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GIST OF

ECONOMIC SURVEY 2024-25

for CIVIL SERVICES EXAM

- KEY HIGHLIGHTS
- CONCISE SUMMARY
- KEY TERMS
- IMPORTANT CONCEPTS & FACTS
- MAINS REFLECTIVE QUESTIONS
- PRELIMS PRACTICE QUESTIONS

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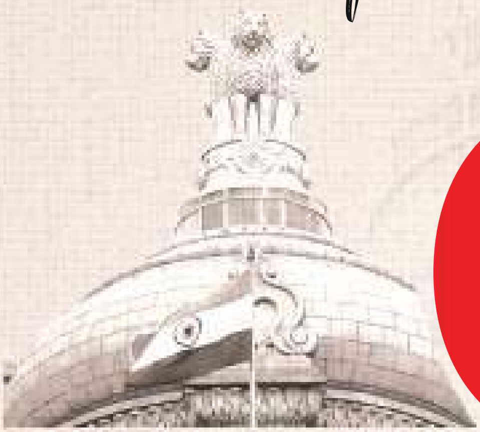

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I am truly grateful to GS SCORE for the personal guidance and mentorship. Thanks once again!

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GS SCORE Helped me in my UPSC preparation with discipline. I would like to thank GS SCORE

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I would like to express my heartfelt gratitude to GS SCORE in my UPSC success Journey.

Contents

PREFACE

The Economic Survey is one of the most vital documents to reflect on the state of the economy, policy framework and likelihood in times to come. All this and more makes the Economic Survey indispensable for various competitive examinations.

Our endeavour is to provide candidates with a highly enriched, actionable, usable and 'marks worthy' coverage of economic survey with enhanced learning. One of the many highlights of this volume is the summary of the Economic Survey .The summary is enriched with graphics and analysis in crisp and easy to understand form to decipher the voluminous document in the least possible time.

It is often observed that a technical document like an economic survey is laden with jargon and important terms which are difficult to understand and even more difficult to imbibe. We have attempted to make this easy by dedicating a separate section to important terminologies (Key Terms), along with simple explanations so that our readers can understand the economic survey comprehensively. Apart from the key terms we have also added the important government schemes after every chapter.

Knowledge from the economic survey can only be utilised to their full potential if candidates can use this knowledge to build the correct narrative and reflect upon it to make tangible and logical deductions. To this end, this volume contains reflective exercises, specially curated for maximum benefit to our readers. Reflective Exercise contains few thought provoking questions which allow students to mull over their understanding about the nuances of the economy in general and the overall working of the country in particular.

Another important feature of this volume is compilation of relevant MCQs to validate one's learning of the economic survey and to practice and ultimately excel. It is sincerely hoped that this volume will add value to your preparation and will act as an important tool to sculpture your success.

CHAPTER: 1

STATE OF THE ECONOMY: GETTING BACK INTO THE FAST LANE

Key-Terms

- **Geopolitical Tensions:** Refers to political instability caused by conflicts (e.g., Russia-Ukraine, Israel-Hamas) that affect global energy, food security, and trade.
- **Inflation:** It is the rate at which the general level of prices for goods and services is rising, affecting the purchasing power of money. It has eased globally but remains volatile due to geopolitical factors.
- **Monetary Policy:** These are the actions taken by central banks to control the supply of money and interest rates to stabilize the economy. Central banks have reduced interest rates in response to inflation, although the pace differs across regions.
- **Fiscal Policy:** Fiscal Policy are government strategies regarding taxation and spending. This is important in managing public finances and ensuring economic stability.
- **Private Consumption:** The total spending by households on goods and services. It is a key driver of GDP growth in many economies, including India.
- **Gross Value Added (GVA):** GVA is a measure of economic output, which reflects the value added by industries in the production process. India's GVA growth was estimated at 6.4% for FY25.
- **Gross Fixed Capital Formation (GFCF):** The net increase in physical assets like machinery, infrastructure, etc. It is a measure of investment in an economy.
- **External Trade:** The exchange of goods and services between countries. India's exports and imports trends are discussed, showing a positive contribution from net exports to GDP growth.
- **Current Account Deficit (CAD):** The balance of trade between a country and the rest of the world. A manageable CAD of 1.2% of GDP in India indicates a stable external sector.
- **Foreign Direct Investment (FDI):** Investment from foreign entities in a country's assets or business ventures. FDI inflows to India increased by 17.9% YoY, signaling strong investor confidence.
- **Foreign Portfolio Investment (FPI):** Investment in a country's financial assets (stocks, bonds) by foreign investors. FPI flows are more volatile due to global factors.
- **Labor Force Participation Rate (LFPR**): The percentage of the working-age population that is either employed or actively looking for work. India's LFPR has improved, indicating more people are entering the workforce.

- **Purchasing Managers' Index (PMI)**: A key economic indicator measuring the health of the manufacturing and services sectors. A high PMI suggests economic expansion, while a low PMI signals contraction.
- **Non-Performing Assets (NPAs):** Loans or advances that are in default or arrears. A key metric in banking, lower NPAs signify better financial health in the banking sector.
  - **Types of NPA:**
    - **Standard Assets**: It is a kind of performing asset which creates continuous income and repayments as and when they become due. These assets carry a normal risk and are not NPA in the real sense of the word. Hence, no special provisions are required for standard assets.
    - **Sub-Standard Assets**: Loans and advances which are non-performing assets for a period of 12 months fall under the category of Sub-Standard Assets.
    - **Doubtful Assets:** The Assets considered as non-performing for a period of more than 12 months are known as Doubtful Assets.
    - **Loss Assets**: All those assets which cannot be recovered by the lending institutions are known as Loss Assets.
- **Capital Expenditure:** Government spending on infrastructure and long-term investments. It is vital for stimulating economic growth and supporting sectors like defense, railways, and transport.
- **Remittances:** Money sent by individuals working abroad to their families back home. In India, remittances play an important role in stabilizing the current account deficit.

Chapter at a Glance

- **Objective:** The chapter aims to provide a comprehensive overview of the global economic scenario in 2024, with a particular focus on India's economic performance amidst global headwinds.
  - It covers ma**croeconomic indicators, sectoral performance, inflationary trends, monetary policies, and fiscal measures.**
  - The objective is to analyze India's economic resilience, growth prospects, and its response to external challenges, including geopolitical tensions, supply chain disruptions, and global inflationary pressures.
- **Analysis:**
  - India's economy showed resilience in FY25, projected to grow by 6.4%, supported by strong performances in agriculture and services. However, the **manufacturing sector faced challenges** due to weak global demand.
  - The global economic growth for 2024 is forecasted at 3.2%, with regional disparities: advanced economies like the US showed moderate growth, while the **Eurozone** lagged due to manufacturing sector weaknesses.
  - **Services,** particularly financial and business services, continued to show growth globally, offsetting weaknesses in manufacturing.
  - **Inflationary pressures** moderated globally, but services inflation remained persistent, a key challenge for central banks.
  - **India's macroeconomic stability** was supported by strong fiscal discipline, a healthy services trade surplus, and growing remittances.
  - **Key growth drivers for India** include rural demand, agricultural production, and a stable macroeconomic environment.

This chapter provides insights into how India navigated global economic challenges, positioning itself for steady growth amidst external risks.

INTRODUCTION

Global economic conditions are shaped by changing growth dynamics, fluctuating commodity prices, and evolving monetary policies, which influence domestic inflation, trade balances, and capital flows. At present, this interconnectedness is complicated by unusual levels of geopolitical tensions, supply chain disruptions, and climate-related shocks. This chapter explores global economic conditions and their impact on domestic economies, with a focus on India. It is organized into four sections:

- **Global Economic Scenario**: This section covers global growth, inflation trends, policy responses, and emerging risks like geopolitical tensions, supply chain disruptions, and climate-related shocks.
- **Domestic Macroeconomic Situation**: It examines India's economic performance from both the demand and supply sides.
- **Emerging Trends:** This section analyzes public finances, inflation, the external sector, financial markets, and employment.
- **Growth Outlook:** The final section discusses India's growth prospects, considering global challenges and leveraging domestic growth drivers.

SECTION A: GLOBAL ECONOMIC SCENARIO

Global Growth in 2024:

- The global economy showed moderate growth, with a 3.3% growth in 2023. The **International Monetary Fund (IMF) projects 3.2% growth in 2024 and 2025.** Over the next five years, global growth is expected to average around 3.2%, which is low by historical standards.
- **Key Global Challenges:**
  - **Geopolitical tensions** (e.g., **Russia-Ukraine conflict, Israel-Hamas conflict**) created instability, affecting energy and food security and causing inflation.
  - **Cyberattack**s increased, with greater impacts due to the digitization of critical infrastructure.
  - **Volatility in global financial markets** was influenced by political instability and uncertainty in trade policies.

Growth Dynamics in Different Regions

- **Advanced Economies (AEs):**
  - **Despite higher interest rates**, advanced economies maintained stable growth, driven by moderating inflation and strong employment and consumption.

Chart I.3: Structural weakness in the German economy

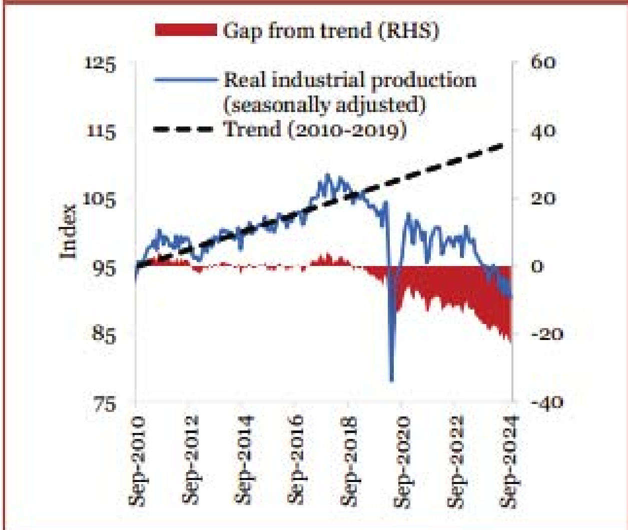
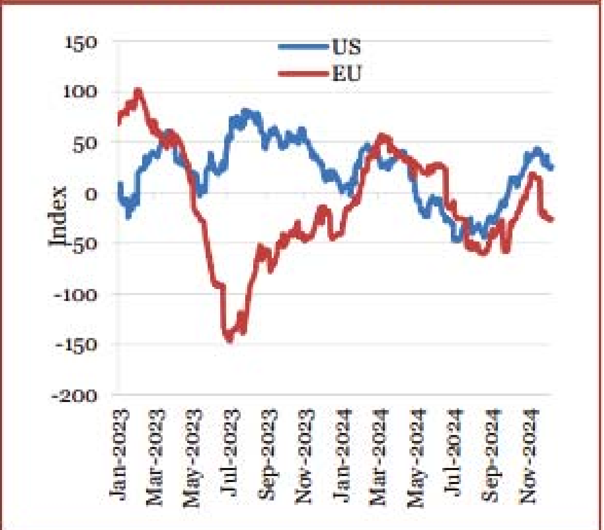


Chart I.4: Citi Economic Surprise Indices indicating unexpected resilience of the US



Source: Bloomberg

  - **The United States (US):** Expected growth of 2.8% in 2024, slightly declining in 2025 due to **moderated consumption and exports.**
  - **The Euro Area:** Growth forecasted to improve from 0.4% in 2023 to 0.8% in 2024, and 1.0% in 2025, supported by a stronger services sector. However, some countries like Germany and Austria faced manufacturing slowdowns.
  - **Germany**: Faced structural weaknesses in manufacturing, impacting overall Eurozone growth.
  - **Economic Surprises**: Economic data between January 2023 and November 2024 showed better-than-expected performance in the US, compared to the Eurozone.

Eurozone

The **eurozone (or Economic and Monetary Union-EMU)** is the geographic area made up of the 20 countries of the European Union that have adopted the euro as the single currency. The 20 Member States of the Euro Zone are: **Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.**

- **Challenges in Asia**
  - **Japan:** Economic growth was slowed by supply disruptions early in the year.
  - **China:** Growth weakened after Q1 2024 due to sluggish private consumption, investment issues, and real estate sector challenges.

Chart I.6: PMI manufacturing in advanced economies

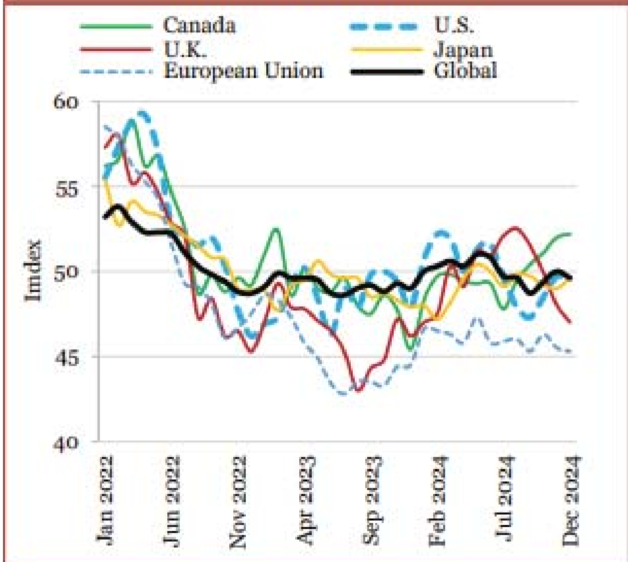
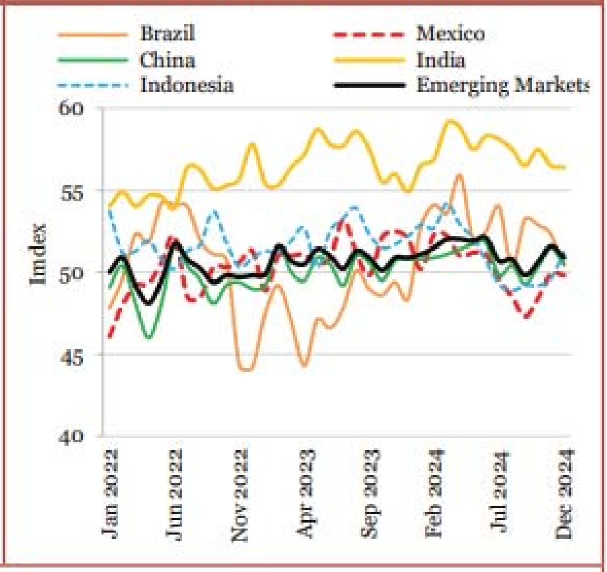


Chart I.7: PMI manufacturing in emerging market economies



Source: Bloomberg

Global Manufacturing vs. Services

Purchasing Managers' Index (PMI)

- **Manufacturing PMI, or Purchasing Managers' Index (PMI)** is an economic gauge derived from monthly surveys of companies.
- Started in 1948 by the **Institute for Supply Management,** PMI is produced **globally.**
- It assesses business conditions in manufacturing and services sectors.
- **Types of PMI**:
  - Manufacturing PMI
  - Services PMI
- PMI helps determine if conditions are expanding, contracting, or stable, offering insights into current and future economic health.

- **Manufacturing:** The **global Purchasing Managers' Index (PMI)** for manufacturing showed contraction. Global manufacturing activity was weaker in 2024, with mixed results across regions. India reported the strongest output growth.
- **Services: The** global Services PMI remained strong, showing expansion for 23 consecutive months. The financial services sector showed the fastest growth.

Inflation and Price Pressures

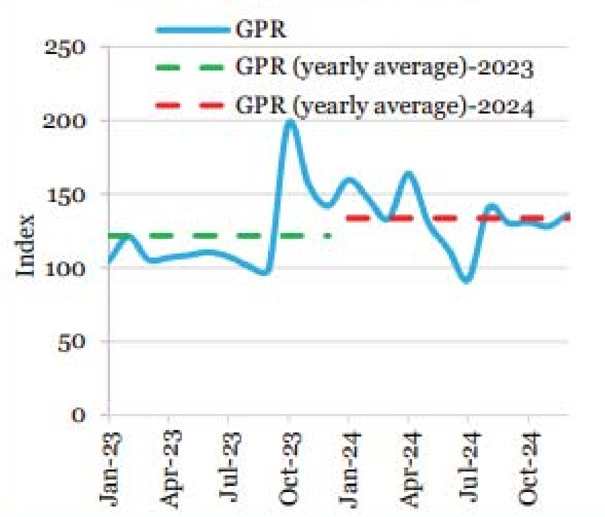
- **Inflation Trends**: Global inflationary pressures have eased due to falling fuel prices in 2023 and reductions in goods inflation. However, services inflation has persisted.
    - **Core Goods Inflation**: Declined to negligible levels.
    - **Disruptions in Global** Shipping: Shipping route disruptions and demand surges in 2024 pushed goods prices up, increasing inflationary pressures.
- **Inflation Outlook**: Commodity prices are expected to decline moderately by 2025, but geopolitical tensions continue to pose a risk to inflation, particularly in energy prices.

Monetary Policy and Central Bank Actions

- **Interest Rate Cuts**: Major central banks reduced policy rates to control inflation, although the pace of cuts varied across regions.
- **US Federal Reserve**: Market expectations for the Federal Funds Rate (FFR) were lower than actual levels for 2023 and 2024. Future expectations for FFR rates remain uncertain.
- **Sovereign Bond Yields**: Declining inflation and expectations of lower borrowing costs initially led to lower bond yields, but renewed uncertainty about inflation and monetary policies pushed yields higher later in 2024.

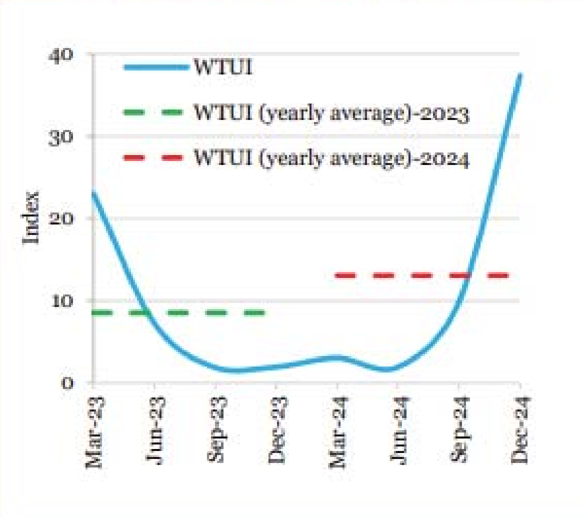
Geopolitical Risks

Chart I.18: Geopolitical Risk (GPR) Index higher in 2024



Source: Economic Policy Uncertainty
https://www.policyuncertainty.com/gpr.html

Chart I.19: World Trade Uncertainty Index (WTUI) elevated in 2024



Source: Economic Policy Uncertainty
https://worlduncertaintyindex.com/data/

Suez Canal

- The Suez Canal is a waterway that connects the Atlantic Ocean to the Indian Ocean through the **Mediterranean and Red Sea** respectively.
- The Canal was built as a joint enterprise between the French and the Ottoman Empire.
- **Connecting Ports**: The canal extends from the northern terminus of Port Said to the Southern end of Port Tewfik at the city of Suez.
- Today, roughly 12 per cent of global trade, 7 per cent of the world's oil, and 30 per cent of daily container traffic passes through the canal. More than 20,000 ships pass through the canal daily.

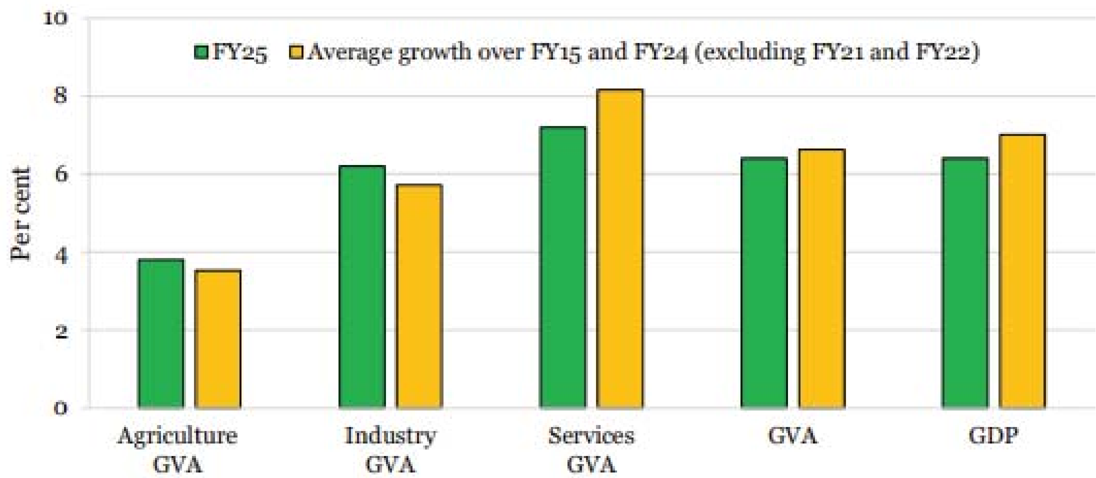
- **Ongoing Conflicts:** Geopolitical risks, such as the Russia-Ukraine conflict and tensions in the Middle East, remain high. These conflicts have led to instability in global markets, particularly affecting energy supplies and global trade.
- **Trade Disruptions**: Disruptions in the Suez Canal and shipping delays increased global freight rates, impacting trade flows.
- **Trade Policy Uncertainty**: Rising trade restrictions, particularly in G20 economies, have led to concerns about higher costs, reduced investment, and slower global growth. The stock of import-restrictive measures has risen significantly since 2015.

SECTION B: DOMESTIC MACROECONOMIC SITUATION

This section discusses India's economic performance in the first half (H1) of FY25, highlighting growth trends and sectoral contributions.

- **GDP and Growth:** India's real GDP growth is estimated at 6.4% for FY25, driven mainly by private consumption, which is expected to grow by 7.3%. The agriculture sector is projected to grow by 3.8%, industry by 6.2%, and services by 7.2%. Overall, **GVA (Gross Value Added)** growth is also estimated at 6.4%.
- **Post-Pandemic Recovery**: The economy has rebounded since the COVID-19 pandemic, with aggregate GVA surpassing pre-pandemic trends. The agriculture and industrial sectors are performing well, while services have also recovered but unevenly.
- **Sectoral Growth:**
  - **Agriculture**: Healthy growth, particularly from the Kharif crop, has helped the sector perform strongly in FY25, improving prospects for food inflation.
  - **Industry**: The industrial sector showed mixed results, with strong growth in construction, utilities, and recovery in manufacturing. However, global slowdowns and seasonal disruptions have impacted manufacturing growth.
  - **Services:** Services continued to grow robustly, with financial, real estate, and professional services performing well. Other areas like hospitality, IT, and transport also showed positive growth.

Chart I.20: Despite global uncertainty, India's growth remains close to decadal average (at constant prices)



Source: Calculations based on Statement 13: Annual and Quarterly Estimates of GDP at constant prices, MoSPI
Note: FY25 values are First Advance Estimates.

- **Demand and Consumption**: Private consumption expenditure (PFCE) has been strong, especially in rural areas, with indicators like increased 2-wheeler and tractor sales reflecting this. Urban demand showed mixed trends, with slower growth in vehicle sales and FMCG products but steady growth in air traffic and IT services.

- **Investment Trends:** Gross Fixed Capital Formation (GFCF) slowed from the previous year, partly due to election-related government expenditure delays and global uncertainties. However, green shoots in capital formation are visible, with a potential recovery in investment activity as government capital expenditure picks up.
- **External Trade**: India's exports grew by 5.6%, while imports grew more slowly at 0.7%. In Q2 FY25, a contraction in imports (due to lower commodity prices) led to a positive contribution from net exports to GDP growth.

SECTION C: EMERGING TRENDS

Fiscal Management and Public Finances:

- After the COVID-19 pandemic, careful fiscal management helped reduce government dis-savings. This was crucial to avoid heavy reliance on foreign funding and maintain overall savings in the economy.
- Private corporate savings remained at around 14% of GDP, but the government's fiscal discipline was key in preventing the widening of the savings-investment gap.
- Union government capital expenditure showed strong growth in the past few years but slowed in Q1 FY25 due to elections. However, it rebounded post-July 2024. Key sectors like defense, railways, and road transport accounted for 75% of capital expenditure.

State Government Finances:

- The increase in **tax devolution** from the Union government has improved the fiscal position of state governments. States with higher own revenue sources (like sales tax, state excise duties) performed better in managing finances.
- 11 states achieved a revenue surplus, with a clear correlation between revenue surplus and higher capital expenditure.
- Revenue expenditure of states grew at 12% (YoY), with subsidies and liabilities contributing to significant increases. However, capital expenditure declined by 5.6% overall, though 11 states saw an increase in it.

