics Cost:** The expenses involved in the movement and storage of goods; India aims to reduce this from 14% to below 10% of GDP.
23. **Public-Private Partnership (PPP):** A long-term contract between a private party and a government agency for providing a public asset or service.
24. **Hybrid Annuity Model (HAM):** A PPP model where the government pays 40% of the project cost in fixed installments and the private player funds the rest.
25. **EPC Model:** Engineering, Procurement, and Construction; a model where the government funds the project and the private firm builds it.
26. **Asset Monetization:** The process of creating new sources of revenue by unlocking the value of underutilized public assets.
27. **InvITs (Infrastructure Investment Trusts):** Instruments that allow individual and institutional investors to invest in infrastructure projects.
28. **Dedicated Freight Corridor (DFC):** Railway tracks exclusively built for the movement of goods and freight.
29. **RCS-UDAN:** A regional airport development scheme aimed at making air travel affordable and widespread.
30. **Landlord Port Model:** A model where the port authority acts as a regulator and landlord while private firms handle port operations.

IV. Industrial Development & Technology

31. **Production Linked Incentive (PLI):** A scheme offering financial incentives to companies based on the incremental sales of products manufactured in India.
32. **Strategic Indispensability:** Offering critical goods (like semiconductors) in the global value chain that others cannot easily substitute.
33. **Global Value Chain (GVC):** The full range of activities (design, production, marketing, distribution) that businesses conduct to bring a product to market.

34. **Semiconductor Mission (ISM):** A comprehensive program to establish a sustainable semiconductor and display ecosystem in India.
35. **Anusandhan National Research Foundation (ANRF):** An institution created to provide strategic direction to scientific research and link industry with academia.
36. **Sunrise Sector:** A burgeoning industry that is growing rapidly and is expected to be important in the future (e.g., Green Hydrogen).
37. **MSME Dwarfism:** A phenomenon where small firms stay small over a long period to remain eligible for government benefits.
38. **Insolvency and Bankruptcy Code (IBC):** A law that provides a time-bound process for resolving insolvency in companies and individuals.
39. **RDI Fund:** The Research, Development, and Innovation fund aimed at "crowding-in" private sector investment for strategic technology.
40. **Make in India:** An initiative launched to encourage companies to manufacture their products in India and increase manufacturing GVA.

V. Agriculture & Allied Sectors

41. **Cropping Pattern:** The proportion of area under various crops at a point in time in a specific region.
42. **Minimum Support Price (MSP):** A guaranteed price at which the government buys crops from farmers to protect them against sharp price falls.
43. **A2+FL Formula:** The cost calculation for MSP that includes all paid-out costs (A2) plus the imputed value of family labor (FL).
44. **e-NAM:** A pan-India electronic trading portal that networks existing APMC mandis to create a unified national market.
45. **AgriStack:** A collection of digital databases for farmers, including land records, crop data, and a unique Farmer ID.

- 46. **FPO (Farmer Producer Organization):** A collective of farmers that allows smallholders to act as a single entity to improve bargaining power.
- 47. **Food Processing:** The transformation of raw agricultural products into value-added food products to increase shelf life.
- 48. **National Food Security Act (NFSA):** A law that provides a legal right to subsidized or free foodgrains to two-thirds of the population.
- 49. **One Nation One Ration Card (ONORC):** A scheme allowing beneficiaries to claim their food security benefits anywhere in India.
- 50. **Buffer Stock:** A reserve of foodgrains (usually wheat and rice) maintained by the government to ensure food security during shortages.

VI. Global Trade & Allied Terms

- 51. **Agreement on Agriculture (AoA):** A WTO treaty aimed at reforming agricultural trade and reducing trade-distorting subsidies.
- 52. **Amber Box Subsidies:** WTO category for domestic support measures that are considered trade-distorting (e.g., MSP).
- 53. **Green Box Subsidies:** WTO category for subsidies that do not distort trade (e.g., R&D, pest control).
- 54. **De Minimis:** The maximum allowed level of trade-distorting subsidies (10% for developing nations under WTO).
- 55. **Bali Peace Clause:** An interim WTO agreement that protects developing countries from being challenged for breaching subsidy limits.
- 56. **Friend-shoring:** A trade strategy of sourcing essential goods from countries that share similar political and economic values.
- 57. **China-Plus-One:** A strategy where global firms diversify their manufacturing away from being solely dependent on China.

58. **Economic Statecraft:** The use of economic means (tariffs, sanctions, or incentives) by a state to achieve strategic foreign policy goals.
59. **Circular Bio-Economy:** A model where crop residues and animal waste are converted into feed and bio-energy (e.g., GOBARdhan).
60. **Embryo Transfer Technology (ETT):** An advanced reproductive technology used in livestock to increase the birth of high-yielding breeds.
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