Inflation and Price Volatility:

Chart I.46: Food price pressures driving retail inflation

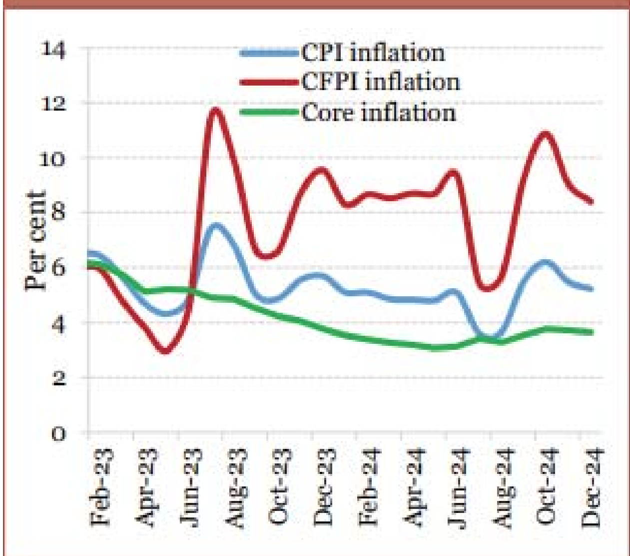


Chart I.47: CPI inflation excluding TOP commodities significantly lower[32]

Source: Consumer Price Indices released by Central Statistical Office (CSO), MoSPI

- **Headline inflation** dropped from 5.4% in FY24 to 4.9% in FY25 due to a decline in core inflation (non-food, non-fuel items). However, food prices remained volatile, driven by factors like supply chain issues and weather disruptions.
- **Food inflation** rose from 7.5% in FY24 to 8.4% in FY25, mainly due to price hikes in vegetables and pulses.

External Sector Stability:

- India's merchandise exports grew by 1.6% YoY in FY25, but non-petroleum exports saw a higher growth of 7.1%. Merchandise imports grew by 5.2%, driven mainly by non-oil imports and gold imports.
- India's services trade surplus helped balance the overall trade deficit, with services exports growing significantly.
- Remittances from abroad played a vital role in maintaining a stable **current account deficit (CAD),** which remained manageable at 1.2% of GDP in Q2 FY25.
- Foreign direct investment (FDI) inflows increased by 17.9% YoY, showing strong investor confidence. However, **foreign portfolio investment (FPI)** flows were volatile due to global factors.
- India's foreign exchange reserves remained at a healthy level, covering 90% of external debt and providing over ten months of import cover.

Banking and Financial Sector:

- The banking sector is stable, with declining **non-performing assets (NPAs)** and strong capital buffers. The profitability of **scheduled commercial banks (SCBs)** improved significantly in FY25.
- Credit growth has moderated, especially in consumer credit. The Reserve Bank of India (RBI) raised risk weights on unsecured retail loans to curb excessive growth in certain sectors.
- The mismatch between credit growth and deposit growth remains a concern but is being monitored.

Employment and Labour Market:

- India's unemployment rate has dropped from 6% in 2017-18 to 3.2% in 2023-24. The **labor force participation rate (LFPR)** and **worker-to-population ratio (WPR)** also showed improvement.
- The formal sector has seen substantial growth, especially with net **Employees' Provident Fund Organization (EPFO)** subscriptions more than doubling between FY19 and FY24. Youth (18-25 years) made up 47% of new payroll additions.
- The rise of Artificial Intelligence (AI) offers opportunities to enhance labor productivity and create new jobs. However, it will require investments in education and skill development to adapt the workforce for AI-driven changes.

OUTLOOK AND WAY FORWARD:

- **Global Economic Outlook for 2024:** Global growth is expected to be slightly below trend. The services sector, especially in India, continues to drive global growth, but manufacturing struggles in regions like Europe. Trade outlook remains uncertain due to geopolitical tensions, such as the Russia-Ukraine conflict.
- **Inflation and Monetary Policies**: Inflationary pressures are easing globally, though there are still risks from geopolitical disruptions. Central banks are adopting accommodative policies, but the pace of interest rate cuts varies across regions, affecting recovery rates differently.
- **Domestic Economic Outlook:**
  - **Consumption:** Rural demand is expected to rebound, which will support consumption.
  - **Investment:** Investment is likely to increase, supported by higher public capital expenditure (capex) and improving business expectations. Capacity utilization in manufacturing is above average, and private sector orders are growing.
  - **Risks:** Global overcapacity in sectors like steel may lead to aggressive trade policies, potentially impacting domestic growth.

- **Food Inflation**: Food inflation is expected to ease in Q4 FY25 due to seasonal price drops in vegetables and good Kharif harvests. However, adverse weather events and rising international agricultural prices pose risks to food inflation.
- **Core Inflation:** With global energy and commodity prices softening, core inflation is expected to remain stable, though global uncertainties could still pose risks.
- **Growth Forecast for FY26:** The growth forecast for FY26 is projected to be between 6.3% and 6.8%, supported by strong domestic fundamentals like stable consumption, fiscal consolidation, and a robust external account.
- **Policy Recommendations:**
  - To overcome global challenges, strategic policy management and reinforcing domestic fundamentals are crucial.
  - The Budget 2024-25 outlines a multi-sectoral policy agenda focused on reforms and deregulation at the grassroots level to improve competitiveness and sustain growth.

While there are external risks, the Indian economy is expected to maintain steady growth, with domestic factors like consumption, investment, and fiscal policies playing key roles in supporting this growth.

PRELIMS PRACTICE QUESTION

Q1: Which of the following was identified as a major driver of inflation in 2024, despite an overall moderation in global inflationary pressures?

(a) Core goods inflation

(b) Energy price fluctuations

(c) Services inflation

(d) Supply chain disruptions in technology

Q2: India's external sector stability in FY25 was mainly supported by which of the following?

(a) Reduction in imports of essential commodities

(b) A significant increase in foreign portfolio investment

(c) Growth in services trade surplus and remittances

(d) Expansion in merchandise exports

Q3: The global Purchasing Managers' Index (PMI) for manufacturing in 2024 indicated:

(a) Expansion in manufacturing activity globally

(b) Weakness in global manufacturing, with India showing strong growth

(c) A balanced performance across all regions

(d) A decline in services PMI

Q4: In FY25, which sector in India was projected to have the highest growth, contributing most to GDP expansion?

(a) Agriculture

(b) Industry

(c) Services

(d) Construction

ANSWERS

1. (c)	**2.** (c)	**3.** (b)	**4.** (c)

MAINS QUESTION

Q1: Discuss the impact of global geopolitical tensions on India's economic performance in FY25. What are the potential risks and opportunities for India in this context?

Q2: Evaluate the role of private consumption in driving India's GDP growth. How does it compare to the contributions from other sectors like agriculture and services?

Q3: What are the key challenges faced by the global manufacturing sector in 2024, and how has India managed to perform relatively better in this domain?

Q4: Analyze the effectiveness of India's fiscal policies in maintaining macroeconomic stability amidst global economic uncertainties. How can India strengthen its fiscal discipline going forward?

Q5: How do external factors like global inflation trends, geopolitical risks, and supply chain disruptions affect India's inflation and trade balances? Discuss the policy measures needed to mitigate these risks.

****

CHAPTER: 2

MONETARY AND FINANCIAL SECTOR DEVELOPMENTS: THE CART AND THE HORSE

Key-Terms

- **Monetary Policy:** It is a policy adopted by the central bank (RBI in India) to control the money supply, inflation, and interest rates to stabilize the economy. Tools like interest rate adjustments, open market operations (OMO), and reserve requirements help achieve price stability.
- **Financial Intermediaries:** Institutions such as banks, insurance companies, and capital markets that facilitate the flow of funds between savers and borrowers, ensuring efficient allocation of resources.
- **Credit-to-GDP Ratio:** It is a measure comparing the total credit extended by financial institutions to the Gross Domestic Product (GDP). It helps assess the depth of financial intermediation in an economy.
- **Cash Reserve Ratio (CRR)** is a specified minimum fraction of the total deposits of customers, which commercial banks have to hold as reserves either in cash or as deposits with the central bank.
- **Rural Financial Institutions (RFIs):** Financial entities like Regional Rural Banks (RRBs), Small Finance Banks, and Microfinance Institutions that provide banking and financial services in rural areas, supporting financial inclusion and agricultural financing.
- **Development Financial Institutions (DFIs):** Institutions that provide long-term financing and technical assistance for infrastructure development and industrial growth. Examples include NaBFID and IIFCL.
- **Insolvency and Bankruptcy Code (IBC):** A legal framework established to facilitate the resolution of corporate insolvencies, allowing creditors to recover dues efficiently, thus reducing NPAs.
- **Capital Markets:** Financial markets where long-term debt or equity-backed securities are bought and sold. They are crucial for mobilizing capital and supporting economic growth.
- **Rural Financial Institutions:** Rural financial institutions offer demand-oriented financial services for smallholder farmers, women and poorer households. This multi-agency system includes Regional Rural Banks (RRBs), Rural Cooperative Banks (RCBs), SCBs, Small Finance Banks, NBFCs, Micro Finance Institutions, and local area banks

Chapter at a Glance

Objective: This chapter highlights India's monetary and financial sector performance in FY25, focusing on credit growth, financial inclusion, and capital market trends, while addressing emerging challenges like increased consumer debt and the rise in equity financing.

Key Insights:

- **Steady Bank Credit Growth:** Bank credit growth aligns with deposit growth, reflecting sector stability.
- **Banking Sector Health**: Reduced **non-performing assets (NPAs)** and improved **capital-to-risk weighted asset ratio (CRAR**) signal better profitability and resilience.
- **Financial Inclusion Progress**: The Financial Inclusion Index rose from 53.9 (March 2021) to 64.2 (March 2024), with Rural Financial Institutions (RFIs) playing a crucial role.
- **Capital Market Strength**: The Indian stock market achieved new highs, outperforming global peers, despite external uncertainties.
- **Consumer Credit and Equity Financing**: There's a rise in consumer credit, non-bank financing, and IPOs, signaling a shift towards more diversified financial options.
- **Emerging Risks**: The growth in unsecured lending and consumer debt highlights the need for regulatory balance to foster growth without compromising stability.

India's financial sector is evolving with strong credit growth, improved banking profitability, and a dynamic capital market. However, emerging risks related to consumer credit and unsecured lending call for balanced regulatory measures to ensure long-term stability and inclusive growth.

INTRODUCTION

Financial institutions are **crucial for economic growth** as they facilitate **savings, investments, and credit.** Monetary policies influence how these institutions operate and interact with the economy. The chapter focuses on trends and policy changes in India's monetary policy and financial intermediation, which are influenced by both domestic and global factors like inflation, economic projections, and interest rate changes in major economies such as the **US, EU, and Japan.**

The chapter is divided into two parts:

- **Monetary Policy Trends**: This section covers key indicators like **Reserve Money (M0), Broad Money (M3), and Money Multiplier (MM)**. It explains how these indicators influence the overall economy and how domestic and international factors affect monetary policies in India.
- **Financial Sector Developments:**
  - **Banking Sector & Credit:** It analyzes the performance of banks, credit availability, and the roles of Rural Financial Institutions (RFIs) and Development Financial Institutions (DFIs) in supporting economic growth.
  - **Capital Markets:** It discusses trends in the equity market, especially the rise in investor participation, which aids capital formation and economic growth.
  - **Insurance and Pension Sectors**: It covers the ongoing developments in these sectors aimed at achieving universal coverage.
  - **Regulatory Bodies:** It reviews the role of regulators like the Financial Stability and Development Council (FSDC) in maintaining financial stability.

- **Cybersecurity:** It discusses the government's efforts to safeguard the financial sector against cyber threats.

The chapter concludes by highlighting challenges for the financial sector, including the need to balance growth with stability and manage risks, such as increasing consumer credit and unsecured lending.

MONETARY POLICY TRENDS

The main goal of monetary policy is to maintain price stability, which is crucial for sustainable economic growth. The Reserve Bank of India (RBI) uses various tools, such as interest rate adjustments, open market operations (OMO), and changes to the cash reserve ratio (CRR) and statutory liquidity ratio (SLR), to achieve this stability.

Monetary Policy Actions in FY25:

- **Policy Repo Rate:** In FY25 (April-December), the **RBI's Monetary Policy Committee (MPC)** kept the policy repo rate unchanged at 6.5%.
- **Policy Stance:**
  - Initially, the MPC maintained a 'withdrawal of accommodation' stance until August 2024 to control inflation while supporting growth.
  - In October 2024, the MPC shifted to a 'neutral' stance, considering the prevailing inflation and growth outlook.
- **CRR Reduction**: In December 2024, the MPC reduced the **Cash Reserve Ratio (CRR**) to 4% from 4.5%. This move is expected to inject Rs 1.16 lakh crore liquidity into the banking system.

FINANCIAL INTERMEDIARIES:

Financial intermediaries, such as banks, capital markets, and insurance companies, play a key role in transmitting monetary policy to the economy. They adjust their lending and deposit rates based on policy rates set by the **RBI's Monetary Policy Committee (MPC),** which affects economic growth, inflation, and financial stability.

Performance of the Banking Sector:

- **Asset Quality:** The Gross Non-Performing Asset (GNPA) ratio of Scheduled Commercial Banks (SCBs) has decreased to a 12-year low of 2.6% by September 2024, due to better recoveries, write-offs, and fewer loan defaults.
  - The Net NPAs have also fallen to around 0.6%.
  - The Capital-to-Risk (Weighted) Asset Ratio (CRAR) of SCBs stands at 16.7%, well above the required norms.
- **Profitability:** SCBs' Profit After Tax (PAT) increased by 22.2% year-on-year in H1 FY25. Despite a slight decline in Net Interest Margin (NIM) due to rising cost of funds, the Return on Equity (RoE) and Return on Assets (RoA) improved.
  - The Provision Coverage Ratio (PCR) improved to 77% by September 2024.

Trends in Bank Credit:

- Bank deposits continued to grow at double-digit rates, with term deposits growing faster than current and savings account deposits.
- As of November 2024, SCB credit growth moderated to 11.8% YoY, down from 15.2% the previous year. This moderation was due to higher lending rates and stricter regulatory measures for unsecured loans and lending to NBFCs.

- **Sector-wise credit growth (as of November 2024):**
  - **Agriculture:** 5.1% growth.
  - **Industry:** 4.4% growth, with MSMEs growing faster (13%) compared to large enterprises (6.1%).
  - **Services & Personal Loans:** Growth slowed to 5.9% and 8.8%, respectively, due to reduced credit to NBFCs and a slowdown in vehicle and housing loans.
- In December 2024, the RBI raised the interest rate ceiling on Foreign Currency Non-Resident (FCNR) deposits, encouraging more foreign inflows and improving access to credit for small farmers.
- **Credit-to-GDP Ratio:** The credit-to-GDP ratio in India is lower than that of advanced economies and most emerging market economies, though it is higher than countries like Indonesia and Mexico.
  - India's credit-to-GDP gap is improving, with the ratio narrowing to (-) 0.3% in Q1 FY25 from (-) 10.3% in Q1 FY23. This indicates that recent credit growth is sustainable.
- **Cross-Country Comparison:** India's bank credit to the private non-financial sector is lower than advanced economies like the US, UK, and Japan, but it is higher than countries like Indonesia and Mexico.
- **Financial Inclusion:** The Financial Inclusion Index of the RBI increased from 53.9 in March 2021 to 64.2 in March 2024, reflecting significant progress in financial inclusion.

Rural Financial Institutions (RFIs) and Development Financial Institutions (DFIs)

Rural Financial Institutions (RFIs) and Development Financial Institutions (DFIs) plays significant role in supporting economic growth and financial inclusion, along with the impact of artificial intelligence (AI) on banking and the effectiveness of the **Insolvency and Bankruptcy Code (IBC).**

Rural Financial Institutions (RFIs):

- RFIs provide banking and financial services in rural areas, promoting financial inclusion, credit accessibility, agricultural financing, and supporting rural entrepreneurs.
- RFIs include **Regional Rural Banks (RRBs), Rural Cooperative Banks (RCBs), Small Finance Banks, NBFCs, Microfinance Institutions, and local area banks**. NABARD oversees their health and performance.
- RRBs were established in 1975 and expanded significantly. As of March 2024, there are 43 RRBs operating in 26 states and 3 UTs with over 22,000 branches.
- In FY22-23, the government allocated Rs 10,890 crore for the recapitalization of RRBs, which led to improvements in their performance, including higher profits, better capital adequacy, and improved asset quality.

Development Financial Institutions (DFIs):

- DFIs provide long-term financing and technical assistance to support infrastructure development and industrial growth.
- Early DFIs like **IFCI, ICICI, and IDBI** were set up in the 1950s-1960s but evolved into commercial banks over time.
- New DFIs like **IIFCL (founded in 2006) and NaBFID (established in 2021)** focus on infrastructure development.
- IIFCL has financed over ₹13.9 lakh crore for more than 780 infrastructure projects, including roads, energy, and ports.
- NaBFID aims to sanction loans of ₹3 lakh crore by FY26 and is actively financing infrastructure projects across various sectors.

- **Use of AI in Banking:** Banks globally have integrated technology like **ATMs, electronic payments, and online banking**. Now, AI and machine learning are transforming banking through automation, improved decision-making, fraud detection, and customer service.

- AI in India is used in credit underwriting, risk assessment, portfolio optimization, and chatbots for customer service. While AI offers benefits, it poses risks like transparency issues, accountability, cyber risks, and system dependencies.
- The RBI is developing frameworks for responsible AI use, including the creation of a committee for AI governance in the financial sector.

- **Insolvency and Bankruptcy Code (IBC):** The IBC, enacted in 2016, helps resolve financial distress and non-performing assets (NPAs) by providing a legal framework for debt resolution.
  - As of September 2024, 1,068 resolution plans under IBC have resulted in creditors recovering Rs 3.6 lakh crore, significantly higher than liquidation value.
  - The IBC has positively impacted the corporate sector, encouraging better credit practices and enhancing bond market confidence.
- **Role of the NCLT:** The **National Company Law Tribunal (NCLT),** acting as the adjudicating authority (AA), faces significant challenges due to its heavy workload, compounded by delays in case admissions and hearings. As of September 2024, while a large percentage of cases have been adjudicated, substantial backlogs remain in both pending admissions and post-admission cases.

ROLE OF CAPITAL MARKETS IN ECONOMIC GROWTH

Capital markets are central to India's growth story by facilitating capital formation, boosting the financialisation of domestic savings, and enabling wealth creation. By December 2024, the Indian stock market reached new highs, despite challenges like geopolitical uncertainty and market volatility. Investor participation surged from 4.9 crore in FY20 to 13.2 crore by December 2024.

Primary Market: IPOs and Fundraising

- **Active Listing and Investor Enthusiasm**: The primary market witnessed heightened listing activities in FY25. India's share in global IPO listings surged to 30% in 2024 (up from 17% in 2023), making it the top contributor to global capital mobilisation.
- **Resource Mobilisation**: From April to December 2024, primary market resource mobilisation (equity and debt) reached ₹11.1 lakh crore, marking a 5% increase compared to FY24. The number of IPOs rose by 32.1%, with total funds raised nearly tripling. The average IPO deal size saw a significant jump, reaching ₹2,124 crore from ₹814 crore in FY24.
- **Preferred Fundraising Methods**: Qualified Institutional Players (QIPs) emerged as the preferred equity fundraising mechanism, contributing 11.4% of total capital raised in FY25. Rights issues also saw a rise, with ₹16,881 crore raised during April-December 2024, up from ₹6,538 crore in 2023.

Secondary Market: Performance Amidst Volatility

- **Market Trends**: The secondary market experienced significant volatility during FY25, influenced by events like the 2024 general elections, geopolitical tensions, and global economic shifts. Despite this, the market showed a consistent upward trend until September 2024, driven by strong domestic economic prospects and institutional investor inflows.

Capital market

- Capital market is a place where buyers and sellers indulge in trade (buying/selling) of financial securities like bonds, stocks, etc. The trading is undertaken by participants such as individuals and institutions.
- **Types of Capital Market**
  - **Primary Market:** Primary market is the market for new shares or securities.
  - **Secondary Market**: Secondary market deals with the exchange of prevailing or previously-issued securities among investors. Once new securities have been sold in the primary market, an efficient manner must exist for their resale.

GIFT CITY: INDIA'S RISING FINANCIAL HUB

The Role of IFSCA in India's Vision 2047

The International Financial Services Centres Authority (IFSCA) is pivotal in shaping India's financial landscape, specifically through India's International Financial Services Centres (IFSCs). With a globally aligned regulatory framework, IFSCA aims to foster an environment conducive to global financial institutions, facilitating the growth of India's financial sector and positioning the country as a key player in the global economy by 2047.

Growth of GIFT IFSC: A Thriving Financial Ecosystem

- GIFT IFSC has seen exponential growth with over 720 entities from various financial categories.
- Its status as a **non-resident zone** under **Foreign Exchange Management Regulations** enables unrestricted currency convertibility, making it a unique jurisdiction that attracts both international and domestic financial services.
- **Improved Rankings**: GIFT IFSC's global standing has also improved, as evidenced by its rise in rankings. It moved up five places in the **Global Financial Centres Index (GFCI 36)**, reaching 52nd position. Its FinTech rank also improved, climbing four places to 45th, demonstrating its burgeoning role in global financial services and innovation.
- **Banking Sector**: As of September 2024, **IFSC Banking Units (IBUs)** in GIFT IFSC had crossed **USD 70 billion** in assets and a transaction value of **USD 975 billion**. These units cover global markets, including the US, UK, Singapore, and UAE.
- **Asset Management and Insurance**: The IFSC's asset management ecosystem continues to grow with **128 Fund Management Entities** and **168 Alternative Investment Funds (AIFs)**. The total commitments raised by AIFs stood at **USD 12.1 billion** by September 2024. Additionally, the insurance sector saw substantial activity, with **37 entities** generating significant premiums.
- **FinTech Ecosystem**: Reflecting a dynamic FinTech environment, **60 FinTech entities** were registered, with 13 hackathons attracting participants from across the globe. The sector is supported by IFSCA's active commitment to innovation.

Gujarat International Finance Tec-City (GIFT City)

- **Established in**: 2015.
- GIFT City is **India's first operational smart city** and International Financial Services Centre is an emerging **global financial and IT services hub**, a first of its kind in India, designed to be at or above par with globally benchmarked business districts.
- It is the only green-field smart city in India set up as a multi-service **special economic zone (SEZ)** and is regulated by the **IFSC Authority (IFSCA).**
- The IFSCA oversees all financial institutions, ahead of bodies such as the Reserve Bank of India (RBI) and the Securities and Exchange Board of India (SEBI).

Developments in the Insurance Sector

- Global Insurance Growth and Transformation: The global insurance market showed growth of 2.8% in 2023 despite macroeconomic challenges like inflation and geopolitical tensions. Technological advancements and a shift toward customer-centric services are reshaping the insurance industry globally.
- India's Insurance Market Performance
  - **Growth in Premiums**: India's total insurance premiums grew by **7.7%** in FY24, reaching **₹11.2 lakh crore**, despite a slight drop in insurance penetration from **4%** to **3.7%**.

Government Initiatives to Increase Insurance Coverage in India

- Pradhan Mantri Jeevan Jyoti Yojana (PMJJBY)
- Pradhan Mantri Suraksha Bima Yojana (PMSBY)
- Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)
- Pradhan Mantri Fasal Bima Yojana (PMFBY)

- **Life vs Non-life**: Life insurance premiums grew by **6.1%** YoY, while non-life premiums rose by **7.7%** YoY, driven primarily by health and motor segments.
- **Penetration and Density**: Although insurance penetration is still below the global average, India's **insurance density** saw a slight rise from **USD 92** to **USD 95** per capita, indicating a steady upward trend since FY17.

PYQ

Q1: The product diversification of financial institutions and insurance companies, resulting in overlapping of products and services strengthens the case for the merger of the two regulatory agencies, namely SEBI and IRDA. Justify. (2013)

Developments in Pension Sector

- India's Growing Pension Landscape
  - **National Pension System (NPS)**: Since its inception, India's pension sector has seen significant growth. As of September 2024, the total number of pension subscribers reached **783.4 lakh**, marking a **16% YoY growth**. The **Atal Pension Yojana (APY)** saw an increase in subscribers, particularly among low-income households.
  - **Gender and Age Demographics**: The **female subscriber share** in the APY has risen from **37.9%** in FY16 to **52%** in FY24. Additionally, a **youthful demographic** (ages **18-25**) now makes up a larger portion of subscribers, indicating a shift towards long-term financial planning.
- The Unified Pension Scheme (UPS): In August 2024, the government approved the Unified Pension Scheme (UPS) for government employees, blending the features of both the old and new pension schemes. UPS guarantees 50% of the average basic pay for employees with over 25 years of service, and provides a minimum pension of ₹10,000.
- Challenges and Opportunities in Pension Expansion
  - **Pension Coverage**: Despite progress, only **5.3%** of India's population is covered under the **NPS** and **APY** schemes. To enhance coverage, India needs scalable solutions with **low-cost fund management** and **minimal transaction costs**, especially for low-income individuals in the informal sector.
  - **Global Comparison**: India's pension assets are relatively low compared to the global average. For instance, **OECD countries** have pension assets exceeding **80% of GDP**, whereas India's pension assets account for **17% of GDP**.

National Pension Scheme

- The **traditional pension system** in India was the **Old Pension Scheme (OPS).** Started in 1924 by the British government, it was relaunched by the Indian government post independence. The central government in 2004 introduced the National Pension System (NPS).
- The NPS, established in 2004 and expanded in 2009, was introduced as an alternative to the Old Pension Scheme. It is a **contributory pension scheme** designed to help individuals build a retirement fund through regular contributions.
- **Eligibility**: Open to all individuals aged 18 to 70 years.
- **Objective**: To help investors accumulate a retirement corpus through consistent contributions.

- **Accounts**:
  - **Tier I Account**: Has a lock-in period of 15 years. Offers additional tax benefits of up to Rs 50,000 per year, beyond the Section 80C limit of Rs 1.5 lakh.
  - **Tier II Account**: Functions like a savings account with no lock-in period.
- **New Option**: Starting April 1, 2025, central government employees will have the option to switch from the National Pension System (NPS) to the Unified Pension System (UPS) or continue with NPS.
  - **Old Pension Scheme (OPS)**
  - National Pension Scheme (NPS)
  - Unified Pension Scheme (UPS)
- Employees received 50% of their last salary as a pension for life, without needing to contribute during their service.
- **Inflation Protection**: Included dearness relief to counter inflation.
- **Family Pension**: Extended to dependents.
- Both employees (10% of salary) and the government (14% of salary) contribute.
- **Investment Choices**: Contributions are invested in market-linked securities such as equities and bonds, affecting the final pension amount.
- **Risk**: Pension amount depends on market performance, leading to uncertainty.
- **UPS** combines elements of both OPS and NPS.
- Guarantees a pension of 50% of the average basic salary of the last 12 months before retirement.
- **Indexation**: Pension amount is adjusted based on the All India Consumer Price Index for Industrial Workers (AICPI-IW).
- **Contributions**: Employees contribute 10% of their salary, and the government contributes 18.5%.

PYQ

Q1: Who among the following can join the National Pension System (NPS)? (2017)

(a) Resident Indian citizens only

(b) Persons of age from 21 to 55 only

(c) All State Government employees joining the services after the date of notification by the respective State Governments

(d) All Central Government employees including those of Armed Forces joining the services on or after 1st April, 2004

Ans (c)

Q2: Regarding 'Atal Pension Yojana', which of the following statements is/are correct? (2016)

1. It is a minimum guaranteed pension scheme mainly targeted at unorganised sector workers.
2. Only one member of a family can join the scheme.
3. Same amount of pension is guaranteed for the spouse for life after the subscriber's death.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Ans: (c)

ROLE AND IMPORTANCE OF INDEPENDENT REGULATORS (IRBS)

Independent regulatory bodies (IRBs) in sectors like finance, energy, and telecommunications are set up to ensure transparent and non-discriminatory services. These agencies operate separately from the government and have specialized knowledge in their respective fields. In the financial sector, the key IRBs include:

- **RBI** (Reserve Bank of India)
- **SEBI** (Securities and Exchange Board of India)
- **IRDAI** (Insurance Regulatory and Development Authority of India)
- **PFRDA** (Pension Fund Regulatory and Development Authority)
- **IBBI** (Insolvency and Bankruptcy Board of India)

These regulators are essential for preventing political interference and safeguarding market stability.

Key Features of Independent Regulators

- **Delegated Authority:** Regulators derive their power from statutes.
- **Accountability:** Regulators are accountable to the legislature.
- **Autonomy:** They operate independently from the government.
- **Specialized Decision-Making:** Regulators make decisions based on technical expertise.

Regulation-Making Process

Regulation is the primary tool through which IRBs implement their functions. The quality of these regulations directly impacts the effectiveness of the regulatory actions.

- **Regulation-Making:** Regulators are empowered by statutes to create regulations.
- **Quality of Regulations:** The effectiveness of regulation depends on its quality, which is assessed based on fairness, expertise, efficiency, and transparency.

Regulatory Impact Assessment (RIA):

- RIA is an analytical tool to assess the costs and benefits of regulations, ensuring that they are effective and efficient.
  - **Global Practice:** Many countries, including 32 out of 35 OECD members, have adopted RIA to improve regulatory quality.
- **Benefits of RIA**
  - **Better Regulations:** RIA ensures regulations are well-designed, reducing unnecessary burdens on businesses.
  - **Transparency and Credibility:** It improves the transparency of regulatory processes and strengthens credibility.
  - **Cost-Benefit Analysis:** RIA helps evaluate the economic and social impacts of regulations.
- Current Implementation in India: Financial regulators like the RBI, SEBI, and IBBI have started incorporating RIA elements into their regulation-making process. For example:
  - **IBBI's Regulation Process:** Includes public consultations, stakeholder engagement, and cost-benefit analysis.
  - **RBI and SEBI:** Outline regulatory plans in annual reports, showing steps toward improving regulatory frameworks.

CYBERSECURITY IN INDIA'S FINANCIAL SECTOR

- Cyberspace has rapidly evolved into a global environment, enabling instant communication and exchange of information through advanced ICT tools.
- While it offers immense benefits, this digital revolution also brings along new challenges, especially in sectors like finance, which is increasingly becoming vulnerable to cyber threats.
- The Rise of Cyber Threats in India's Financial Sector:
  - With digital transformation, the Indian financial sector faces a surge in cyber threats that could destabilize its operations.
  - Threats such as phishing, ransomware, DDoS attacks, fake apps, and SMS fraud are becoming more common.
  - According to the Indian Computer Emergency Response Team (CERT-In), the number of cybersecurity incidents reported has been on the rise, with 11.6 lakh incidents in 2020, 14 lakh in 2021, and 13.9 lakh in 2022.
- **Key Threats:**
  - **Phishing**: Deceptive attempts to steal sensitive information.
  - **Ransomware**: Malicious software that locks data until a ransom is paid.
  - **DDoS Attacks**: Overloading a system with traffic to disrupt services.
- **The Economic Impact of Cyberattacks:** Cyberattacks in the financial sector have resulted in substantial financial losses. According to the IMF's Global Financial Stability Report (April 2024), the direct financial losses from cyberattacks have increased fourfold since 2017, amounting to USD 2.5 billion. Additionally, the reputational damage and costs related to bolstering cybersecurity are also escalating.
- **National Cybersecurity Framework and Policies**: To combat these growing cyber risks, India has implemented several frameworks:
  - **National Cyber Security Policy 2013 (NSCP-2013)**: Aimed at creating a collaborative approach to cybersecurity across all sectors of society.
  - **FSDC** (Financial Stability and Development Council): The apex body overseeing coordination among financial regulators to enhance cybersecurity in the financial sector.
- India's Global Cybersecurity Standing: India's efforts to enhance cybersecurity have been recognized globally. In the **Global Cybersecurity Index (GCI) 2024**, India secured a Tier 1 ranking with a remarkable score of 98.49 out of 100. This places India among the world's leading nations in cybersecurity, recognized for its holistic approach in areas such as:
  - **Legal Frameworks**
  - **Technical Measures**
  - **Organizational Capacity**
  - **International Cooperation**

PYQ

Q1: In India, it is legally mandatory for which of the following to report on cyber security incidents? (2017)

1. Service providers
2. Data centres
3. Body corporate

Select the correct answer using the code given below:

(a) 1 only

(b) 1 and 2 only

(c) 3 only

(d) 1, 2 and 3

Ans: (d)

Q1: What are the different elements of cyber security ? Keeping in view the challenges in cyber security, examine the extent to which India has successfully developed a comprehensive National Cyber Security Strategy. (2022)

India's financial sector, backed by strong regulatory frameworks, international collaborations, and a growing cybersecurity infrastructure, is well-positioned to safeguard against cyber threats. As digitalization grows, so will the need for continuous innovation in cybersecurity to protect critical financial systems and maintain economic stability.

PRELIMS PRACTICE QUESTION

Q1: Which of the following best describes the primary objective of monetary policy in India?

(a) To ensure financial inclusion

(b) To maintain price stability and promote sustainable economic growth

(c) To control exchange rates

(d) To monitor the performance of the stock market

Q2: Consider the following statements about Rural Financial Institutions (RFIs):

1. RFIs primarily focus on providing financial services to rural areas, including agricultural financing.
2. NABARD oversees the health and performance of RFIs.
3. Regional Rural Banks (RRBs) are not regulated by the Reserve Bank of India (RBI).

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 2, and 3

(d) 1 only

Q3: With reference to the Insolvency and Bankruptcy Code (IBC), consider the following statements:

1. IBC was enacted in 2016 to provide a legal framework for debt resolution.
2. The National Company Law Tribunal (NCLT) acts as the adjudicating authority for insolvency cases.
3. IBC primarily aims to liquidate companies facing insolvency rather than focusing on debt recovery.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 1, 2 and 3

(c) 1 only

(d) 2 only

Q4: The GIFT City in India is primarily designed to serve which of the following purposes?

(a) To serve as a hub for information technology services

(b) To provide a space for financial institutions to cater to global markets

(c) To be a manufacturing hub for the automotive sector

(d) To serve as a major agricultural processing center

Q5: Which of the following are the key functions of Development Financial Institutions (DFIs)?

1. Provide long-term financing for infrastructure development
2. Facilitate the growth of the industrial sector

3. Focus on short-term consumer loans
4. Promote financial inclusion in rural areas

Select the correct answer using the codes given below:

(a) 1, 2, and 4 only

(b) 1, 2, and 3 only

(c) 3 and 4 only

(d) 1 and 2 only

Answer: (d)

ANSWERS

1. (b)	**2.** (a)	**3.** (a)	**4.** (b)	**5.** (d)

MAINS PRACTICE QUESTION

Q1: "The National Pension System (NPS) and the Atal Pension Yojana (APY) are critical for enhancing India's pension coverage."

Critically analyze the challenges and opportunities in the expansion of India's pension system, focusing on these two schemes.

Q2: "India's financial sector faces increasing cybersecurity threats, with a surge in phishing, ransomware, and DDoS attacks."

Discuss the potential economic impacts of such cyber threats on India's financial stability and evaluate the effectiveness of the measures taken to mitigate these risks.

Q3: "The rise of Artificial Intelligence (AI) in banking promises significant benefits but also presents serious challenges."

Analyze the implications of AI in banking, focusing on both the advantages it brings to the financial sector and the risks associated with its implementation.

Q4: "Rural Financial Institutions (RFIs) are essential for achieving financial inclusion in India."

Evaluate the role of RFIs, such as Regional Rural Banks (RRBs) and Microfinance Institutions, in promoting financial inclusion in rural India, and discuss the challenges they face.

Q5: "The implementation of the Insolvency and Bankruptcy Code (IBC) has resulted in substantial improvements in India's corporate debt resolution processes."

Critically assess the impact of the IBC on corporate governance, financial practices, and the efficiency of credit recovery in India.

****

CHAPTER: 3

EXTERNAL SECTOR: GETTING FDI RIGHT

Key-Terms

- **Balance of Payments (BoP) –** The record of all economic transactions between a country and the rest of the world, including trade, investments, and financial transfers. India's BoP has remained resilient despite global uncertainties.
- **Current Account Deficit (CAD) –** The difference between a country's total imports and exports of goods, services, and transfers. India's CAD moderated to 1.2% of GDP in Q2 of FY25 due to increasing net services receipts and remittances.
- **Foreign Direct Investment (FDI) –** Investments made by foreign entities in Indian businesses. While gross FDI inflows increased in FY25, net FDI saw a decline due to higher repatriation of investments.
- **Foreign Portfolio Investment (FPI) –** Investments made by foreign investors in Indian stocks and bonds. FPI inflows remained volatile in FY25, influenced by global interest rates and geopolitical factors.
- **Foreign Exchange Reserves –** India's reserves stood at **$640.3 billion** as of December 2024, providing a strong buffer against external shocks and covering **90% of external debt**.
- **Merchandise Trade Deficit –** The difference between the value of merchandise exports and imports. India's trade deficit widened to **$210.8 billion** in FY25 due to strong domestic demand.
- **Geopolitical Risk (GPR) Index –** A measure of global political instability that impacts trade and investments. Rising trade protectionism and geopolitical tensions have affected India's export markets.
- **Special Economic Zones (SEZs) –** Designated areas that offer tax incentives and streamlined regulations to boost industrialization and exports. The effectiveness of SEZs in promoting industrial growth is a key focus of the Survey.
- **Blue Economy –** The sustainable use of ocean resources for economic growth. India is focusing on expanding fisheries and seaweed farming as part of its blue economy strategy.

- **Real Effective Exchange Rate (REER)** – A measure of a currency's value adjusted for inflation and trade balance. India's **REER appreciated from 103.2 to 107.2 in 2024**, indicating strengthening competitiveness.
- **Trade Policy Uncertainty (TPU) Index** – A measure tracking uncertainty in trade policies. India's export diversification strategy aims to mitigate risks arising from TPU fluctuations.
- **Carbon Border Adjustment Mechanism (CBAM)** – A European Union regulation imposing carbon taxes on imported goods. India's **iron, steel, and aluminium exports to the EU (valued at $7.3 billion)** are highly exposed to CBAM.
- **European Union Deforestation Regulation (EUDR)** – A new EU law restricting imports of products linked to deforestation. India's exports of **coffee, leather, and paper** face compliance challenges.
- **Ease of Doing Business (EODB) Initiatives** – Government reforms aimed at simplifying regulations for exporters, including digitization of trade documents and automation of import/export approvals.
- **Non-Tariff Measures (NTMs)** – Trade restrictions like technical barriers and environmental standards that impact global trade. NTMs have increased globally, affecting India's exports.
- **India's Textile Exports** – India is **the 6th largest textile exporter** but faces challenges like high production costs and lack of Free Trade Agreements (FTAs) with key markets.
- **E-Commerce Exports** – India's e-commerce exports, currently at **$4-5 billion**, are expected to grow to **$200-$300 billion by 2030**, driven by digital platforms and government incentives.

Chapter at a Glance

- **Objective**: This chapter highlights India's external sector performance amidst global challenges, focusing on export growth, import trends, foreign investments, and foreign exchange reserves in FY25, and outlines strategies to enhance India's global trade competitiveness.
- **Analysis:**
  - Exports grew 6% to USD 602.6 billion, with a 10.4% increase excluding petroleum and gems.
  - Imports rose by 6.9% due to strong domestic demand.
  - Global protectionism requires India to adjust its trade strategy by reducing trade costs and improving export facilitation.
  - FPIs showed mixed trends due to global uncertainties, while FDI inflows recovered despite higher repatriations.
  - Foreign exchange reserves stood at USD 640.3 billion, covering 90% of external debt.

INTRODUCTION

Rising Global Uncertainty and Economic Impacts

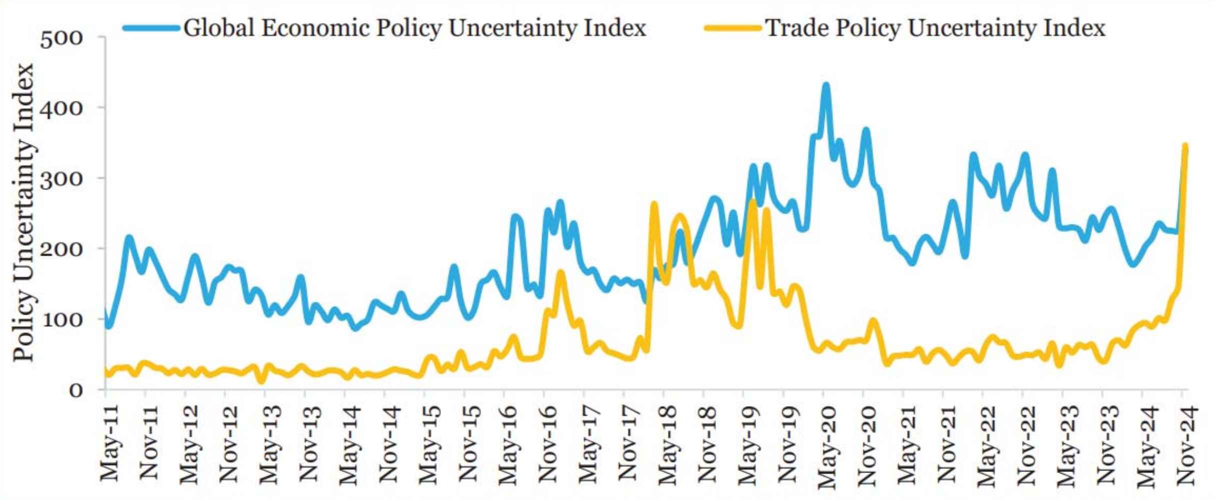
- The **world economy faces growing instability** due to **geopolitical conflicts, geoeconomic fragmentation, and climate-related disruptions**.

- The **Great Election Year of 2024**, with more than half of the global population voting, has added to **policy unpredictability**.
- **IMF estimates** suggest that a **one standard deviation increase in uncertainty leads to a 0.4% - 1.3% decline in output growth**.
- Economic theorists like **Keynes and Tobin** highlight that increased uncertainty leads to **higher risk premia, costlier finance, and potential borrower defaults**, impacting global economic stability.

Measuring Economic and Policy Uncertainty

- Several **indices track global risks and policy uncertainties**:
  - **Geopolitical Risk (GPR) Index**: Tracks adverse geopolitical events via news sources.
  - **Trade Policy Uncertainty (TPU) Index**: Monitors uncertainty linked to trade policy changes.
  - **Global Economic Policy Uncertainty (GEPU) Index**: A weighted average of national uncertainty indices covering **71% of global output**.
- As of **November 2024**, the **GEPU Index remains high**, reflecting global policy concerns, while the **TPU Index has risen since December 2023** due to intensified trade tensions.

Chart III.1: Rise in global uncertainty



Source: GEPU Index and TPU Index website

India's Domestic Policy Uncertainty Measurement

- The **Reserve Bank of India (RBI)** has developed a **Policy Uncertainty Index** specific to India.
- The index leverages **Google Trends data** to analyze policy uncertainty **in real time**, incorporating **both domestic and international events**.

Chapter Structure and Focus Areas

- **Section I:** Overview of **global trade dynamics**, focusing on **tariffs, non-tariff measures (NTMs), and global external sector performance**.
- **Section II:** Analysis of **India's trade performance**, including trends in **merchandise and services sectors**, **textile exports**, **export diversification**, and **e-commerce trade**.
- **Section III:** Examination of **barriers to export growth** and **government initiatives to streamline export processes**.
- **Section IV:** Insights into **India's Balance of Payments (BoP), including current and capital account trends, foreign exchange reserves, exchange rate movements, and external debt**.
- **Section V:** Concludes with an **outlook on India's external sector**, analyzing the evolving **global and domestic economic landscape**.

GLOBAL TRADE DYNAMICS

Trade Disruptions and Supply Chain Challenges

- **Geopolitical conflicts and climate events** have significantly disrupted global trade routes.
- **Red Sea disruptions (since November 2023):** Increased **shipping costs and delivery times**, especially for **Asia-Europe trade**, which depends on the Red Sea for **40% of its volume**.
- **Hormuz Strait tensions:** Impacting **21% of global petroleum liquid trade**, raising energy costs and increasing volatility in **global oil markets**.
- **Panama Canal drought:** Affected **5% of global maritime trade volumes**, worsening supply chain bottlenecks and increasing trade uncertainties.

Rise of Protectionist Trade Policies

- Governments worldwide are adopting **protectionist policies**, reshaping international trade patterns.
- Trade uncertainties have led to **increased government intervention**, influencing **tariff and non-tariff measures (NTMs)**.
- These disruptions are **slowing down global trade** and encouraging countries to rethink their **supply chain dependencies**.

Shift Towards Friendshoring & Nearshoring

- **Friendshoring:** Countries are shifting trade relations towards **politically aligned partners** to **reduce dependency on geopolitical rivals**.
- **Nearshoring:** A growing trend where nations **shift supply chains closer to home** to ensure stability and minimize risks from trade disruptions.
- Example: **Russia and China's trade dependence on the EU and US has declined**, while **Russia and Vietnam have deepened trade ties with China**.

Increasing Use of Non-Tariff Measures (NTMs)

- **Governments are increasingly using NTMs** (such as regulatory barriers and technical requirements) to **control trade flows**.
- The **rise in NTMs post-COVID-19** was further fueled by the **Russia-Ukraine conflict**.
- **UNCTAD Report Findings:**
  - **Technical NTMs impact over 30% of traded products**.
  - **Nearly 70% of global trade is affected by NTMs**, adding to trade complexities.

India's Tariff Regime

- The Indian government has consistently raised tariff and non-tariff barriers to protect domestic suppliers across most sectors and to bolster indigenous production.
- **India's average tariff rate** of 17% is higher than the US's 3.3%, but similar to other major economies like South Korea (13.4%) and China (7.5%).
- However, India has demonstrated its openness to free trade by removing customs duties for imports from **FTA (free trade agreement) partners** such as **ASEAN (Association of South East Asian Nations), Japan, and South Korea.**
- However, despite India's willingness, the U.S. has been reluctant to reduce tariffs through FTAs.
- Many nations protect domestic industries by imposing significant tariffs on certain items. **World tariff profiles 2023** published by the WTO lists the data on the highest tariff charged by countries.
- The highest tariffs of some other countries include 457% by Japan, 887% by Korea and 350% by the US.

GLOBAL TRADE PERFORMANCE IN 2024

Continued Growth in Global Trade

- **Global trade growth, which began in the second half (H2) of 2023, has extended into 2024**, according to **UNCTAD**.
- **World Trade Organization (WTO) data for Q3 2024** indicates:
  - **Global merchandise exports grew by 3.5% (YoY)**.
  - **Global merchandise imports rose by 3% (YoY)**.
  - **Global services exports expanded by 7.9% (YoY)**, outpacing merchandise trade.
  - **Global services imports increased by 6.7% (YoY)**.

Developing vs. Developed Economies: Trade Trends

- **Developing economies outperformed developed economies in trade growth** during the past four quarters.
- However, **this trend reversed in Q3 of 2024**, with **developed economies driving global trade expansion**.
- **Trade growth stalled in East Asia**, with several **major Asian economies experiencing negative trade growth**.

Projections for Global Trade in 2024

- **UNCTAD's nowcast** predicts that **global trade will surpass its 2022 record**, reaching **nearly USD 33 trillion in 2024**.
- **Key drivers of this record trade volume:**
  - **Services trade is expected to grow by 7% (YoY), contributing USD 500 billion**.
  - **Goods trade will grow at a slower rate of 2% (YoY), contributing another USD 500 billion**, but will remain **below its 2022 peak**.
- **Overall trade expansion of about USD 1 trillion (or 3.3%) is expected in 2024**.

TARIFF POLICIES

Growth in Regional Trade Agreements (RTAs) and Reduction in Tariffs

- **Trade agreements have expanded significantly**, increasing **from 22 in 1990 to 369 by August 2024**.
- Countries are promoting **free trade, attracting investments, and reducing trade costs** through **RTAs and WTO-led trade policies**.
- **Global tariff rates have declined:**
  - **India:** Average tariff rates on dutiable items dropped **from 48.9% in 2000 to 17.3% in 2024**.
  - **China:** Tariffs reduced **from 16.4% in 2000 to 8.3% in 2024**.
  - **Sectoral reduction (2012-2022):**
    - **Agriculture:** MFN and preferential tariffs declined by **3% and 1.4%, respectively**.
    - **Manufacturing:** Preferential tariffs decreased by **1% globally**.

India's Import Tariff Policy Evolution

- **India has adopted a balanced approach** to tariffs, ensuring they align with both **domestic policy goals** and **global trade integration**.

- **Tariff variations by sector:**
  - **Protection for sensitive sectors** against foreign competition.
  - **Lower duties for essential raw materials and intermediate goods** to support industrial production.
- **WTO Compliance:** India ensures its **tariff policies conform to WTO regulations**.
- **Efforts to rationalize tariffs and address inverted duty structures** are ongoing.

Role of Tariffs in Competitiveness and Industrial Development

- **Tariffs impact industrial competitiveness**, but if strategically implemented, they can **support industrial policy objectives**.
- **Carefully calibrated tariffs help develop priority sectors**, fostering **self-reliance and economic growth**.

NON-TARIFF MEASURES

Rise in Non-Tariff Measures (NTMs) Amidst Tariff Reduction

- **As global tariffs declined, the use of NTMs has significantly increased.**
- **Between 2020 and 2024, over 26,000 new trade and investment restrictions were imposed globally.**
- **Technical Barriers to Trade (TBTs) affect 31.6% of product lines, covering 67.1% of global trade** as of December 2024.
- **Export-related measures impact 19.3% of product lines and 31.2% of global trade**, mostly in **agriculture, manufacturing, and natural resources** sectors.

NTMs as a Tool for Industrial Policy

- Countries are increasingly using **NTMs (such as subsidies and export restrictions) to support domestic industries**.
- Unlike broad tariffs, NTMs are **specific, less visible, and harder to measure**, making their effects more complex.

Climate-Change-Related NTMs on the Rise

- **NTMs are increasingly used to regulate CO_2-intensive industries** like **automobiles, energy, and storage**.
- **As of December 2024, climate-related NTMs affect 26.4% of global trade (USD 6.5 trillion).**
- **Technical Barriers to Trade (TBTs) account for 61% of climate-related NTMs**, followed by **export controls and price-control measures**.
- **Upcoming EU policies, such as the Carbon Border Adjustment Mechanism (CBAM) and the European Union Deforestation Regulation (EUDR), will impact major exporters like India, China, and Turkey**.

Legitimate Policy Use vs. Trade Barriers

- **UNCTAD highlights NTMs as necessary for food safety, environmental protection, and consumer rights**.
- **Stricter regulations can enhance trade by boosting consumer confidence in food quality and safety**.
- **However, NTMs also increase compliance costs, affecting low-income exporters disproportionately**.

Challenges Posed by NTMs

- **Higher costs for exporters and importers** due to regulatory compliance and procedural hurdles.
- **Public health-related NTMs (e.g., pesticide residue limits) improve food safety but raise trade costs**, potentially making exports unprofitable.
- **Smaller firms and low-income countries face significant barriers**, leading to lower trade volumes and higher consumer prices.

Impact of NTMs on Foreign Direct Investment (FDI)

- **Firms may opt for FDI instead of exporting if NTMs create excessive trade barriers.**
- **NTMs can also attract FDI by making local production more viable** (e.g., through **local content requirements or technical standards**).
- **Studies show that increasing NTMs from 2.5 to 3.5 per product can raise FDI by 12%.**
- **Key NTMs influencing FDI include intellectual property rules, TBTs, and sector-specific regulations.**

TREND IN INDIA'S TRADE PERFORMANCE

Resilience and Growth in India's Trade Sector

- India's trade sector has shown **remarkable stability and growth** despite **global economic challenges**.
- After a **dip in FY20 due to the pandemic**, exports rebounded in **FY22**, reaching a **record high in FY23**, with the **positive trend continuing in FY24**.
- **India's total exports (merchandise + services) grew by 6% YoY in FY25**, reaching **USD 602.6 billion**.
- **Imports increased by 6.9% to USD 682.2 billion**, reflecting **strong domestic demand and industrial recovery**.
- **Trade deficit widened to USD 79.5 billion** in April-December 2024, up from **USD 69.7 billion in the same period in FY23**.

Sectoral Export Trends

- **Non-petroleum exports grew by 7.1%**, while **non-petroleum and non-gems & jewellery exports rose by 9.1%**.
- Key **export sectors showing strong growth (April-December 2024, YoY):**
  - **Electronic goods:** +28.6%
  - **Engineering goods:** +9.9%
  - **Pharmaceuticals:** +6.4%
  - **Chemicals:** +5%
  - **Textiles:** +7.6%
- **Agricultural exports were constrained** due to **inflationary pressures on cereals, pulses, and edible oils**.
- **Merchandise exports saw modest growth of 1.6%**, largely due to a **decline in petroleum product exports** caused by **falling global commodity prices**.

Import Trends and Trade Deficit

- **Merchandise imports increased by 5.2% YoY**, reaching **USD 352.1 billion** for non-oil, non-gold imports.

- **Gold imports surged due to higher international prices** and **pre-festival demand**.
- **Growing demand for capital goods and consumer electronics** fueled imports in **machine tools, transport equipment, and electrical goods**.
- **Higher import growth relative to exports widened the trade deficit** to **USD 210.8 billion (April-December 2024)**, up from **USD 189.7 billion in the same period in FY23**.

India's Textile Exports: Strength and Challenges

- India is the **6th largest exporter of textiles and apparel globally**, contributing **2.3% of GDP**, **13% of industrial production**, and **12% of total exports**.
- **Textile sector employs over 45 million people**, mostly in **MSMEs and rural areas**.
- **India's textile exports in 2023 reached USD 34 billion**, with major categories:
  - **Apparel:** 42% of exports (**USD 14.6 billion**)
  - **Raw/semi-finished materials:** 34% (**USD 11.7 billion**)
  - **Finished non-apparel goods:** 30% (**USD 7.8 billion**)
- **Key markets:**
  - **Europe and the US:** 66% of India's apparel exports
  - **UK:** 8%
  - **UAE:** 7%
- **Cotton-dominated export basket:**
  - **8 out of 10 top textile exports are cotton-based**.
  - India's **apparel market share (2.8%) is much lower than China (30%), Bangladesh (9%), and Vietnam (7%)**.
  - **Need for diversification in textile exports** to compete globally.

India's Export Diversification to New Markets

- **India has expanded into new product categories and markets between 1994 and 2022**.
- **Top export gains include:**
  - **Shipping vessels (33% global market share)**
  - **Iron & steel alloys (emerging export sector)**
- **From April to November 2024, exports expanded into 20+ new markets**, including:
  - **Optical items** (exported to **14 new countries**: Zimbabwe, Vietnam, South Korea, etc.).
  - **Cranes, lifts, and winches** (exported to **12 new markets**, including Taiwan, Portugal, and Somalia).
  - **Medical instruments** (exported to **9 new countries**).
- **Diversification enhances India's global trade resilience** and reduces dependence on **traditional markets like the US and EU**.

Services Trade: A Key Growth Driver

- **India's services exports grew by 11.6% in the first nine months of FY25**, contributing to a rise in **net services receipts from USD 120.1 billion to USD 131.3 billion**.
- **India's global market share in services trade reached 4.3% in 2023, up from 1.9% in 2005**.
- **India's leading services export categories:**
  - **Telecom, Computer & IT Services: 10.2% global share** (2nd largest exporter).
  - **Other Business Services (consulting, outsourcing): 7.2% global share** (3rd largest exporter).

- **Potential growth areas:**
  - **Travel & Transport Services:** Currently at **2.1% and 2.2% global share** but with expansion opportunities in **tourism and logistics**.
  - **Financial Services: Lagging behind the global average**, indicating a **growth opportunity in banking, insurance, and investment sectors**.
  - **Construction & Cultural Exports: India ranks 6th and 8th globally**, showing competitiveness in international infrastructure projects and cultural services.

India's E-Commerce Exports: A Future Growth Engine

- India's e-commerce market is growing rapidly**, fueled by** digital payments, logistics improvements, and increasing consumer demand**.**
- Global B2C e-commerce market projected to grow from USD 5.7 trillion (2022) to USD 8.1 trillion (2026) at a 9.1% CAGR**.**
- India's e-commerce exports are expected to surge from USD 4-5 billion (FY23) to USD 200-300 billion by 2030**.**
- India's current e-commerce market size is only 1.5% of the global market**, projected to reach** 2% in the coming years**.**

EASE OF DOING BUSINESS INITIATIVES FOR EXPORTERS

Enhancing Logistics Efficiency for Export Competitiveness

- India is focusing on **logistics infrastructure development and policy reforms** to improve **supply chain efficiency** and **reduce export costs**.
- The government's **National Logistics Policy** aims to make exports **more competitive and ensure faster, smoother movement of goods** domestically and internationally.

Paperless e-BRC System for Cost Reduction & Efficiency

- The **electronic Bank Realisation Certificate (e-BRC) system** has significantly reduced administrative and environmental costs.
- Over **2.5 million e-BRCs are processed annually**, saving exporters **₹125 crore in costs**.
- **Small exporters and e-commerce businesses benefit the most** by streamlining high-volume, low-cost transactions and improving access to **export benefits and refunds**.

DGFT 'Trade Connect e-Platform' to Boost MSME Exports

- A **single-window online portal** launched to help exporters, particularly **MSMEs**, explore **new international markets**.
- Developed in collaboration with **MSME Ministry, EXIM Bank, Ministry of External Affairs, and financial institutions**.
- The platform provides **real-time trade insights, connects exporters with government trade entities, and addresses information gaps**.
- It integrates **over 6 lakh IEC (Importer Exporter Code) holders, 180 Indian Missions abroad, 600+ Export Promotion Councils, and DGFT/DoC officials**.

DGFT Trade Facilitation Mobile App for Exporters

- Provides **real-time updates on Foreign Trade Policy (FTP)**, **import/export regulations**, **trade statistics**, and **status of applications**.
- Offers **24×7 virtual assistance** and enables **auto-generation of Importer Exporter Code (IEC)** without manual approval.
- IEC details are **auto-validated** with databases like **CBDT, MCA, and PFMS**, ensuring a seamless approval process.

BALANCE OF PAYMENT (BOP)

Stable Balance of Payments (BoP) Amid Global Uncertainty

- Despite **external trade and investment uncertainties**, India's **BoP remains stable**, supported by:
  - **Resilient services exports**
  - **Lower crude oil prices**
  - **Revival in Foreign Portfolio Investment (FPI) inflows**
  - **Recovery in Foreign Direct Investment (FDI) flows**

Current Account Deficit (CAD) Moderation

- **India's CAD moderated to 1.2% of GDP in Q2 FY25**, down from **1.3% in Q2 FY24**.
- **The merchandise trade deficit widened to USD 75.3 billion**, up from **USD 64.5 billion** in the previous year.
- **Strong net services receipts (USD 44.5 billion) and private remittances (USD 31.9 billion)** helped cushion the rising CAD.
- **Compared to other G20 economies (e.g., Brazil, Australia), India's CAD remains relatively contained** despite external challenges.

Capital and Financial Account Surplus

- **Net capital inflows increased sharply to USD 30.5 billion in Q2 FY25**, up from **USD 12.8 billion in Q2 FY24**.
- The rise was driven by:
  - **Higher FPI inflows**
  - **Increase in External Commercial Borrowings (ECBs)**
  - **Growth in Non-Resident Indian (NRI) deposits**

FDI Performance: Growth with Repatriation Trends

- **FDI inflows revived in FY25, growing 17.9% YoY to USD 55.6 billion** (April-November 2024).
- **India crossed USD 1 trillion in cumulative FDI inflows (April 2000 - September 2024)**, reinforcing its **status as a key global investment hub**.
- **Top FDI recipient sectors in H1 FY25:**
  - **Services (19.1%)**
  - **Computer Software & Hardware (14.1%)**
  - **Trading (9.1%)**
  - **Non-conventional Energy (7%)**
  - **Cement & Gypsum (6.1%)**
- **Despite increasing gross FDI inflows, net FDI dropped to USD 0.48 billion in FY25** due to **higher repatriations (USD 39.6 billion up to November 2024)**.
- **Private Equity (PE) exits from Indian stock markets reached USD 19.5 billion in 2024**, reflecting **investor confidence and profitable capital markets**.

India's FDI Outlook & Challenges

- **India remains a top destination for Greenfield projects and global project finance deals.**

- **However, increasing global competition for investments and higher repatriations raise concerns about long-term FDI growth.**
- **To attract more FDI, India must:**
  - Improve **tax certainty & regulatory stability**.
  - Strengthen **ease of doing business reforms**.
  - Enhance **manufacturing competitiveness to integrate into global supply chains**.

Portfolio Investment Trends (FPI)

- **FPIs turned net buyers in Indian equities from June to September 2024**, but outflows of **USD 11.5 billion in October and USD 2.5 billion in early November** reversed this trend.
- **Concerns over slowing earnings growth, high valuations, and geopolitical risks** led to temporary investor pullback.
- **By December 2024, FPIs re-entered Indian markets**, with net inflows of **USD 3.1 billion**, driven by India's **strong macroeconomic fundamentals and stable economic growth**.
- **Cumulative net FPI inflows (April-December 2024) stood at USD 10.6 billion**, lower than **USD 31.7 billion in the previous year** due to **global volatility**.
- **Inclusion of Indian Government Bonds (IGBs) in global bond indices** (JP Morgan EM Bond Index) boosted FPI inflows into debt markets.
- **Foreign investment in India's Fully Accessible Route (FAR) bonds exceeded USD 28 billion** by December 2024.

Other Capital Flows: NRI Deposits & External Borrowings

- **NRI deposits surged to USD 10.2 billion (H1 FY25), doubling from USD 5.4 billion in the previous year**.
- **External Commercial Borrowings (ECBs) also increased to USD 9.2 billion**, signaling higher foreign lending appetite for Indian corporates.

Foreign Exchange Reserves: Strong Stability

- **India's forex reserves stood at USD 640.3 billion as of December 2024**, covering **90% of external debt (USD 711.8 billion)**.
- India ranks **4th globally in forex reserves**, behind **China, Japan, and Switzerland**.
- **Forex reserves grew by USD 27.1 billion in 2024**, supported by:
  - **Capital inflows**
  - **BoP surplus of USD 63.7 billion in FY24**
  - **Valuation gains of USD 4.3 billion**
- **Import cover improved to 10.9 months**, surpassing the **IMF's recommended three-month threshold for emerging economies**.

Exchange Rate Stability

- **The Indian Rupee (INR) depreciated modestly by 2.9% in FY25**, performing better than other currencies like:
  - **Canadian Dollar (-5.4%)**
  - **South Korean Won (-8.2%)**
  - **Brazilian Real (-17.4%)**
- The **Nominal Effective Exchange Rate (NEER) remained stable (90-92 range)**, while the **Real Effective Exchange Rate (REER) appreciated from 103.2 to 107.2 (April-December 2024)**, signaling **external competitiveness**.

External Debt Position: Stable Amid Global Risks

- **India's external debt stood at USD 711.8 billion (September 2024)**, with a **debt-to-GDP ratio of 19.4%**, a slight increase from **18.8% in June 2024**.
- **Short-term external debt declined to 18.8% of total debt**, improving stability.
- **Major currency composition of India's external debt:**
  - **US Dollar (53.4%)**
  - **Indian Rupee (31.2%)**
  - **SDRs (5%)**
  - **Euro (3%)**

India's **BoP position remains resilient**, supported by **services exports, strong remittance inflows, and growing capital flows**. However, **global uncertainties, higher repatriations, and trade deficits pose medium-term challenges**. Going forward, **attracting stable FDI, strengthening forex reserves, and improving external sector efficiency will be key to maintaining economic stability**.

OUTLOOK

India's External Sector Performance Amid Global Uncertainties

- Despite geopolitical challenges, India's external sector has remained resilient**.**
- Merchandise exports showed moderate growth **due to a** slowdown in external demand**, while** imports grew strongly**, supported by** robust domestic demand**.**
- Net services receipts and remittances helped cushion the widening trade deficit**.**
- Gross FDI inflows increased**, but** higher repatriations limited net FDI growth**.**
- FPI inflows were volatile in FY25**, with fluctuations driven by** global market conditions and investor **sentiment**.

Changing Global Trade Landscape & Need for a New Strategy

- **Trade dynamics are shifting towards protectionism**, replacing the earlier trend of globalisation.
- **Increasing trade barriers and economic uncertainties demand a new strategic trade roadmap for India**.
- To stay competitive, India must focus on:
  - **Reducing trade costs**.
  - **Enhancing trade facilitation**.
  - **Strengthening export competitiveness**.
- **Improving trade competitiveness is within India's control**, requiring coordinated efforts between the **government and private sector**.

Role of Governance & Industry in Sustaining Economic Growth

- **The state must focus on governance**, while the **private sector must emphasize quality production**.
- If both **governance and industry** align on quality and efficiency, **India can expand its global trade share and attract higher investments**.
- **Sustained capital formation and economic growth are achievable** if India successfully adapts to changing global trade conditions.

India must **adapt to rising protectionism, improve trade efficiency, and enhance export competitiveness**. A **proactive trade policy, better regulatory framework, and investment in quality production** will help India **increase its global trade share and sustain high economic growth rates in the long term**.

PRELIMS PRACTICE QUESTION

Q1: The Carbon Border Adjustment Mechanism (CBAM) is associated with:

(a) EU's efforts to regulate carbon emissions from imports.

(b) US trade restrictions on carbon-intensive goods.

(c) China's policy to control carbon leakage in exports.

(d) UN regulations on climate change compliance.

Q2: Consider the following statements regarding India's trade performance in FY25:

1. India's total exports (merchandise + services) showed a YoY growth of 6%, reaching USD 602.6 billion.
2. India's trade deficit declined in FY25 due to increased exports.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q3: Which of the following statements are correct regarding Foreign Portfolio Investment (FPI) trends in FY25?

1. FPIs were net buyers in Indian equities between June and September 2024.
2. The JP Morgan Emerging Market Bond Index inclusion led to increased demand for Indian Government Bonds (IGBs).

Select the correct answer using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q4: Consider the following statements about India's textile exports:

1. India is the 6th largest textile and apparel exporter globally.
2. Europe and the United States account for 66% of India's apparel exports.
3. The Production-Linked Incentive (PLI) scheme has been extended for the textile sector until 2030.

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

Q5: How many of the following statements about Non-Tariff Measures (NTMs) are correct?

1. NTMs are used as an alternative to tariffs to control trade policies.
2. CBAM and EUDR are examples of NTMs impacting India's exports.
3. The United Nations Conference on Trade and Development (UNCTAD) notes that NTMs affect about 70% of global trade.

Select the correct answer using the codes given below:

(a) Only one

(b) Only two

(c) All three

(d) None

Q6: Which of the following best describes the term 'Friendshoring' as mentioned in Economic Survey 2024-25?

(a) Establishing production facilities in friendly countries to reduce dependence on geopolitical rivals.

(b) Increasing trade with neighboring countries to enhance regional economic integration.

(c) Shifting from industrial production to service-based economies to strengthen diplomatic ties.

(d) Developing global digital payment systems to facilitate international trade.

Q7: The Economic Survey 2024-25 highlights India's increasing focus on e-commerce exports. Which of the following factors contributes most to this trend?

(a) Digital payment expansion, localized logistics, and regulatory simplification.

(b) Reduction in trade tariffs and increased demand for traditional handicrafts.

(c) Government restrictions on domestic e-commerce platforms.

(d) High dependency on brick-and-mortar retail trade.

ANSWERS

1. (a)	**2.** (a)	**3.** (c)	**4.** (b)	**5.** (c)
6. (a)	7. (a)			

MAINS PRACTICE QUESTION

Q1: "Protectionism is reshaping global trade patterns, leading to a rise in trade barriers." Analyze the impact of protectionist trade policies on India's export sector and suggest strategies to enhance its trade resilience.

Q2: Critically evaluate the impact of "friendshoring" and "nearshoring" trends on India's trade relations. How should India adapt its trade policies to remain competitive in the changing global trade landscape?

Q3: Discuss the role of non-tariff measures (NTMs) in shaping global trade flows. How do NTMs such as CBAM (Carbon Border Adjustment Mechanism) and EUDR (European Union Deforestation Regulation) affect India's exports?

Q4: "Despite an increase in gross FDI inflows, net FDI to India has declined due to higher repatriation of funds." Examine the factors leading to this trend and suggest policy measures to attract and retain FDI in India.

Q5: Evaluate the significance of India's Balance of Payments (BoP) resilience in ensuring external sector stability. Discuss the role of services trade and remittances in cushioning India's current account deficit.

Q6: "Portfolio investments in India exhibit high volatility due to external shocks and global monetary policies." Examine the trends in Foreign Portfolio Investments (FPIs) in India and their implications for economic stability.

Q7: "India's textile exports have remained resilient, yet they lag behind competitors such as China, Bangladesh, and Vietnam." Identify the major challenges faced by India's textile sector and propose policy measures to enhance its global competitiveness.

Q8: Analyze the role of India's services sector in driving export growth. What policy interventions are required to strengthen India's position in global services trade, particularly in financial services and transport sectors?

Q9: "India's e-commerce exports are projected to grow significantly by 2030." Discuss the challenges and opportunities associated with this trend and suggest ways to boost India's e-commerce trade on the global stage.

Q10: With rising global trade uncertainty, how can India craft a strategic trade roadmap to enhance export competitiveness, integrate with global supply chains, and attract long-term investments? Suggest key policy interventions.

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CHAPTER: 4

PRICES AND INFLATION - UNDERSTANDING THE DYNAMICS

Key-Terms

- **Core Inflation:** Core inflation measures price changes in the economy excluding volatile items like food and fuel. It reflects underlying inflation trends and is a key determinant in monetary policy decisions. India's core inflation reached a decade-low due to reduced input costs and stable service prices.
- **Headline Inflation:** Headline inflation includes all components of the Consumer Price Index (CPI), including food and fuel, which are volatile. It is sensitive to global oil prices and seasonal food fluctuations, making it prone to sharp swings compared to core inflation.
- **Consumer Price Index (CPI):** The CPI measures changes in the price level of a basket of consumer goods and services. Food items constitute about 40% of India's CPI, making food inflation a major driver of overall price trends in the country.
- **Wholesale Price Index (WPI):** The WPI tracks price changes at the wholesale level before products reach consumers. It includes bulk transactions of goods like raw materials and finished goods. Unlike CPI, it does not directly reflect consumer prices but indicates supply-side price pressures.
- **Monetary Policy Committee (MPC):** The MPC is a six-member body of the RBI responsible for deciding interest rates to achieve inflation targets. It uses repo rate changes and liquidity management to maintain price stability and economic growth.
- **Synchronized Monetary Policy Tightening:** Major central banks like the US Federal Reserve, ECB, and RBI raised interest rates together to combat post-pandemic inflation. This global tightening led to capital outflows, higher borrowing costs, and reduced liquidity, affecting economic growth and inflation.
- **Open Market Sale Scheme (OMSS):** The OMSS allows FCI to sell wheat and rice in the open market to control food prices. In FY25, OMSS was used to stabilize wheat and rice prices amid supply constraints.
- **Inflation Expectations:** Inflation expectations refer to consumer and business perceptions of future inflation. High expectations can influence wage demands and investment decisions, affecting long-term price stability.

- Terms of Trade (ToT): ToT measures the relative price of exports and imports. If food prices rise faster than industrial goods prices, farmers benefit, but urban consumers face inflationary pressures.

Chapter at a Glance

Objective: The chapter aims to analyze the trends and factors influencing inflation globally and in India, particularly focusing on retail inflation, core inflation, and food inflation.

- Inflation trends are key indicators of economic health, influencing policy decisions and economic planning.
- Global inflation peaked in 2022 due to supply chain disruptions and geopolitical tensions but has moderated in 2024.
- India's **retail inflation** eased due to **government interventions** and **monetary policy measures**.
- **Core inflation** reached its lowest level in a decade.
- **Food inflation** remains a concern, primarily driven by vegetables (onion, tomato) and pulses (tur).
- Government measures include **buffer stocking, subsidized sales, and import relaxations** to curb food inflation.
- **Future inflation trends** depend on **global commodity prices, monsoon patterns, and supply chain efficiencies**.

INTRODUCTION

- Inflation poses **challenges for policymakers** and affects economic stability.
- Global central banks are **unwinding restrictive policies** to balance **inflation control** and **economic growth**.
- **India's retail inflation declined** from **5.4% (FY24) to 4.9% (FY25, April-December)**.
- **Food items**, which constitute **40% of India's Consumer Price Index (CPI)**, remain a **major contributor** to inflation.
- Inflation is not widespread but **driven by a few food items**.
- The chapter is structured into **global and domestic inflation trends**, identifying **key factors and policy responses**.

Global Resilience Amid Synchronised Monetary Policy Tightening

- Despite **tight monetary policies** worldwide, **global economic output remained resilient**.
- Central banks **raised interest rates** to curb inflation, leading to **lower inflation rates across major economies**.
- **Global inflation** declined from **8.7% (2022) to 5.7% (2024)**.
- **Coordinated monetary policy efforts** have reduced inflationary pressures, supporting **price stability**.

PYQ

Q1: If the RBI decides to adopt an expansionist monetary policy, which of the following would it not do? (2020)

1. Cut and optimize the Statutory Liquidity Ratio
2. Increase the Marginal Standing Facility Rate
3. Cut the Bank Rate and Repo Rate

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

Ans: (b)

Decline in Core Inflation

- **Core inflation** (excluding food and energy prices) has **declined globally** due to:
  - Moderation in **commodity prices**.
  - Effective **policy interventions**.
  - **Lower demand-side pressures**.
- **India's core inflation fell** by **0.9 percentage points** from FY24 to FY25.
- A decline in **fuel price inflation** also contributed to **lower household expenses**.

Global Food Inflation Eases with Divergence in a Few Emerging Markets

- **Improved global supply conditions** and **strong harvests** have eased food prices.
- However, some **Emerging Market Economies (EMEs)**, including **India, Brazil, and China**, continue to face **higher food inflation**.
- The **divergence in inflation trends** is due to:
  - **Weather disruptions**.
  - **Supply chain inefficiencies**.
  - **Trade restrictions**.

Softening Core Inflation Cools Headline Inflation

- **India's headline inflation** (Consumer Price Index - CPI) has **moderated** due to:
  - A **decline in core inflation** (mainly in services).
  - **Lower fuel price inflation**.
  - **Deflationary pressures in wholesale price inflation** (-0.7% in FY24).
- **Retail inflation dropped** significantly, reducing **cost pressures on households**.

What is CPI-based Inflation or Retail Inflation?

- CPI-based Inflation or Retail Inflation is a metric that is used to measure inflation.
- CPI measures **retail inflation** by collecting data on the **prices of goods and services** that are consumed by the retail population of the country.

- CPI meaning refers to an increase in the price level of a selected basket of goods and services over a select period of time.
- It is a **macroeconomic indicator of inflation.** It is a tool for the central bank and government for inflation targeting and for inspecting price stability, and as deflator in the national accounts.
- **Calculation:** It is calculated by referring to a base year which is a benchmark. The base year is monitored by the **Central Statistics Office, Ministry of Statistics and Programme Implementation (MoSPI),** and changes from time to time.
  - MoSPI updated the base year of the **Consumer Price Index (CPI)** from 2012 to 2024 to improve economic data accuracy.
- **Categories:** Food and beverages, clothing, housing, fuel and light, etc.
- **CPI formula:** (Price of basket in current period / Price of basket in base period) x 100

Food Inflation is Majorly Driven by Very Few Food Items

- India's **food inflation** has remained **stubbornly high** over the last two years.
- Inflation is **concentrated in a few items**, mainly **vegetables and pulses**.
- **Vegetables and pulses together contribute 32.3% to inflation**, despite having only an **8.42% weight** in the CPI basket.
- Excluding **vegetables and pulses**, food inflation would have been **4.3% (instead of 8.4%)** in FY25.

Extreme Weather Conditions Impact Vegetable Production and Prices

- **Vegetables are highly susceptible to climate variations** like **heatwaves, floods, and droughts**.
- **Unseasonal rainfall in 2023-24** damaged crops, leading to **supply chain disruptions**.
- **Heatwaves increased by 18% (2022-24)** compared to **5% (2020-21)**, affecting production.
- **Vegetable price spikes** were **strongly correlated** with **extreme weather events**.

Trends in Onion and Tomato Production and Prices

- **Onion and tomato prices remained volatile** due to **supply constraints**.
- **Onion production declined in 2022-23 and 2023-24**, leading to **inflationary pressures**.
- **Tomato prices fluctuated sharply** due to **short crop cycles and high perishability**.
- **Seasonal supply shortages and climate shocks** contributed to **price volatility**.

Consumption and Seasonality in Production of Onion and Tomato

- **Household consumption is lower than production**, yet **prices remain high**.
- Factors contributing to price spikes:
  - **Post-harvest losses**.
  - **Seasonal production trends**.
  - **Storage and transport inefficiencies**.
- **India's dependence on domestic production limits import options**.
- **Tomato prices rise during the monsoon (July-September)**, while **onion prices increase in October-December**.

Trends in Production and Inflation Rate of Tur

- **Tur dal (pigeon pea) prices increased** due to **production shortfalls** in **2022-23 and 2023-24**.
- **Tur production declined by 13.6% (2022-23) and 10.8% (2023-24)**.
- A **negative correlation (-0.8) between production and inflation** shows that **low production leads to high price inflation**.
- Government **stock limits and imports (7.7 lakh tonnes in FY24)** helped ease **price pressures**.

PYQ

Q1: Consider the following statements: (2020)

1. The weightage of food in Consumer Price Index (CPI) is higher than that in Wholesale Price Index (WPI).
2. The WPI does not capture changes in the prices of services, which CPI does.
3. Reserve Bank of India has now adopted WPI as its key measure of inflation and to decide on changing the key policy rates.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

Ans: (a)

Outlook and Way Forward

- **Inflation Expected to Moderate**:
  - **RBI projects inflation at 4.2% (FY26)**, assuming **normal monsoon**.
  - **IMF estimates India's inflation at 4.4% (FY25) and 4.1% (FY26)**.
- **Commodity prices to soften** by **5.1% in 2025** and **1.7% in 2026**.
- **Government's supply-side interventions** include:
  - **Strengthening buffer stocks** for essential food items.
  - **Subsidized retail sales and import duty rationalization**.
  - **Monitoring stock limits and preventing hoarding**.
- **Key Policy Recommendations**:
  - **Develop climate-resilient crops** to reduce production fluctuations.
  - **Enhance farmer training** on best practices and high-yield seeds.
  - **Implement real-time price monitoring systems** to track inflationary trends.
  - **Encourage long-term investments in agricultural infrastructure** to minimize post-harvest losses.

India's inflation landscape remains **stable yet vulnerable to food price shocks**. While **global trends show declining inflation, India's food inflation is still impacted by climate shocks and supply constraints**. A **strategic approach** focusing on **agricultural resilience, supply chain efficiency, and real-time data monitoring** will be essential to achieve **long-term price stability**.

PRACTICE PRACTICE QUESTION

Q1: As per the Economic Survey 2024-25, which of the following food items contributed the most to food inflation in India?

(a) Rice and wheat

(b) Vegetables and pulses

(c) Dairy and sugar

(d) Fruits and spices

Q2: The decline in core inflation in India can be attributed to which of the following factors?

1. Moderation in global commodity prices
2. Tight monetary policy interventions
3. Declining service-sector inflation
4. Increase in government subsidies on food and fuel

Select the correct answer using the code below:

(a) 1, 2, and 3 only

(b) 1, 3, and 4 only

(c) 2 and 4 only

(d) 1, 2, 3, and 4

Q3: Why has food inflation remained high in India despite a decline in global food prices?

(a) Increase in demand for high-value food products

(b) Supply chain disruptions and extreme weather events

(c) Hoarding by traders and black marketing

(d) Import restrictions on food grains

Q4: Consider the following statements regarding onion and tomato price fluctuations in India:

1. Onion production is concentrated in the Kharif season, which causes price instability in the Rabi season.
2. Tomato prices are highly volatile due to their short crop cycle and perishability.
3. A rise in onion and tomato prices significantly impacts India's overall inflation trends.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Q5: What role does the "Buffer Stock Policy" play in controlling food inflation?

(a) Ensures year-round price stability for perishable commodities like vegetables

(b) Helps stabilize prices by releasing stock when prices rise and procuring during surplus

(c) Reduces the cost of food imports by maintaining adequate domestic reserves

(d) Encourages farmers to produce more by offering higher minimum support prices

Q6: Consider the following statements regarding India's trade in pulses:

1. India imports significant quantities of pulses like tur, urad, and masur to meet domestic demand.
2. Government interventions, such as duty-free imports and stock limits, have helped stabilize pulse prices.
3. The decline in domestic production of pulses has had no impact on food inflation.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Q7: Assertion (A): India's inflation trends are increasingly influenced by food price volatility.

Reason (R): The weightage of food items in India's Consumer Price Index (CPI) is higher than in many developed economies.

(a) Both A and R are true, and R is the correct explanation of A.

(b) Both A and R are true, but R is not the correct explanation of A.

(c) A is true, but R is false.

(d) A is false, but R is true.

ANSWERS

1. (b)	**2.** (a)	**3.** (b)	**4.** (b)	5. (b)
6. (a)	7. (a)			

MAINS PRACTICE QUESTION

Q1: Analyze the impact of synchronized monetary policy tightening by central banks on global inflation and output growth. How has India responded to these global trends?

Q2: Discuss the role of core inflation in shaping monetary policy decisions. How has India managed to bring down core inflation despite global uncertainties?

Q3: Food inflation in India is often driven by a few essential commodities rather than a broad-based price rise. Explain the factors influencing food inflation and suggest measures to ensure price stability. (GS-III: Food Security, Inflation, and Agricultural Policy)

Q4: Extreme weather events are increasingly affecting vegetable production and food prices in India. Evaluate the impact of climate change on food inflation and suggest long-term policy solutions.

Q5: Despite being a major producer of pulses, India faces frequent inflationary pressures in pulses like Tur Dal. Discuss the structural constraints in pulse production and measures to ensure price stability.

Q6: Examine the role of supply chain disruptions in driving food inflation in India. How have administrative measures like stock limits and buffer stocking helped control food inflation?

Q7: Discuss the impact of seasonal production cycles on the price volatility of perishable commodities like onion and tomato. What steps can be taken to mitigate these price fluctuations?

Q8: The Economic Survey 2024-25 suggests that India's inflation will align with targets by FY26. Critically evaluate the measures taken by the government and RBI to manage inflation.

Q9: Analyze the impact of the global commodity price trend on India's inflation trajectory. How do international oil and food prices influence India's domestic inflation?

Q10: What are the structural reforms needed in India's agricultural sector to ensure long-term price stability of essential food items? Discuss in the context of pulses, oilseeds, and perishable crops.

****

CHAPTER: 5

MEDIUM TERM OUTLOOK: A GROWTH VISION FOR NEW INDIA

Key-Terms

- **Current Account Deficit or CAD** is the shortfall between the money flowing in on exports, and the money flowing out on imports. Current Account Deficit (or Surplus) measures the gap between the money received into and sent out of the country on the trade of goods and services and also the transfer of money from domestically-owned factors of production abroad.
  - The current account constitutes net income, interest and dividends and transfers such as foreign aid, remittances, donations among others.
- **MSMEs (Micro, Small, and Medium Enterprises)**: MSME stands for **Micro, Small and Medium Enterprises.** These include start-ups and other business initiatives which are comparatively small in budget and have limited operations.
- **Technological Decoupling**: It is the growing trend of countries separating their tech industries to limit dependency, potentially causing economic losses and trade disruptions.
- **"Friend-Shoring"**: It refers to the practice of favoring trade and supply chain relationships with allied nations to reduce dependence on geopolitical rivals.
- **Re-shoring**: It is the process of bringing manufacturing and production back to a home country, reversing outsourcing trends to protect domestic industries and supply chains.
- **Rare Earth Minerals**: Rare earth elements include wind turbine magnets, solar cells, smart phone components, cells used in electric vehicles, among others.
  - The 17 Rare Earths are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).
  - REEs are classified as light RE elements (LREE) and heavy RE elements (HREE).

Chapter at a Glance

Objective: The chapter aims to provide a roadmap for India's economic growth strategy as it targets becoming a developed nation by 2047. It emphasizes the need for structural reforms, energy transitions, and deregulation to achieve sustainable and inclusive growth. The chapter also discusses the challenges posed by global economic dynamics, such as geo-economic fragmentation, and outlines the necessary steps to overcome these hurdles and ensure India's rise as a global economic power.

Analysis:

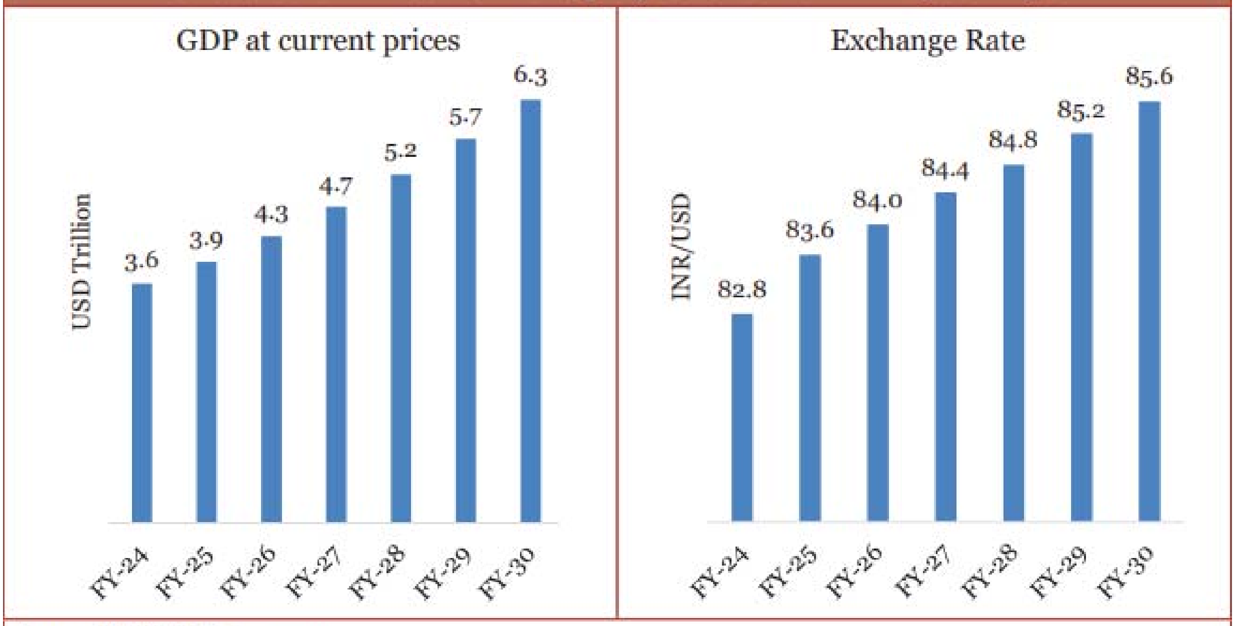
- **Growth Target:** India requires consistent 8% annual growth to meet its development goals, with projections indicating significant GDP expansion by FY30.
- **Global Economic Landscape**: The increasing geopolitical tensions and trade barriers, along with China's dominance in key industries, impact global economic stability and India's strategic positioning in global supply chains.
- **Energy Transition:** India's push for renewable energy faces hurdles, particularly in sourcing critical components from China. While the Panchamrit climate goals provide a framework, the country must strengthen domestic capacity to ensure energy security.

INTRODUCTION

INDIA'S MEDIUM-TERM OUTLOOK:

- India aims to become a **developed nation (Viksit Bharat) by 2047**, requiring an average **8% growth rate** at constant prices for the next 10-20 years.
- The **IMF's World Economic Outlook (WEO) October 2024** projects India's GDP to reach **$5 trillion by FY28** and **$6.3 trillion by FY30**, implying a **10.2% annual nominal growth** in USD terms from **FY25 to FY30**.
- For comparison, India's GDP grew at **8.9% annually** in USD terms between **FY94 and FY24**, meaning the IMF expects a **faster growth rate** in the next five years.

Chart V.1: IMF WEO India projections from FY25 to FY30



Source: WEO, October 2024

- India's nominal GDP grew at **12.4% annually** in rupee terms over the past 30 years. The **IMF projects 10.7% annual growth** for the next five years, with only **0.5% annual rupee depreciation**, much lower than the **3.3% depreciation seen earlier**. This reflects India's strong growth potential, investment appeal, and expected inflation convergence with the U.S.
- The **current account deficit** is projected to **gradually rise to 2.2% of GDP by FY30**. The **Ministry of Statistics** estimates **6.4% GDP growth in FY25**, with projections of **6.3% to 6.8% in FY26**, aligning with the **IMF's 6.5% forecast for FY26-FY30**.

World Economic Outlook (WEO) Report highlights:

- Global geo-economic shifts affecting growth.
- China's dominance in manufacturing and energy transition materials.
- India's energy transition challenges due to reliance on Chinese imports.
- Focus on domestic growth levers through policy reforms.
- Need for deregulation to boost economic freedom and sustain growth.

Geo-Economic Fragmentation

- Economist **John Maynard Keynes** once described **early 20th-century London** as a hub of global trade, where people could easily access goods and invest worldwide. Similarly, the last few decades of **hyper-globalization** have **tripled the global economy** and **lifted 1.3 billion people out of extreme poverty**, driven by **trade, investment, and technological advancements**.
- However, just as Keynes saw global prosperity collapse due to **wars, rivalries, and trade restrictions**, the **modern world faces a similar challenge—Geo-Economic Fragmentation (GEF)**. Today's GEF is **more severe**, disrupting global trade and economic cooperation.

Key Globalization Trends (1980–2022):

- **Trade Expansion: *Global trade*** rose from **39% of world GDP (1980) to 60% (2012).**
- **FDI Surge**: Foreign Direct Investment increased from $54 billion (1980) to over $1.5 trillion (2019).
- **Economic Growth:** The global economy expanded from **$11 trillion (1980) to over $100 trillion (2022).**
- **Poverty Reduction:** Extreme poverty dropped from **42% (1981) to 8.4% (2019),** mainly due to growth in China and India.

Population & Urbanization:

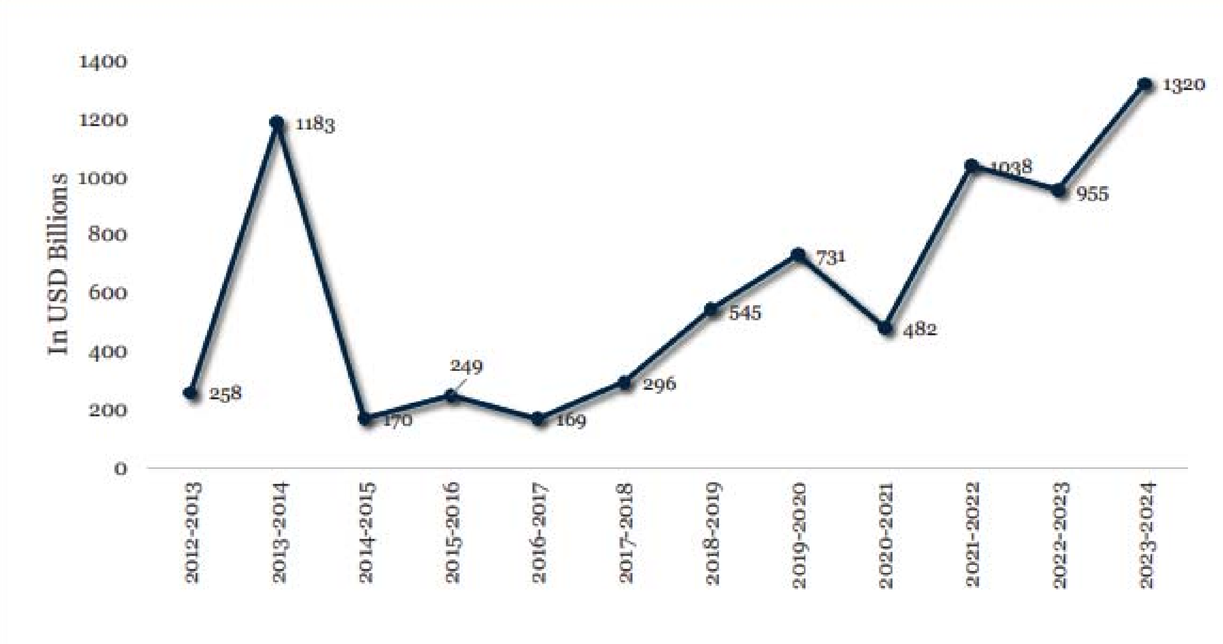
The global population grew from **4.4 billion (1980) to 8 billion (2022),** with urbanization increasing from **39% to 57%,** driving economic growth and connectivity.

- **Internet Revolution:** Internet access expanded from virtually zero in 1980 to 5.3 billion people (66% of the global population) by 2022, transforming trade, communication, and innovation.
- **Globalization's Impact:**
  These changes fuelled economic integration, but the next two decades are expected to see geo-economic fragmentation (GEF)—a policy-driven reversal of globalization due to strategic, security, and political concerns.
- **Fragmentation Trends:**
  - Trade, capital, and migration restrictions are reshaping global economies.
  - Rising geopolitical tensions and wars are deepening economic divisions.
  - A new Cold War-style bloc formation is emerging, with policies like "friend-shoring" (favoring allies in trade and supply chains).
  - Western nations' one-size-fits-all policies on emissions, labor, and social standards are further fueling global economic, social, and cultural fragmentation.

Growth Impact of Geo-Economic Fragmentation (GEF)

- **Trade is the Primary Channel of Impact:**
  - GEF is disrupting global trade, reducing productivity gains, and **increasing trade barriers**.
  - Many countries have imposed **new trade restrictions**, limiting economic cooperation.

Chart V.2: Trade coverage of new import-restrictive measures (USD Billion, not cumulative)



Source: WTO Trade Monitoring Report presented to Trade Policy Review Body (TPRB); December 2024

- **Rising Trade Restrictions (2023–2024):**
  - **169 new trade-restrictive measures** were introduced between **October 2023 and October 2024**, covering **$887.7 billion in trade**.
  - This is **$550 billion more** than the previous year's restrictions ($337.1 billion).
- **Higher Costs of Trade Fragmentation:**
  - During the **Cold War era**, global trade was **16% of GDP**—now it's **45%**, making trade restrictions far more damaging.
  - **Less trade = less knowledge-sharing**, slowing innovation and global growth.
  - **Cross-border investment fragmentation** further limits economic integration.
- FDI is Becoming Geopolitically Concentrated:
  - Foreign Direct Investment (FDI) is increasingly flowing **only to geopolitically aligned countries**, especially in **strategic sectors**.
  - **Emerging markets and developing economies (EMDEs)** are most vulnerable as major FDI sources (advanced economies) **impose more restrictions**.
  - Policies like **friend-shoring (investing in allied nations) and re-shoring (bringing production back home)** hurt these economies the most.

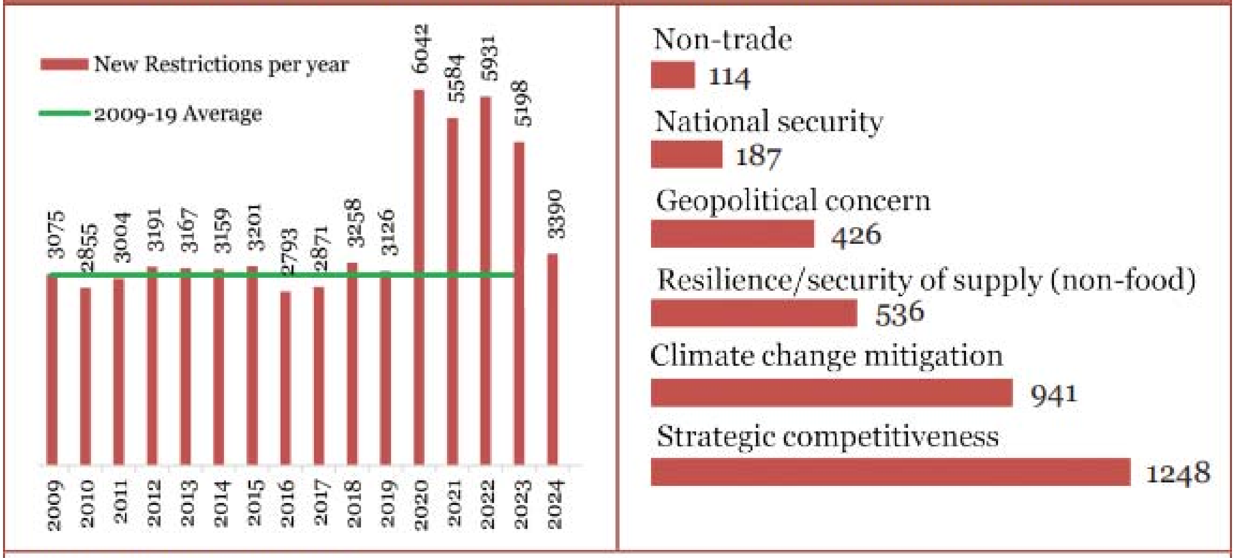
Global Output Loss Due to Trade Fragmentation:

- Estimated GDP loss from trade restrictions ranges between **0.2% (low impact) and 7% (high impact)**.
- If **technological decoupling** is added (where countries separate their tech industries), GDP losses could rise to **8-12% in some countries**.

The Changing Global Economic Landscape:

- **Increase in Trade & Investment Restrictions:**
  - From **2020 to 2024**, over **24,000 new trade and investment restrictions** were imposed worldwide.
  - These restrictions have slowed **global trade growth** and contributed to **economic stagnation**.

Chart V.3: Proliferation of trade and investment restrictions



Source: Global Trade Alert Data

Chart V.4: Shift in global structural forces

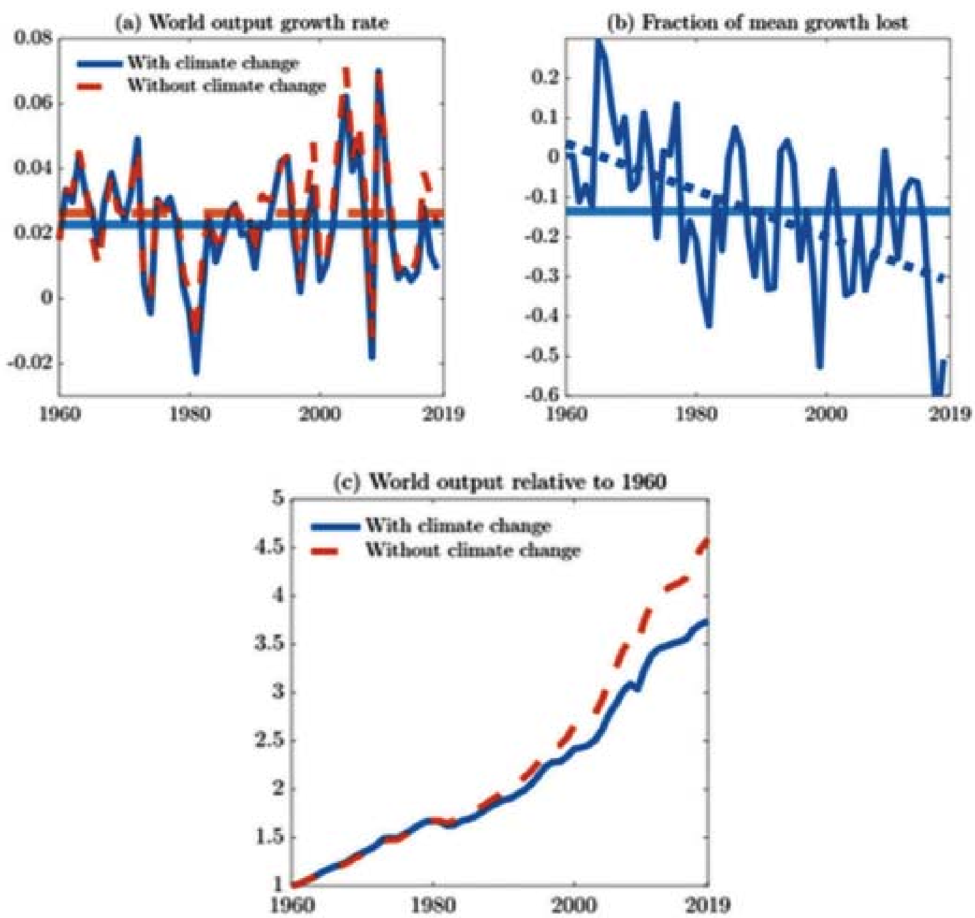
- **Global Economic Shift & China's Dominance:**
  - The world economy is undergoing a major transformation, **moving away from long-held trade practices**.
  - **China plays a dominant role** in **manufacturing** and **energy transition industries**, giving it strategic control over **global supply chains**.
  - In **2000, China produced only 6% of global industrial output**. By **2030, it is expected to account for 45%**, surpassing **the U.S. and its allies combined**.
  - This **manufacturing dominance** has been seen only **twice before**—by **Britain** during the **Industrial Revolution** and **the U.S.** after **World War II**.

Climate Transition, China, and Geopolitics:

- **Climate Change and Economic Impact**

- Climate change affects **global economic stability**.
- A **1°C increase in temperature** can reduce **global GDP by 12%**.
- Trade and geopolitical tensions could disrupt the **green energy transition**.

Chart V.6: Growth Accounting with Climate Change



Source: Bilal, Känzig; 2024
Panel (a): world output growth rate with (solid blue) and without (dashed red) climate change. Horizontal lines: sample averages. Panel (b): fraction of growth rate lost to climate change (annual growth loss out of 1960-2019 mean). Horizontal line: sample average. Dashed line: linear regression fit.
Panel (c): world output with (solid blue) and without (dashed orange) climate change, normalised to one in 1960.

- **The Role of Major Economies**
  - The **U.S., China, the EU, and G7 countries** contribute **over 50% of global emissions**.
  - These economies aim for **net-zero emissions by 2050**.
  - Trade conflicts between these nations **threaten the renewable energy transition**.
- **India's Energy Transition**
  - India's **"Panchamrit" climate goals** guide its shift towards **renewable energy**.

Chart V.7: India's installed capacity mix [2022 v. 2030]

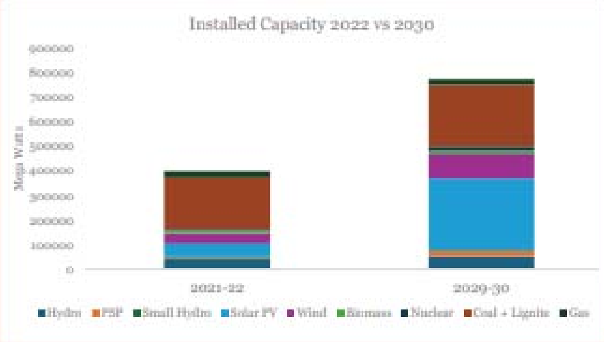
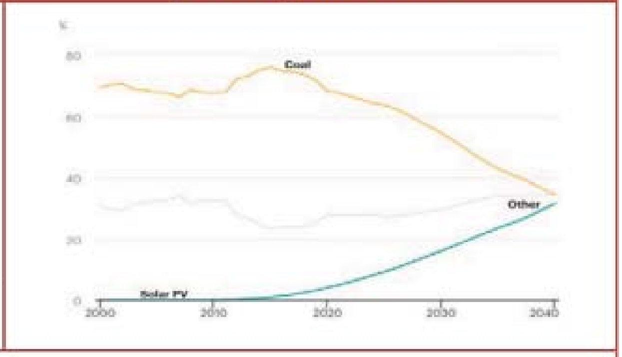


Chart V.8: Change in share of power generation



Source: Report on Optimal Generation Mix 2020 Ver 2.0, Central Electricity Authority, Ministry of Power

- By **2030**, India's **solar and wind energy capacity** will **increase**, while **coal dependency will decline**.

➤ **China's Dominance in Renewable Energy & Batteries**

- **Wind & Battery Manufacturing**
  - **60% of global wind capacity** comes from China.
  - **80% of global battery production** is based in China, essential for the energy transition.

➤ **Massive Investments**

Chart V.9: Solar PV manufacturing by country and region, 2010

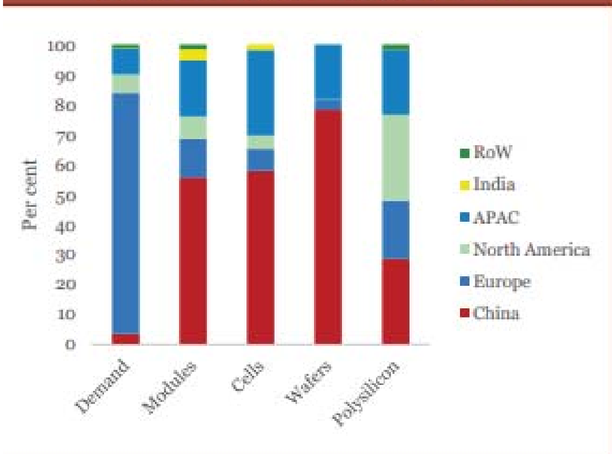
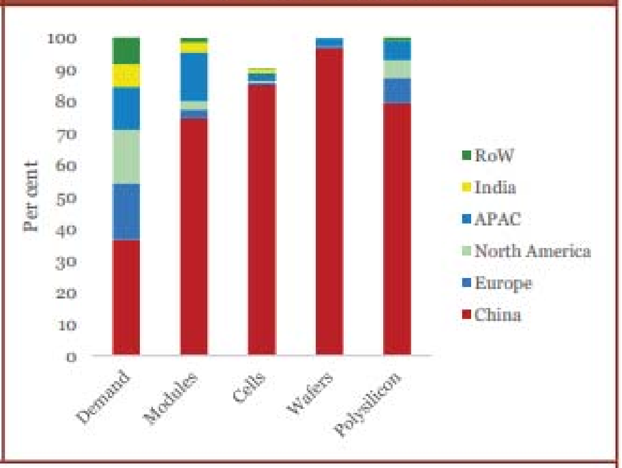


Chart V.10: Solar PV capacity by country and region, 2021



Source: International Energy Agency

- In **2022**, China invested **$546 billion** in **solar, wind, EVs, and batteries**, surpassing the **U.S. and EU's combined $321 billion** investment.
- **Solar & EV Supply Chain Control**
  - China **produces 80%** of key **solar PV components** and controls **primary materials, manufacturing, and recycling**.
  - It has a **vertically integrated** EV supply chain, from **mining raw materials to vehicle production**.
- **Rare Earth Minerals Monopoly**

Supply Chain Considerations for Electric Vehicles (EVs):

India's push for EV adoption is crucial to achieving its **Net Zero 2070** goal, as road transport accounts for **75% of transport emissions**. While the country has made strong progress in EV manufacturing, it faces supply chain challenges due to high dependency on **critical minerals**, **24 of which** are at **high risk of supply disruptions**. China dominates the global processing of **Nickel (65%)**, **Cobalt (68%)**, **Lithium (60%)**, and **Rare Earths (90%)**, making India vulnerable. To reduce risks, the government has launched **FAME India, PLI for Auto Components, and KABIL**, but **reliance on Chinese imports for key EV components is growing**. Future policies must **boost domestic R&D in advanced battery technologies**, **secure intellectual property**, and **promote battery recycling** to build a **self-reliant EV ecosystem**.

- China **processes 70%** of the world's **rare earth minerals**, essential for **high-storage batteries** and green technology

- Expanding **public transportation** is key to reducing reliance on imports for **E-Mobility**. While **more than 50%** of urban residents in **Brazil and China** have access to mass transit, India lags at **37%**. Investing in **integrated transport systems—**connecting **buses, metro, and other transit modes—** can improve accessibility, ease congestion, and support **Net Zero goals**.
- India has made **progress in renewable energy** through schemes like **PLI**, boosting **solar, wind, and battery storage** manufacturing. However, **75% of lithium-ion batteries** are still imported from **China**, and domestic production of **key solar components** is minimal.
- Disruptions in **critical mineral trade** could **reduce global EV and renewable investments by 30%** by 2030, as per the **IMF**. With **multilateral trade structures weakening**, India must strengthen **domestic capacities** to secure its **growth and energy goals**.

India's Growth Prospects and Key Reforms:

- India aims to become a **developed nation by 2047** under the **Viksit Bharat@2047** vision, requiring **8% annual GDP growth** and an **investment rate of 35% of GDP**. Key areas of focus include **manufacturing expansion, AI, robotics, biotechnology, job creation**, and **infrastructure development**.
- Over the last decade, India has introduced major **structural reforms**, including **GST, Insolvency and Bankruptcy Code (IBC), Real Estate Regulation Act (RERA), and digital initiatives (UID, UPI, and DBT)**. These reforms **enhanced ease of doing business, improved economic integration, and boosted investor confidence**.
- **MSMEs** play a crucial role in India's economy, but **regulatory burdens hinder their growth**. Many small firms **stay informal** to avoid compliance, limiting **access to capital, talent, and technology**. The **Jan Vishwas Act 2023** has begun **decriminalizing regulations**, and further steps like **Jan Vishwas 2.0** are needed to modernize policies.
- For sustained growth, India must **increase domestic manufacturing, improve workforce skills, address resource bottlenecks, and attract global green capital**. **Deregulation, reducing compliance burdens, and enhancing economic freedom** are essential to unlocking innovation, boosting employment, and ensuring inclusive development.

Enhancing Economic Freedom through Deregulation:

- The global economy is shifting, making traditional policy tools less effective. While **India must stay open to trade and investment**, it must also **focus on strengthening domestic growth** due to uncertain global conditions.
- To sustain **8% annual GDP growth**, India's **investment rate must rise to 35% of GDP**. However, rather than just increasing investment, **improving investment efficiency—**faster project execution and higher returns—will be crucial.
- India must **reduce regulatory burdens, streamline policies, and promote economic freedom** to boost entrepreneurship and productivity. Systematic **deregulation and policy reforms** will lower costs, encourage businesses, and drive **self-sustained growth**.

Deregulation & Economic Freedom: A Catalyst for Growth:

- Deregulation is **more crucial for MSMEs** than large enterprises, as compliance costs significantly impact smaller businesses. Over the past decade, India has taken steps to **reduce compliance burdens, simplify tax and labor laws, and digitize processes** to support MSMEs.
- States have also played a role by amending regulations to **ease business operations**, such as **simplifying building norms** (Haryana, Tamil Nadu, Punjab) and **relaxing work restrictions for women in ITES sectors** (Andhra Pradesh, Karnataka, Haryana). Business-friendly reforms have boosted **industrial activity and economic growth**, as shown in state rankings on ease of doing business.
- However, **many outdated regulations still hinder growth** by raising costs, limiting economies of scale, discouraging job creation, and forcing businesses into informal employment. **Rigid labor laws, zoning restrictions, and operational regulations** increase compliance costs, stifle innovation, and restrict apprenticeships.
- To unlock **faster economic growth**, both the **Union and state governments must continue deregulation efforts**. Regulations should be **minimal yet effective**, ensuring MSMEs can **compete, expand, and drive employment** without unnecessary bureaucratic hurdles. The **next phase of reforms must focus on systematic deregulation** to unleash India's full economic potential.

Three-Step Process for Systematic Deregulation by States

- **Identify Areas for Deregulation**: States should focus on identifying areas where regulations increase costs and hinder business growth, such as permits, standards, fees, and inspections. Simplifying these mandates, revising licensing norms, and introducing procedural safeguards can reduce the burden on businesses. States can target areas like **land use**, **building codes**, and **labour laws** for deregulation.
- **Learn from Inter-State and International Comparisons**: States should study other states' deregulation experiences to learn effective solutions. For example, states like Andhra Pradesh and Karnataka have relaxed night-shift restrictions for women in certain industries. International examples, like Japan's mixed-use development and Korea's flexible working hours, can also provide useful insights.
- **Estimate the Cost of Regulations**: States must assess the **costs** of regulations, including monetary costs, lost opportunities, and enforcement burdens. For example, setback regulations for factories cause significant opportunity costs. States should evaluate each regulation's real impact on businesses, considering both **direct** and **indirect** costs, and avoid setting unrealistic standards that overburden businesses.

Next Phase of Ease of Doing Business (EoDB) Reforms for States:

- **Liberalizing Standards and Controls**: States should reduce the cost of compliance by simplifying standards and regulations. Businesses often spend time and resources on compliance, which hinders growth. Regulations should only impose the minimum cost necessary to achieve social objectives.
- **Setting Legal Safeguards for Penalties and Enforcement**: States should make enforcement actions (like fines or license cancellations) more transparent and accurate to avoid hampering business operations. This improves the investment climate by ensuring businesses can operate without fear of arbitrary actions.
- **Reducing Tariffs and Fees**: States should consider reducing tariffs and taxes that increase operational costs for businesses. Rationalizing these costs based on national or international standards can enhance the competitiveness of Indian businesses.
- **Applying Risk-Based Regulation**: States should apply different regulations based on the level of risk a business poses (e.g., fire or pollution risks). High-risk businesses would face stricter regulations, while low- and medium-risk businesses would experience lower compliance costs, optimizing both public safety and resources.

Making a Case for EoDB 2.0:

- **Liberalizing Standards and Controls**
  - **Women in Factory Processes**: States prohibit women from certain factory jobs (e.g., abrasive blasting, lead manufacturing), often without scientific evidence of specific health risks. Removing these prohibitions would enable women to access higher-paying jobs and reduce counterproductive restrictions.
  - **Rationalizing Parking Norms**: Current parking regulations force commercial buildings to use more land than necessary, raising costs and wasting space. Relaxing these norms would improve land use efficiency, especially in industries like tourism, hospitality, and IT.
- **Setting Legal Safeguards for Penalties and Enforcement:**
  - **Safeguards for Administrative Action**: States often take punitive actions (e.g., building sealing or demolition) without following due process. Ensuring procedural safeguards like show-cause notices and the right to appeal can reduce legal risks and foster a more predictable investment environment.
- **Reducing Tariffs and Fees**
  - **Electricity Tariffs**: High electricity markups on industrial users (10-25% higher than supply costs) discourage formal operations and growth. Lowering electricity tariffs would improve competitiveness, as seen in countries like Vietnam, where electricity prices are set below generation costs.
- **Applying Risk-Based Regulation**
  - **Private Sector in Building Approvals**: States limit private sector involvement in building safety enforcement, which strains government resources. Allowing private parties to handle approvals and inspections can enhance efficiency and safety, as demonstrated by countries like Australia and Canada.
  - **Fire NOC Validity**: Short validity periods for Fire NOCs lead to repetitive applications and increased costs. Extending validity would reduce administrative burdens and compliance costs without compromising safety.

Renewed Paradigm for Medium-Term Growth:

- **Importance of Systematic Deregulation**:
  - States must prioritize deregulation to enhance economic freedom, focusing on laws that affect land, labor, and building regulations, which influence all enterprises.
  - Deregulation can reduce compliance costs, boost innovation, and improve competitiveness, leading to growth and new opportunities.
- **Role of Small and Medium Enterprises (SMEs)**:
  - Deregulation helps India's **Mittelstand** (SME sector), which can drive innovation, manufacturing, and exports. This sector is crucial for sustainable, employment-sensitive growth, as SMEs balance capital and labor-intensive growth.
- **Global Examples of Deregulation**:
  - Countries like the **U.S.**, **U.K.**, **Argentina**, and **New Zealand** have implemented sustained deregulation programs to improve efficiency and reduce burdens on businesses. India can learn from these models for better governance.
- **Urgency for Deregulation**:
  - In a challenging global environment, deregulation is essential to unlock growth and ensure other policy measures succeed. A balanced approach to regulation can unleash the potential of small businesses and stimulate innovation.

- **Benefits of Deregulation**:
  - **Increased Trust and Compliance**: Deregulation improves government-business relations, fostering trust and better compliance.
  - **Cumulative Impact**: Simplifying regulations often makes future reforms easier.
  - **Ripple Effect**: Small deregulation efforts can lead to significant entrepreneurial, investment, and innovation growth.

PRELIMS PRACTICE QUESTION

Q1: Which of the following statements about India's medium-term economic outlook are correct?

1. India aims to become a developed nation by 2047, with an average growth rate of 8% for the next 10-20 years.
2. The IMF projects India's GDP to reach $5 trillion by FY30 and $6.3 trillion by FY35.
3. The IMF expects India's nominal GDP to grow at an average annual rate of 10.7% over the next five years.
4. The Ministry of Statistics estimates India's GDP growth to be 6.4% in FY25, with projections of 6.3% to 6.8% for FY26.

Select the correct answer using the codes below:

(a) 1, 3, and 4 only

(b) 2, 3, and 4 only

(c) 1, 2, and 4 only

(d) 1, 3, and 2 only

Q2: Which of the following is NOT a factor contributing to India's energy transition challenges?

1. India's dependence on coal for energy generation.
2. India's lack of renewable energy infrastructure.
3. Reliance on Chinese imports for key components like lithium-ion batteries and solar PV components.
4. The rapid growth of domestic renewable energy production.

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 and 4 only

(c) 3 only

(d) 1, 3, and 4 only

Q3: Which of the following statements are correct regarding the role of deregulation in India's medium-term growth?

1. Deregulation is particularly beneficial for large enterprises as they are less affected by compliance burdens.
2. Deregulation can help reduce costs, encourage business activity, and stimulate economic growth.
3. State governments have already implemented significant deregulation to improve the ease of doing business.
4. Deregulation focuses only on removing tax-related barriers and does not affect labor or building regulations.

Select the correct answer using the codes below:

(a) 1 and 2 only

(b) 2 and 3 only

(c) 3 and 4 only

(d) 2 and 3 only

Q4: Which of the following statements is true regarding the global economic impact of Geo-Economic Fragmentation (GEF)?

1. GEF disrupts global trade by increasing trade barriers and limiting productivity gains.
2. The rise in geopolitical tensions has led to a significant reduction in foreign direct investment (FDI) worldwide.
3. GEF has a limited impact on global trade as most countries still rely on open markets.
4. Trade fragmentation is expected to result in an estimated global GDP loss of 0.2% to 7%.

Select the correct answer using the codes below:

(a) 1 and 4 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 3 and 4 only

Q5: Which of the following are essential steps for systematic deregulation in India's states?

1. Identifying areas where regulations hinder business growth.
2. Learning from inter-state and international experiences to improve deregulation.
3. Estimating the cost of regulations to evaluate their real impact.
4. Applying uniform regulations across all sectors to streamline processes.

Select the correct answer using the codes below:

(a) 1, 2, and 3 only

(b) 2, 3, and 4 only

(c) 1, 3, and 4 only

(d) 1 and 4 only

ANSWERS

1. (a)	**2.** (b)	3. (d)	4. (a)	5. (a)

MAINS PRACTICE QUESTION

Q6: What are the key reforms and policy changes needed in India to sustain its medium-term growth and achieve the Viksit Bharat vision by 2047?

Q7: How does the trend of Geo-Economic Fragmentation (GEF) impact global trade, and what are the implications of this fragmentation for emerging economies like India?

Q8: In what ways can deregulation help boost the growth of India's MSMEs, and what are the primary challenges these businesses face due to regulatory burdens?

Q9: What role does China play in the global energy transition, and how might India overcome its dependence on Chinese imports for critical green technologies like solar components and batteries?

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CHAPTER: 6

INVESTMENT AND INFRASTRUCTURE: KEEPING IT GOING

Key-Terms

- **Capital Expenditure (CapEx):** Capital expenditure refers to the funds used by an organization to acquire, upgrade, and maintain physical assets such as property, industrial buildings, or equipment.
- **Public-Private Partnership (PPP):** A cooperative arrangement between the public and private sectors, typically involving infrastructure projects where both sectors share risks, costs, and benefits.
- **Net Zero Carbon Emission:** The goal of balancing the amount of carbon emitted into the atmosphere with an equivalent amount of carbon removed, aiming for no net contribution to global warming.
- **Dedicated Freight Corridors (DFCs):** Specialized railway corridors for freight transportation, designed to improve the movement of goods by separating them from passenger trains, enhancing logistics.
- **Electronic Interlocking (EI):** A railway safety system that electronically manages train signals to ensure safe train movement and prevent accidents.
- **Automatic Block Signalling (ABS):** A train signalling system that automatically controls the movement of trains on a given track, ensuring safe distance and preventing collisions.
- **Multi-Modal Logistics Parks (MMLP):** Integrated logistics hubs that combine different modes of transportation (road, rail, air, and sea) to facilitate seamless movement of goods and reduce supply chain costs.
- **GI Cloud (MeghRaj):** A cloud computing initiative for providing Information and Communications Technology (ICT) services to government departments, enabling data sharing and better resource management.

Chapter at a Glance

Overview of Infrastructure Investment:

- **Capex:** 38.8% increase in infrastructure investment from FY20 to FY24.
- **NIP:** ₹111 lakh crore for 9,766 projects from FY20 to FY25.
- **NMP**: ₹6 lakh crore target from FY22 to FY25, with ₹3.86 lakh crore raised by FY24.

- **Infrastructure Gap:** Requires innovative financing and more private investment to meet developed nation status.

Physical Connectivity:

- **Railways:** Expansion with 17 new Vande Bharat trains and significant safety upgrades.
- **Roads:** National highways increased from 91,287 km (2014) to 146,000 km (2024), with key projects like Bharatmala and Char Dham.
- **Aviation & Ports:** ₹91,000 crore investment in aviation and port modernization under Sagarmala, including inland waterways projects.

Power & Renewable Energy:

- Installed capacity reached 456.7 GW by November 2024, with a 15.8% rise in renewable energy.

Digital Connectivity:

- 5G services launched nationwide, and significant advancements in rural connectivity and optical fiber networks.

Rural and Urban Infrastructure:

- **Rural:** 79.1% of households with tap water, SBM rural success.
- **Urban:** Smart Cities Mission completed 7,479 projects; PMAY-U targets 2.18 crore houses.

Tourism and Space Infrastructure:

- **Tourism:** Initiatives like PRASHAD and Swadesh Darshan 2.0 boost sustainable tourism.
- **Space:** ISRO's space assets support infrastructure monitoring.

INTRODUCTION:

- India needs significant infrastructure investment for its development. To achieve this, the government has increased capital expenditure on infrastructure by 38.8% from FY20 to FY24.
- The National Infrastructure Pipeline (NIP) was launched to invest ₹111 lakh crore from FY20 to FY25, tracking over 9,766 projects across 37 sectors.
- The National Monetisation Pipeline (NMP), started in 2021, aims to attract private investment in assets, targeting ₹6 lakh crore from FY22 to FY25. By FY24, ₹3.86 lakh crore has been raised, mainly in roads, power, and coal.
- Despite these efforts, there remains a significant infrastructure gap. India's goal of becoming a developed nation requires innovative financing and more private investment.

INFRASTRUCTURE CAPEX IMPROVES POST-ELECTION:

- In Q1FY25, the Union Government's infrastructure spending was slow due to the general elections and unusual monsoon conditions. Therefore, comparing this period with previous years may not be meaningful.
- After the elections, infrastructure capital expenditure increased from July to November 2024. On average, 60% of the budgeted capex was utilized during April to November 2024, showing better progress compared to the same period in FY20.

PHYSICAL CONNECTIVITY:

- **Railways:** 6.8 In FY25, railway network expansion remained steady, while the addition of rolling stock increased significantly. From April to October 2024, 17 new pairs of Vande Bharat trains were added, and 228 coaches were produced.

RECENT DEVELOPMENTS IN RAILWAYS:

Initiatives:

- **Gati Shakti Multi-Modal Cargo Terminal (GCT):** 91 GCTs launched, and 234 locations approved by October 31, 2024.
- **Net Zero Carbon Emission:** Indian Railways aims for 30 GW of renewable energy by 2029-30. As of October 2024, 375 MW of solar and 103 MW of wind energy have been commissioned.
- **Major Economic Corridors:** 434 projects worth ₹11.17 lakh crore identified across three railway corridors under PM GatiShakti.
- **Public-Private Partnership (PPP):** 17 completed projects (₹16,434 crore) and 8 ongoing projects (₹16,614 crore) under the PPP model.

Major Projects:

- **Mumbai-Ahmedabad High-Speed Rail Project:** 508 km project, ₹1.08 lakh crore cost, with 47.17% physical progress and ₹67,486 crore spent as of October 2024.
- **Dedicated Freight Corridors (DFCs):** 2,741 km (96.4%) of the 2,843 km DFC network commissioned by November 2024, improving logistics by separating freight from passenger trains.

Steps to Enhance Passenger Amenities in Railways:

- **Amrit Bharat Station Scheme:** 1,337 stations identified for redevelopment; work started in 1,197 stations.
- **PM Bhartiya Janaushadhi Kendras (PMBJKs):** 50 PMBJKs started at railway stations; 18 new ones inaugurated on November 13, 2024, providing affordable medications and healthcare.
- **Food and Catering Services:** New policy for mobile catering introduced; 557 Base Kitchens established, servicing 468 train pairs.
- **One Station One Product Scheme:** Operational at 1,900 stations, with 2,163 outlets benefiting 79,380 local artisans.
- **Passenger Amenities:** Train Indication Boards at 1,351 stations, Coach Guidance Systems at 866 stations, and Wi-Fi at 6,112 stations to enhance passenger experience.

Key Initiatives to Improve Signalling Systems in Railways:

- **Elimination of Mechanical Signalling:** Replacing with Electrical/Electronic Interlocking; 25 out of 62 stations upgraded in FY25, 9 zonal railways now free from mechanical signalling.
- **Kavach:** ₹1,547 crore invested in this Automated Train Protection system; version 4.0 approved in July 2024.
- **Electronic Interlocking (EI):** Installed at 227 stations in FY25, total coverage now 3,576 stations; first Direct Drive Interlocking system commissioned at Tajpur in November 2024.
- **Automatic Block Signalling (ABS):** Installed on 720 route km in FY25, total coverage now 4,906 km on high-density routes.
- **Signal Design Automation Tool:** Automates route control chart generation for station yards; version 5.0 released in September 2024.

Road Transport in India:

- India has a road network of 63.4 lakh km, with 146,195 km dedicated to National Highways (NH), which make up 2% of the total network but carry 40% of road freight traffic.
- The **National Industrial Corridor Development Programme** aims to develop advanced industrial cities as major manufacturing hubs. Phase 1 involves 383 plots (3,788 acres) for industries in sectors like electronics, renewables, automobiles, and pharmaceuticals.

- Key cities for industrial development include Dholera (Gujarat), Shendra Bidkin (Maharashtra), Greater Noida (Uttar Pradesh), and Vikram Udyogpuri (Madhya Pradesh). Work is also ongoing in Tumakuru (Karnataka), Krishnapatnam (Andhra Pradesh), Nangal Choudhary (Haryana), and Dadri (Uttar Pradesh). Additionally, 12 new industrial cities have been approved with Industry 4.0 standards.

National Highway Development:

India's national highway development has shifted from a project-based to a corridor-based approach, boosting highway length from 91,287 km in 2014 to 146,000 km in 2024. Key initiatives include:

- **Bharatmala Pariyojana**: Aimed at developing 34,800 km of highways, with 76% of projects awarded and 18,926 km completed by 2024.
- **Char Dham Mahamarg Pariyojna**: Connecting the four holy dhams with 825 km of roads; 620 km completed by 2024.
- **National High-Speed Corridors (HSCs)**: Expanded from 93 km in 2014 to 2,474 km in 2024.
- **4-lane and above highways**: Grew from 18,300 km to 45,900 km between 2014 and 2024.

Key initiatives to improve road connectivity and logistics efficiency include:

- **Advanced Traffic Management**: Installed on 4,000 km of national highways for better traffic control and emergency response.
- **Multi-Modal Logistics Parks (MMLP)**: Six parks in Chennai, Indore, Nagpur, Jalna, Jogighopa, and Bangalore awarded by December 2024.
- **National Highway Maintenance**: Managed through Performance-Based Maintenance Contracts (PBMC) and long-term contracts under the Toll Operate and Transfer model.
- **Vehicle Scrapping Policy**: 82 Registered Vehicle Scrapping Facilities (RVSFs) operational, scrapping 1.62 lakh vehicles, with 65 more facilities under construction.
- **Ropeway Projects**: Fifteen projects in progress, including at Varanasi and Ujjain, with ten more under bidding.

Civil aviation:

- **Capital Expenditure**: Over ₹91,000 crore investment plan from FY20 to FY25, with 91% completed by November 2024.
- **Regional Connectivity (UDAN Scheme)**: 619 routes connecting 88 airports, including two water aerodromes and 13 heliports.
- **Cargo Handling**: Airport cargo capacity reached 8.0 million MT in FY24.

Ports and shipping:

- **Increased Port Capacity**: Enhanced operational efficiency and reduced container turnaround time.
- **Sagarmala Programme**: Focuses on harnessing India's coastline and waterways to improve logistics.
- **Key Progress**: Successful port modernisation, port-led industrialisation, improved connectivity, and development in coastal communities and inland water transport.

Key achievements and initiatives in the port sector:

- **Infrastructure Development:**
  - **Vadhavan Mega Port:** ₹76,000 crore investment for nine container terminals.
  - **Tuticorin International Container Terminal:** Inaugurated in September 2024, with a capacity of 6 lakh TEUs annually.
  - **Outer Harbour at Tuticorin:** Adding 4 million TEUs capacity with two new terminals.

- **Port-Led Industrialisation:**
  - **New Industrial Cities:** 12 smart cities approved with ₹28,602 crore investment.
  - **Salt Lands Utilisation:** 25,000 acres of salt lands identified for port infrastructure.
- **International Linkages:**
  - **Chabahar Port:** Increased vessel and container traffic through the INSTC route, connecting Mumbai to Eurasia.
  - **Sittwe Port (Myanmar):** Part of the Kaladan Project, offering an alternative route to North East India.
- **PPP Projects:**
  - **Approved PPP Projects:** 98 projects worth ₹69,800 crore, including 23 captive projects.
  - **Operational Projects:** 56 projects worth ₹41,480 crore, adding 550 MTPA to port capacity.

Key initiatives in inland waterways transformation:

- **Harit Nauka Guidelines**: Launched in January 2024 to green 1,000 inland vessels over the next 10 years.
- **Cargo Promotion Scheme**: Encourages cargo owners to shift from rail/road to inland waterways for sustainability.
- **River Cruise Tourism**: Boosted tourism with 82,587 day cruise passengers and a fivefold increase in night cruise passengers (11,431 in FY24).
- **Jal Marg Vikas Project (NW-1)**: Improves cargo transport on the Ganga-Bhagirathi-Hooghly river system, 65% progress, ₹5,061.15 crore cost.
- **Jal Marg Vikas Project II (Arth Ganga)**: Focuses on sustainable development, with 49 out of 60 community jetties commissioned.

Power Sector:

- The power sector saw a 7.2% year-on-year increase in installed capacity, reaching 456.7 GW by November 2024. While transformation capacity grew, the addition of transmission lines was slowed due to heavy monsoon conditions.
- By December 2024, India's renewable energy capacity grew by 15.8%, reaching 209.4 GW, up from 180.8 GW in December 2023. Renewable energy now accounts for 47% of the country's total installed capacity, reflecting a shift towards cleaner energy sources.
- The Government of India has invested ₹1.85 lakh crore in initiatives like DDUGJY, IPDS, and SAUBHAGYA to improve electricity distribution. As a result, 18,374 villages were electrified under DDUGJY, and 2.9 crore households gained access to electricity via SAUBHAGYA.
- The **Revamped Distribution Sector Scheme, launched in 2021** with a ₹3 lakh crore budget, aims to enhance power supply quality and efficiency. It has led to improvements in daily power supply: **urban areas saw an increase from 22.1 to 23.4 hours**, and rural areas from 12.5 to 21.9 hours. The gap between energy demand and supply reduced **from 4.2% in FY14 to just 0.1% by December 2024.**

In February 2024, several measures were introduced to improve energy infrastructure and consumer experience:

- **Rooftop Solar PV Simplification**: Rules were updated to speed up rooftop solar installations. Systems up to 10 kW no longer need feasibility studies, and commissioning timelines for larger systems were reduced.
- **EV Charging Connections**: Consumers can now get separate electricity connections for electric vehicle charging, aiding India's Net Zero goal.
- **Faster New Connections**: New electricity connections are now provided within three days in metros, seven days in municipalities, and fifteen days in rural areas.

- **Metering Choice**: Residents of group housing can choose between individual or single-point connections, offering more flexibility and transparency.
- **Meter Reading Accuracy**: If a meter reading is disputed, an additional meter must be installed within five days to verify consumption over three months.

Digital connectivity:

- Digital connectivity has made major advancements in digital inclusion, technological innovation, and regulatory reforms this fiscal year, all in line with the government's vision for a Digital India.

Telecommunications:

- By October 31, 2024, 5G services were launched in all states and union territories, covering 779 out of 783 districts. Over 4.6 lakh 5G Base Transceiver Stations (BTSs) have been installed.
- The Union Cabinet approved a project in July 2022 to provide 4G services to 24,680 uncovered villages and upgrade 6,279 villages with 2G/3G networks. By December 2024, 7,815 sites covering 10,706 villages were commissioned.
- In August 2024, the Universal Service Obligation Fund was renamed Digital Bharat Nidhi to support telecom services and infrastructure in rural and remote areas.
- Key efforts to improve telecom connectivity in challenging areas include:
  - **Bharat Net Project**: 6.92 lakh km of optical fiber laid, with 2.14 lakh Gram Panchayats (GPs) service-ready, including 5,032 via satellite. 12.04 lakh FTTH connections installed.
  - **North-East Telecom Development**: 1,358 mobile sites set up, covering villages and highways. Arunachal Pradesh and Assam have 671 towers serving 1,178 villages; Meghalaya has 433 towers serving 622 villages.
  - **Island Connectivity**:
    - **Andaman & Nicobar:** Submarine OFC completed with 205 Gbps bandwidth and 4 Gbps satellite bandwidth.
    - **Lakshadweep:** Submarine OFC (1,869 km) commissioned, enabling 5G and FTTH.
  - Mobile Services in Remote Areas:
    - **Border Villages:** 319 villages covered with 4G (295 towers).
    - **LWE-Phase I & II:** 297 towers upgraded to 4G, and 1,106 towers covering 1,162 locations.
    - **Aspirational Districts:** 215 towers for 251 villages and 2,497 sites covering 3,804 villages across multiple states.

Information and technology:

- The **GI Cloud (MeghRaj)** initiative provides ICT services through cloud computing to government departments. As of November 2024, the National Informatics Centre supports 1,917 applications on the cloud, with 23 public and private cloud service providers empanelled to meet departmental needs.
- India's data center market is growing rapidly, with colocation capacity reaching 977 MW in 2023, a 105% increase from the previous year.
- An additional 1.03 GW is under construction for 2024-2028, with plans for 1.29 GW more. The market is projected to grow from $4.5 billion in 2023 to $11.6 billion by 2032, at a CAGR of 10.98%.
- India's relatively low construction costs and affordable real estate contribute to its growth, with a median cost of $6.8 million per MW in 2023, lower than in Australia, Japan, and Singapore.

Rural Infrastructure:

Rural Drinking Water and Sanitation

- The **Jal Jeevan Mission (JJM), launched in 2019**, aims to provide reliable access to safe piped drinking water in rural areas.

- As of **November 2024, 79.1% of rural households (15.30 crore) have tap water connections, up from 17% at launch.**
- **Eight states and three union territories have achieved 100% coverage.** The mission has improved water quality, especially in arsenic and fluoride-affected areas, with 69.23 lakh households now receiving safe water. Additionally, 618 community water purification plants have been installed.
- The Swachh Bharat Mission–Grameen (SBM-G) Phase II, focusing on converting open defecation-free villages to ODF Plus, has made progress.
- By **November 2024, 1.92 lakh villages were declared ODF Plus,** bringing the total to 3.64 lakh. ODF Plus villages maintain cleanliness, manage solid and liquid waste, and promote sanitation awareness.

Urban Infrastructure:

Swachh Bharat Mission-Urban:

Chart VI.21: Achievements of the Smart Cities mission*

Integrated Command and Control Centres	•Operational in 100 cities. Used for urban management in crime tracking, safety, transport, disaster management, etc.
Public Safety	•83,000+ CCTV cameras, 1,884 emergency call boxes, public address systems, and traffic enforcement tools installed
Public Safety	•1,200+ projects completed, 318 km of waterfronts developed, •484 heritage sites conserved
Water Supply	•17,000 km of water supply monitored via SCADA in 31 cities, reducing water loss and leaks.
Solid Waste Management	•ICCCs and 9,000 RFID-enabled vehicles in 48 cities optimized waste collection.
Streetlights	•16 lakh solar/LED streetlights installed across 79 cities.
Mobility	•1700 km of smart roads, shared bicycles (23,000), buses (1,500+), bus stops (2,000+), ITMS in 35 cities.
Affordable Housing	•35,000+ affordable housing units built in 23 cities.
Smart Solutions	•9,400 Wi-Fi hotspots and 83,000 CCTV cameras created.
Health	•3,100+ hospital beds, 172 e-health centers, 155 health ATMs, and 300 sports facilities added.
Education	•9,400 smart classrooms in 2,300 schools, digital libraries, and Anganwadis developed.
PPP Projects	•199 projects worth ₹9,200 crores implemented in 50+ cities.
Economic Hubs	•Incubation projects and skill centers developed, supporting 1,400+ startups and 20,000+ vendors.

Source: Ministry of Housing and Urban Affairs
Note: * As of 18 Nov 2024

- Building on the success of the Open Defecation Free (ODF) nation through the Swachh Bharat Mission (SBM-U), SBM-Urban 2.0 was launched in 2021. It envisions creating 'garbage-free cities', integrating waste management and sanitation practices aligned with sustainability and circular economy principles.

- The impact of SBM-U has been widely recognized, with the 78th NSS report showing that 97% of urban households have access to toilets. The Niti Aayog Sector Report (2021) highlighted that SBM-U aligns well with sustainable development goals and national priorities. To further enhance urban sanitation, the government introduced the ODF, ODF+, ODF++, and Water+ protocols to assess urban local bodies based on standardized sanitation parameters.
- **ICT-enabled tools for SBM-U:** The Swachhata App has 2.08 crore users, resolving 2.39 crore complaints out of 2.55 crore. The Google toilet locator has mapped 67,407 toilets across 3,326 cities, including in hospitals, malls, and stations.
- **Pradhan Mantri Awas Yojana – Urban (PMAY-U):** Launched in 2015, it has sanctioned 1.18 crore houses, with 89 lakh completed. PMAY-U 2.0, launched in September 2024, aims to assist 1 crore additional households, with agreements signed in 29 states and UTs.
- **Urban Transport:** Metro and rapid rail systems are operational or under construction in 29 cities, with 1,010 km operational and 980 km underway. Daily ridership reached 10.2 million in FY25, saving on emissions and costs.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Launched in 2015, it improved urban water and sewerage management, increasing tap water coverage to 70% and sewerage to 62%. AMRUT 2.0, launched in 2021, covers all towns and cities, with ₹1.89 lakh crore invested in 8,923 projects.
- **Smart Cities Mission:** Launched in 2015, it focuses on developing smart cities with essential infrastructure. As of January 2025, 8,058 projects worth ₹1.64 lakh crore have been proposed, with 7,479 projects worth ₹1.50 lakh crore completed.
- **Real Estate:** As of January 6, 2025, RERA rules have been implemented in all states and UTs (except Nagaland). Around 1.38 lakh real estate projects and 95,987 agents have been registered under RERA. Additionally, 1.38 lakh complaints have been resolved.
- Several initiatives are driving sustainable urban development in India, focusing on climate resilience, data-driven governance, and infrastructure improvement:
  - **CSCAF**: Launched in 2019 to enhance climate-sensitive development in cities, with CSCAF 2.0 evaluating 126 cities across five thematic areas.
  - **DataSmart Cities**: Promotes data-driven governance and assesses cities' readiness for data solutions.
  - **National Urban Innovation Stack**: Supports collaboration in urban ecosystems using urban data.
  - **National Urban Learning Platform**: Provides capacity-building for urban local bodies.
  - **City Investments Challenge**: Funds innovative, climate-resilient urban projects, with a second phase approved in 2023.
  - **TULIP Internship Programme**: Connects youth with urban local bodies to enhance skills, with over 49,000 internships posted.
  - **National Urban Digital Mission**: Aims to establish digital infrastructure across cities for improved governance and services by 2024.

Tourism Infrastructure:

- The government has introduced several initiatives to promote domestic tourism. Pilgrimage Rejuvenation and Spiritual Augmentation Drive (PRASHAD) aims to develop tourism infrastructure at identified pilgrimage destinations and heritage cities.
- The Government's **Swadesh Darshan Scheme 2.0** (launched in 2022) focuses on developing sustainable tourism destinations through theme-based circuits. 34 projects have been approved with ₹793.2 crore funding. Additionally, 40 projects across 23 states have been approved for interest-free loans of ₹3,295.8 crore to create world-class tourist centres and promote tourism development.

Space Infrastructure:

- **India operates 56 active space assets**, including: 19 communication satellites, 9 navigation satellites, 4 scientific satellites, 24 earth observation satellites
- ISRO has added a small satellite launch vehicle. New Space India Limited (NSIL) launched 72 OneWeb satellites and recently the GSAT-20 satellite with SpaceX.
- **Space-based infrastructure monitoring platforms:**
  - **Bhuvan Platform**: Supports schemes like MGNREGA and PMKSY for infrastructure monitoring.
  - **Electrical Infrastructure**: Aids Maharashtra and Telangana with electrical infrastructure management via Web-GIS.
  - **NyayaVikas Portal**: Tracks 2,840 judicial projects using Web GIS and mobile geotagging.
  - **Urban Geospatial Databases**: Provides 2D geospatial data for urban planning in 238 AMRUT cities.

Conclusions and Way Forward:

- The government is prioritizing infrastructure development, with capital expenditure for FY25 set to be 3.3 times higher than FY20. While Q1FY25 was impacted by elections and heavy monsoons, infrastructure spending accelerated between July and November 2024.
- Key indicators like railways, port capacity, and power infrastructure improved in FY25, though highway and railway additions were slightly lower. Overall, infrastructure development is on track despite early-year setbacks.
- Sustainable materials and processes are being prioritized in projects like highways, waterways, power capacity, and waste management, which should be widely adopted.
- India needs sustained infrastructure investment over the next two decades to support growth. Focus areas include multi-modal transport, modernizing assets, disaster-resilient urbanization, rural infrastructure, and renewable energy for Net Zero goals.
- Public sector efforts alone won't meet these needs. Private participation is essential for planning, financing, construction, and maintenance of critical infrastructure.
- The government is supporting PPP models like build-operate-transfer and hybrid annuity. However, private sector involvement is still limited in core sectors.
- To boost private participation, coordinated efforts are needed from all stakeholders—governments, financial institutions, project managers, and the private sector. Enhancing project planning, risk-sharing, contract management, and expertise in execution will be key.

PRELIMS PRACTICE QUESTION

Q1: Which of the following statements about India's infrastructure development and related efforts are correct?

1. The National Infrastructure Pipeline (NIP) was launched to invest ₹111 lakh crore from FY20 to FY25, tracking over 9,766 projects across 37 sectors.
2. India has shifted from a project-based approach to a corridor-based approach in its national highway development, increasing the national highway length from 91,287 km in 2014 to 146,000 km in 2024.
3. The Dedicated Freight Corridor (DFC) network in India has completed only 60% of its 2,843 km target by November 2024.

Choose the correct option below:

(a) 1 and 2 only

(b) 2 only

(c) 2 and 3 only

(d) 3 only

Q2: Which of the following developments in India's railway infrastructure are true as of November 2024?

1. Indian Railways aims for 30 GW of renewable energy by 2029-30, with 375 MW of solar and 103 MW of wind energy commissioned by October 2024.
2. The Mumbai-Ahmedabad High-Speed Rail Project is completed as of November 2024, with 100% physical progress.
3. Under the Public-Private Partnership (PPP) model, 17 projects worth ₹16,434 crore have been completed, with another 8 ongoing projects worth ₹16,614 crore.

Which of the following statement is/are correct?

(a) 1 and 3 only

(b) 2 and 3 Only

(c) All statements are correct

(d) 1 Only

Q3: Which of the following statements about India's power sector are correct as of December 2024?

1. India's installed renewable energy capacity has grown by 15.8%, reaching 209.4 GW by December 2024.
2. The government invested ₹3 lakh crore under the Revamped Distribution Sector Scheme, leading to significant improvements in power supply and reducing the gap between demand and supply.
3. The electric vehicle (EV) charging infrastructure is being developed with the aim of achieving net-zero emissions, and separate electricity connections are available for EV charging.

Which of the following statement is/are correct?

(a) 1 Only

(b) 1 and 2 Only

(c) 2 and 3 Only

(d) 1, 2, and 3 are correct

Q4: Which of the following are key initiatives to improve road connectivity and logistics efficiency in India?

1. The Bharatmala Pariyojana aims to develop 34,800 km of highways, with 76% of the projects awarded and 18,926 km completed by 2024.
2. The Multi-Modal Logistics Parks (MMLP) project has already established 12 parks across various states, with six of them awarded by December 2024.
3. The National Highway Development has focused exclusively on increasing the number of 4-lane highways, while the development of other types of highways is not a priority.

Which of the following statement is/are correct?

(a) 1 and 2 Only

(b) 3 Only

(c) 1, 2, and 3 are correct

(d) 1 Only

Q5: Which of the following statements about India's digital connectivity initiatives are correct?

1. By October 31, 2024, 5G services were launched in all states and union territories, covering 779 out of 783 districts.
2. The Bharat Net Project has laid 6.92 lakh km of optical fiber, providing connectivity to 12.04 lakh FTTH (Fiber to the Home) connections.

3. The GI Cloud (MeghRaj) initiative supports 1,917 applications on the cloud, helping the government deliver services through cloud computing.

(a) Only 1 and 2 are correct

(b) Only 2 and 3 are correct

(c) All statements are correct

(d) Only 1 is correct

ANSWERS

1. (a)	**2.** (a)	3. (d)	4. (a)	5. (c)

MAINS PRACTICE QUESTION

Q1: What are the key objectives of the National Infrastructure Pipeline (NIP) and National Monetisation Pipeline (NMP), and how do they contribute to India's infrastructure development?

Q2: How has the Union Government's infrastructure capital expenditure progressed in FY25, especially after the elections and during the monsoon season?

Q3: What recent developments have been made in the Indian Railways sector to improve connectivity, passenger amenities, and sustainability?

Q4: How is the government addressing rural infrastructure needs, particularly in drinking water and sanitation, under initiatives like the Jal Jeevan Mission and Swachh Bharat Mission-Grameen?

Q5: What are the key initiatives under India's Smart Cities Mission, and how are they contributing to sustainable urban development and climate resilience?

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CHAPTER: 7

INDUSTRY: ALL ABOUT BUSINESS REFORMS

Key-Terms

- **Capital Goods:** Goods used in the production of other goods and services, such as machinery and equipment used by industries.
- **Consumer Goods**: Products bought and used by consumers for personal use, including food, clothing, and electronics.
- **Technical Textiles:** Fabrics and textiles that are engineered for specific technical functions, such as in the automotive, medical, or construction industries.
- **CAR-T Cell Therapy**: It is a form of immunotherapy that modifies a patient's T-cells to fight cancer more effectively.
- **Production Linked Incentive scheme (PLI)**: PLI scheme aims to enhance the country's manufacturing capacity, The scheme currently targets 14 sectors of strategic and economic importance for India's economic growth.
- **The 14 sectors are:**
  - Mobile Manufacturing and Specified Electronic Components,
  - Critical Key Starting Materials/Drug Intermediaries & Active Pharmaceutical Ingredients,
  - Manufacturing of Medical Devices
  - Automobiles and Auto Components,
  - Pharmaceuticals Drugs,
  - Specialty Steel,
  - Telecom & Networking Products,
  - Electronic/Technology Products,
  - White Goods (ACs and LEDs),
  - Food Products,
  - Textile Products: MMF segment and technical textiles,
  - High efficiency solar PV modules,
  - Advanced Chemistry Cell (ACC) Battery, and
  - Drones and Drone Components.

Chapter at a Glance

- **Objective:** The chapter analyzes India's industrial performance amid global economic shifts, supply chain disruptions, and policy changes. It highlights key trends, state-wise industrialization variations, and policy initiatives aimed at boosting manufacturing competitiveness.
- **Analysis:** The global manufacturing sector has witnessed a shift, with developed countries losing ground to emerging economies like China and India. Despite global uncertainties, India has leveraged public investment, improved logistics, and business reforms to expand its industrial base.
- **Key Focus Areas:**
  - Performance of core industrial sectors (steel, cement, petrochemicals)
  - Growth drivers in consumer-focused industries (automobiles, electronics, pharmaceuticals)
  - State-wise analysis of industrialization
  - R&D and innovation in industrial growth
  - MSME sector and ease of doing business reforms

INTRODUCTION

Global Manufacturing Landscape

- **India's Share in Global Manufacturing:** Increased to **2.8%**, far behind **China's 28.8%** but with significant growth potential.
- **Challenges:** Persistent geopolitical tensions, aggressive trade policies, supply chain disruptions, and shifting consumption trends toward services over manufactured goods.
- **Opportunities:** IMF projects continued manufacturing shift toward emerging economies, benefiting India.

Domestic Industrial Growth Trends

- **Industrial Growth in FY25: 6.2%**, higher than the five-year average, driven by **electricity and construction.**
- **Q2 Slowdown (3.6%) Due to:**
  - Decline in **manufacturing exports** due to weaker global demand.
  - **Monsoon variations** affecting mining and construction.
  - **Festive season shifts** reducing short-term consumer demand.
- **Business Outlook:**
  - **PMI Manufacturing Index** remains above 50, indicating optimism.
  - **Business Expectation Index** suggests improved investor confidence.

Key Industrial Sectors and Performance

Core Industrial Inputs

- **Cement:** India is the **second-largest** cement producer. Production **427 million tonnes** in FY24; **expected demand from mega infrastructure projects.** Industry focusing on reducing **carbon footprint** by 2070.
- **Steel**: Crude steel production grew **3.3%**, finished steel **4.6%** (Apr-Nov FY25). Infrastructure and construction drive demand; **import dependence remains a concern. Scrap recycling policy** aims to improve sustainability.

- **Petrochemicals & Chemicals**: **9.5% of manufacturing GVA**; significant import dependence (**45% for intermediates**). Production capacity expanding to reduce external reliance.

Capital and Consumer Goods Sectors

- **Capital Goods**: Strong **FY24 growth** but **import dependence on high-tech machinery** remains a challenge. Government initiatives (SAMARTH Udyog, PLI schemes) promote **Industry 4.0 adoption.**
- **Automobiles: 12.5% domestic sales growth in FY24. PLI scheme extended by one year** to boost investments.
- **Electronics**: Domestic production **grew 5X from FY15 to FY24** (₹1.90 lakh crore → ₹9.52 lakh crore).
  - **99% of smartphones now manufactured in India.**
  - **PLI Scheme driving local production; exports surged to ₹88,726 crore in FY23.**
- **Textiles:** India is the **6th largest** global textile exporter but **MMF share remains low.**
  - **Major employer** (~11% of manufacturing GVA).
  - **Technical textiles emerging as a high-growth sector.**
- **Pharmaceuticals**: **3rd largest global producer; 50% of total production exported.**
  - R&D investment still lags behind global leaders.
  - **CAR-T cell therapy and gene therapy innovations** gaining traction.

Eight-core sectors of India

- In India, there are eight sectors that are considered the core sectors.
- The eight-core sectors of the Indian economy are **electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers.**
- Office of the **Economic Adviser, Department for Promotion of Industry and Internal Trade** is responsible for the release of the Index of Eight Core Industries.
  - It maps the volume of production in the eight most fundamental industries of our economy.
- **Components to calculate the ICI**
  - **Coal –** Coal production, excluding Coking coal.
  - **Crude Oil –** Total crude oil production.
  - **Natural Gas –** Total production of natural gas.
  - **Refinery Products –** Total refinery production.
  - **Fertilizer –** Urea, ammonium sulphate, calcium ammonium nitrate, complex grade fertilizer, and single superphosphate, among others.
  - **Steel –** Production of alloy and non-alloy steel only.
  - **Cement –** Production in large plants and mini plants.
  - **Electricity –** Electricity generation of thermal, nuclear, hydro, imports

PYQ

Q1: In the 'Index of Eight Core Industries', which one of the following is given the highest weight? (2015)

(a) Coal production

(b) Electricity generation

(c) Fertilizer production

(d) Steel production

Ans: (b)

Q1: Normally countries shift from agriculture to industry and then later to services, but India shifted directly from agriculture to services. What are the reasons for the huge growth of services vis-a-vis the industry in the country? Can India become a developed country without a strong industrial base? (2014)

R&D and Innovation in Industry

- **India ranks 6th in global patent filings.**
- **Challenges:**
  - **GERD (Gross Expenditure on R&D) only 0.64% of GDP**, far below global competitors.
  - **Private sector contributes only 36%** to R&D, while in the US and China, it exceeds **70%.**
- **Government Initiatives:**
  - **Expedited patent process** for startups, MSMEs, women inventors.
  - **Tax incentives and Start-Up India initiatives** fostering innovation.
  - **PLI schemes helping build domestic technology and supply chains.**

MSMEs and Ease of Doing Business

- **MSMEs employ ~23.24 crore people.**
- **Major government initiatives:**
  - **Udyam Registration Portal** simplified MSME registration (2.39 crore enterprises formalized).
  - **Credit Guarantee Scheme revamped (₹9,000 crore corpus)** to enable ₹2 lakh crore credit flow.
  - **TReDS platform facilitating timely payments** to MSMEs from government and corporate buyers.

State-Level Industrial Performance

- **Top four industrial states: Gujarat, Maharashtra, Tamil Nadu, Karnataka** (43% of India's industrial GSVA).
- **Lowest share: Northeast states (~0.7%)**, requiring focused industrial strategies.
- **Ease of Doing Business (EoDB) and Industry Growth:**
  - States categorized into top achievers, achievers, aspirers, and emerging business ecosystems.
  - Business reforms positively correlate with industrial growth.
- **Tamil Nadu Case Study:**
  - Focused on **non-leather footwear** manufacturing.
  - **Foreign investment-friendly initiatives**, special incentives, and women workforce integration.

Policy Outlook and Recommendations

- **Key Challenges:**
  - Uncertain global trade environment.
  - High dependence on imported capital goods.
  - Low private sector R&D investment.
- **Way Forward:**
  - Deregulation and business-friendly policies at state and national levels.
  - Greater R&D spending (targeting 2% of GDP).
  - Stronger industry-academia collaboration for skill development.
  - Enhancing industrial exports through infrastructure and trade policy reforms.

PRELIMS PRACTICE QUESTION

Q1: Which of the following industries have been identified as key growth drivers for India's manufacturing sector?

(a) Steel, Cement, and Chemical

(b) Automobiles, Electronics, and Pharmaceuticals

(c) Both A and B

(d) None of the above

Q2: Which Indian state has the highest concentration of factories per capita?

(a) Maharashtra

(b) Tamil Nadu

(c) Gujarat

(d) Karnataka

ANSWERS

1. (c)	**2.** (b)

MAINS PRACTICE QUESTION

Q1: Discuss the role of business reforms in fostering industrial growth across Indian states. How do state-level policies impact manufacturing competitiveness?

Q2: Analyze the challenges faced by India in achieving global competitiveness in R&D and innovation. Suggest policy measures to boost industrial R&D investments.

Q3: Evaluate the impact of India's Production-Linked Incentive (PLI) scheme on domestic manufacturing. What are its successes and challenges?

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CHAPTER: 8

NEW CHALLENGES FOR THE OLD WAR HORSE

Key-Terms

- **Gross Value Added (GVA)**: GVA is the measure of total output and income in an economy, representing the contribution of various sectors, including agriculture, industry, and services, to the GDP. It helps in assessing sectoral performance and economic health at both national and state levels.
- **Services PMI (Purchasing Managers' Index)**: PMI is an economic indicator that measures business activity in the services sector. A PMI above 50 signifies expansion, while below 50 indicates contraction. India's Services PMI at 53.8 in December 2024 highlights continued growth despite global uncertainties.
- **Servicification**: This refers to the growing integration of services into traditional manufacturing activities. For example, industries such as automobiles and electronics increasingly rely on software, logistics, and financial services to enhance competitiveness.
- **Global Capability Centers (GCCs)**: GCCs are offshore units of multinational companies that provide IT, financial, and operational support. India hosts over 1,700 GCCs, employing nearly 1.9 million professionals, with strong growth in AI, ML, and cybersecurity applications.
- **Real Estate Investment Trusts (REITs)**: REITs are financial instruments that allow investors to invest in real estate without directly owning properties. These trusts pool funds to invest in income-generating real estate assets, boosting commercial real estate investment in India.
- **ONDC (Open Network for Digital Commerce)**: ONDC is an initiative to democratize e-commerce by creating an open-source platform where sellers can connect with buyers across different online marketplaces. It aims to reduce platform monopolies and improve accessibility for small businesses.
- **Trade Receivables Discounting System (TReDS)**: A digital platform that facilitates MSMEs in securing timely payments from large buyers by selling their invoices to banks/NBFCs at competitive rates. This initiative improves liquidity and financial stability for small businesses.

INTRODUCTION

- The services sector remains a key driver of global and domestic economic growth, accounting for about **62% of global GDP**.

- India's services sector continues to bolster GDP growth despite sluggish global merchandise trade.
- **Global Services PMI** rose to **53.8 in December 2024**, indicating expansion, though geopolitical uncertainties pose supply chain risks.
- India ranks **seventh** globally in **services exports** with a **4.3% share**.

Services Sector Performance in India

- Contribution to India's **Gross Value Added (GVA)** increased from **50.6% (FY14) to ~55% (FY25)**.
- The sector **employs ~30% of the workforce** and is increasingly integrated with manufacturing through **"servicification"**.
- Despite pandemic setbacks, the **average service sector growth** from **FY23-FY25 was 8.3%**, exceeding pre-pandemic levels.
- IT & computer-related services have grown at **12.8% over the last decade**, contributing **10.9% to total GVA (FY23)**.

Service Sector (Tertiary Sector) in India

- The service sector, or tertiary sector, is a key component of India's economy, focusing on providing intangible services rather than physical goods.
- It complements the primary (agriculture, mining) and secondary (manufacturing) sectors.
- Key Components of India's Service Sector:
  - Information Technology (IT) and Software Services
  - Business Process Outsourcing (BPO)
  - Financial Services
  - Healthcare and Medical Tourism
  - Education and Training
  - Telecommunications and Internet Services
  - Tourism and Hospitality
  - Entertainment and Media
  - Legal and Professional Services
  - Retail and E-commerce

Trade in Services

- **Services exports grew at an annual trend rate of 11% (FY14-FY23)**.
- **Computer and business services exports** account for **70% of total services exports**.
- India's **services exports grew by 12.8% (April-November FY25)** compared to **5.7% in FY24**.

Sources of Financing

- **Outstanding bank credit** to services: **₹48.5 lakh crore (Nov 2024)** with **13% YoY growth**.
- Highest credit growth: **Computer software (22.5%) & professional services (19.4%)**.
- **FDI in Services:** Received **$5.7 billion** (Apr-Sep FY25), led by **insurance (62%)**.

Sectoral Classification & Strategies (NITI Aayog)

Category	Sectors	Strategy
Defend	High export & GVA, low employment	Strengthen global competitiveness (IT, professional services)

Category	Sectors	Strategy
Accelerate	Moderate-high GVA & employment	Expand domestic opportunities (Trade, transport, education, finance)
Transform	Low GVA, low employment	Reform & investment to boost growth (Health, tourism, culture, recreation)
Untapped	Negligible contribution	Leverage policy support (Telecom, insurance, postal, AV services)

Progress in Logistics & Connectivity

Railways

- **Passenger traffic** grew **8% (FY24)**; **freight traffic** grew **5.2%**.
- **86% e-ticketing adoption**; digital payments enabled.
- **Bharat Gaurav Trains: 325 trips, 1.91 lakh tourists**.

Road Transport

- **FASTag adoption** reduced average toll wait time from **734s to 47s**.
- **Barrier-free tolling by FY29**; **wayside amenities every 40-60 km** planned.
- **Truck driver safety initiatives** like **Abhay project** launched.

Aviation

- **India: Fastest-growing aviation market** with increasing aircraft orders.
- **Drone sector booming: 140 pilot training centers**, **26,659 drones registered**.
- **Aircraft leasing sector in GIFT City**: 32 registered entities, **105 leased aviation assets**.

Ports & Waterways

- **Major ports handled 622 MT cargo (Dec FY25)**, targeting **870 MT for FY25**.
- **Maritime India Vision 2030 & 2047** aims to position India among **top 5 shipbuilding nations**.
- **Inland Waterways: 14,850 km navigable length**; passenger traffic increased from **67 lakh (FY24) to 3.36 crore (FY25 Q2)**.

Tourism & Hospitality

- Tourism sector's **GDP contribution** rebounded to **5% (FY23)**.
- **International tourist arrivals (ITAs) back to pre-pandemic levels**; **1.8% share of global tourism receipts**.
- **Foreign exchange earnings: $28 billion (2023)**.

Real Estate

- **India ranked 31st** in Global Real Estate Transparency Index (2024).
- **Housing demand projected at 93 million units by 2036**.
- **Real Estate Investment Trusts (REITs)** boosting commercial real estate investment.

Business Services

IT & Global Capability Centers (GCCs)

- **IT industry revenue (FY24): $254 billion** (+3.8% YoY).
- **Exports: $200 billion** (+3.3% YoY).
- **Workforce: 5.43 million** employees.

- **GCCs (FY24): 1700+ centers** with **1.9 million professionals**.
- **AI & ML adoption increasing**, especially in finance, telecom, logistics, and retail.

Telecom

- **1.18 billion subscribers**; **941 million broadband users**.
- **Fastest 5G rollout globally**.
- **C-DOT (India's Telecom R&D Body):** Developing **4G & 5G core networks, quantum encryption, cybersecurity solutions**.

ONDC (Open Network for Digital Commerce)

- **Democratizing digital commerce**: 14 million transactions in **Nov 2024**.
- **1100+ cities covered**; **7000+ Farmer Producer Organizations (FPOs)** onboarded.
- **New sectors:** Logistics, Financial Services, Affordable Goods Distribution.

State-Wise Performance of Services

- **Karnataka & Maharashtra** contribute **>25% of total services GSVA**.
- **Top 5 states (KA, MH, TN, UP, GJ)** contribute **>50%** of total services GSVA.
- **Northeast states rely more on public administration GSVA**.
- **Financial services concentrated in Maharashtra, TN, Gujarat (GIFT City), and Karnataka**.
- **Real estate & professional services strong in Karnataka, Telangana, Haryana, Maharashtra, TN**.

State Categories	Key Characteristics
Industrial Powerhouses	Gujarat, Uttarakhand, Himachal Pradesh, Odisha, Chhattisgarh
Service-Driven	Karnataka, Telangana, Kerala
Dual Strengths	Maharashtra, Tamil Nadu
Reform Potential	Bihar, Jharkhand, MP, Rajasthan, UP, West Bengal

PYQ

Q1: Normally countries shift from agriculture to industry and then later to services, but India shifted directly from agriculture to services. What are the reasons for the huge growth of services vis-a-vis the industry in the country? Can India become a developed country without a strong industrial base? (2014)

Q2: 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 is Industrial Policy are capable of increasing the industrial growth rate? (2017)

Q3: The need for cooperation among various service sectors has been an inherent component of development discourse. Partnership bridges the gap among the sectors. It also sets in motion a culture of 'collaboration' and 'team spirit'. In the light of statements above examine India's development process. (2019)

Conclusion & Way Forward

- **Manufacturing & services are increasingly integrated**, boosting overall growth.
- **Global risks** (AI-driven automation, changing policies in IT services) **may impact India's IT exports**.

- **Skill development is crucial** to leverage AI and digital transformation.
- **Regulatory simplifications** are needed to boost both manufacturing and services.
- **States must focus on business reforms** to accelerate economic development.

PRELIMS PRACTICE QUESTION

Q1: Consider the following statements regarding India's services sector:

1. Services contribute more than 50% to India's Gross Value Added (GVA).
2. The IT sector is the largest contributor to India's service exports.
3. The real estate sector in India has been completely deregulated to attract foreign investments.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2, and 3

Q2: Which of the following best describes the Open Network for Digital Commerce (ONDC)?

(a) A government-owned e-commerce platform for MSMEs
(b) A regulatory body overseeing online retail transactions
(c) A decentralized platform aimed at integrating various e-commerce players
(d) A payment gateway system for digital transactions

Q3: Which Indian state contributes the highest to Gross State Value Added (GSVA) in financial services?

(a) Tamil Nadu
(b) Karnataka
(c) Gujarat
(d) Maharashtra

Q4: Consider the following statements regarding Global Capability Centers (GCCs):

1. GCCs are foreign companies' outsourcing units located in India.
2. They primarily provide IT and software development services.
3. India is the largest hub for GCCs globally.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2, and 3
(d) 1 and 3 only

Q5: With reference to logistics and connectivity, which of the following statements is correct?

(a) Bharat Gaurav Trains are exclusively for freight transport.
(b) FASTag adoption has reduced average toll wait times significantly.
(c) India's inland waterways sector has been declining in recent years.
(d) Maritime India Vision 2047 aims to privatize all Indian ports.

ANSWERS

1. (a)	**2.** (c)	**3.** (d)	**4.** (b)

MAINS PRACTICE QUESTION

Q1: "The services sector is the backbone of India's economy, but it faces multiple challenges in sustaining high growth." Discuss the key challenges and suggest policy measures to address them.

Q2: How does "servicification" impact India's industrial competitiveness? Examine with suitable examples.

Q3: "Infrastructure and logistics reforms are critical for India's services sector growth." Examine the role of government initiatives in this regard.

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CHAPTER: 9

Agriculture and Food Management

Key-Terms

- **Kharif Crops:** Crops grown during the monsoon season (June-September) and harvested in autumn. Examples include rice, maize, pulses, and oilseeds.
- **Rabi Crops:** Crops sown in winter (October-December) and harvested in spring. Includes wheat, barley, mustard, and gram.
- **Agricultural GDP Contribution:** Agriculture contributes 16% to India's GDP (FY24), with nearly 46.1% of the population engaged in agriculture and allied activities.
- **High-Value Agriculture (HVA):** Sectors like horticulture, floriculture, livestock, and fisheries, which have grown at a higher CAGR than traditional crops, contributing to farm income diversification.
- **Minimum Support Price (MSP):** The government-fixed price at which it procures crops from farmers to ensure price stability and food security. It influences cropping patterns but faces procurement limitations.
- **Post-Harvest Management (PHM):** Involves cold storage, processing, and logistics to reduce wastage, increase shelf life, and ensure better price realization for farmers.
- **Agroforestry:** A sustainable farming practice integrating trees, crops, and livestock to enhance biodiversity, soil health, and farmer incomes.
- **Special Economic Zones (SEZs) in Agriculture:** SEZs focus on processing, packaging, and exporting agri-produce, enhancing India's global competitiveness in agri-trade.
- **Doubling Farmers' Income (DFI) Report:** A government roadmap proposing higher productivity, value addition, better market access, and risk mitigation strategies to double farm incomes.
- **Contract Farming:** A model where farmers enter agreements with agribusiness firms for assured pricing, input supply, and marketing of produce.

- **Smart Agriculture:** Use of AI, IoT, and data analytics for precision farming, crop monitoring, and efficient resource utilization in Indian agriculture.
- **Sustainable Agriculture Practices:** Includes zero-budget natural farming (ZBNF), permaculture, and regenerative farming, reducing dependency on synthetic inputs.

Chapter at a Glance

- **Objective:** The chapter outlines India's agricultural resilience, focusing on growth drivers, government initiatives, and the impact of climate variability. It highlights the role of allied activities like animal husbandry and agroforestry in mitigating risks.
- **Analysis:** The agricultural sector has shown steady growth, supported by government interventions and crop diversification.
  - Despite climate challenges, farmers benefit from diversified income sources and allied sectors, enhancing resilience.

INTRODUCTION

- The **agriculture sector** has been a key pillar of the Indian economy, contributing **16% of GDP (FY24)** and employing **46.1% of the workforce**.
- Over the past **five years (FY20-FY25), the sector has grown at an average annual rate of 4.18%**, showcasing **resilience despite climate variability, rising input costs, and global trade disruptions**.
- The **second quarter of FY25** saw **3.5% growth in agriculture**, marking a recovery from previous quarters.
- The government's focus on **crop diversification, technological adoption, irrigation expansion, and institutional credit** has strengthened the sector.
- However, **climate risks, soil degradation, and low productivity in key crops remain significant challenges**.

KEY HIGHLIGHTS OF THE AGRICULTURE SECTOR IN FY25

Growth Trends and Sectoral Performance

- The **kharif food grain production in 2024** is projected at **1,647.05 LMT**, an increase of **89.37 LMT from the previous year**.
- The agriculture sector experienced a **rebound in Q2 FY25**, attributed to:
  - **Favorable monsoons and improved irrigation coverage**.
  - **Increased adoption of modern agricultural practices**.
  - **Government initiatives supporting sustainability and income enhancement**.
- **Key Sectoral Growth Rates (FY15-FY23)**:
  - **Fisheries: CAGR of 13.67%**
  - **Livestock: CAGR of 12.99%**
  - **Horticulture & Floriculture: Emerging as key growth sectors**

Crop Production and Productivity Trends

- **Food grain production is on an upward trajectory**, supported by **higher MSPs and improved irrigation**.

- **Cereal Yields Remain Below Global Standards**:
  - India accounts for **11.6% of global cereal production**, but **crop yields are significantly lower** compared to countries like China and the USA.
- **Pulses & Oilseeds:**
  - **Low growth in oilseeds (1.9%)** remains a concern, given India's **high reliance on edible oil imports**.
  - Government has **increased MSPs for pulses and oilseeds** to **reduce import dependency**.
- **Horticulture & Floriculture:**
  - The **floriculture industry is expanding rapidly**, with exports reaching **₹717.83 crore in FY24**.
  - **Grape exports: 343,982 MT worth ₹3,460.7 crore**, making India one of the top global exporters.

Irrigation and Water Management

- **55% of India's net sown area remains rainfed**, making it **highly vulnerable to monsoon variations**.
- **Jharkhand (20%) has the lowest irrigation coverage**, while **Punjab & Haryana have the highest (~94-98%)**.
- **Government Initiatives:**
  - **'Per Drop More Crop' under PMKSY**: Led to a **104.67% increase in micro-irrigation coverage**.
  - **Micro Irrigation Fund (MIF)**: Provides **2% interest subvention for drip irrigation & sprinkler systems**.

Institutional Credit and Financial Support

- **Crop loan disbursal has tripled** from **₹8.45 lakh crore (FY15) to ₹25.48 lakh crore (FY24)**.
- **Kisan Credit Card (KCC) penetration has improved**, covering **7.75 crore farmers**.
- **Modified Interest Subvention Scheme (MISS)**:
  - Provides **short-term agricultural loans at a concessional rate of 7%**.
  - **3% Prompt Repayment Incentive (PRI)** for timely repayments.

Climate Change and Risk Mitigation

- **Climate change remains a major risk**, with erratic rainfall patterns and increasing drought frequency.
- **Drought probability exceeds 40% in arid regions**, impacting crop yields.
- **Mitigation Strategies**:
  - **Adoption of climate-resilient seed varieties**: Over **2,177 varieties released since 2014**.
  - **PM-PRANAM Scheme**: Encourages **use of nano fertilizers, organic farming**.
  - **Pradhan Mantri Fasal Bima Yojana (PMFBY)**:
    - **600 lakh hectares covered in FY24**.
    - **26% rise in farmer enrollments over FY23**.

Market Reforms and Price Stability

- **Agricultural price stability has improved due to better MSP implementation**.
- **e-NAM (National Agriculture Market)** has been expanded to enhance **price discovery and market efficiency**.
- **Agriculture Infrastructure Fund (AIF)**:
  - ₹1 lakh crore fund to **support storage & post-harvest infrastructure**.

Key Challenges

- **Low crop productivity compared to global standards**.
- **Inefficiencies in irrigation, with over half of farmland rainfed**.
- **Heavy reliance on edible oil imports due to slow oilseed production growth**.
- **Climate variability increasing frequency of droughts & extreme weather events**.
- **Structural barriers in agricultural marketing & price volatility despite MSP support**.

FUTURE OUTLOOK

- **Agriculture remains a crucial sector for India's food security and economic stability**.
- **High-value sectors like fisheries, livestock, horticulture, and floriculture are driving diversification and income growth**.
- **Government's focus on irrigation expansion, mechanization, and institutional credit has strengthened agricultural resilience**.
- **Challenges remain in productivity, climate adaptation, and marketing reforms**, requiring **continued policy interventions**.
- **Future Growth Areas**:
- Expanding **agri-tech adoption, AI-based weather forecasting, precision farming**.
- Strengthening **crop insurance penetration to safeguard farmers against climate risks**.
- **Boosting oilseed production** to reduce import dependency.

PYQ

Q1: Consider the following statements: (2020)

1. In the case of all cereals, pulses, and oil seeds, the procurement at Minimum Support price (MSP) is unlimited in any State/UT of India.
2. In the case of cereals and pulses, the MSP is fixed in any State/UT at a level to which the market price will never rise.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q2: Consider the following statements: (2023)

1. The Government of India provides Minimum Support Price for niger (*Guizotia abyssinica*) seeds.
2. Niger is cultivated as a Kharif crop.
3. Some tribal people in India use niger seed oil for cooking.

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

KEY STATISTICAL DATA AND FACTS

Macroeconomic Contribution of Agriculture

Indicator	Value	Source
Contribution to GDP (FY24)	16%	MOSPI
Employment in Agriculture	46.1% of workforce	Economic Survey
Average Annual Growth Rate (FY20-FY25)	4.18%	Economic Survey
Agricultural Growth (Q2 FY25)	3.5%	PIB
Share of High-Value Sectors (Horticulture, Livestock, Fisheries) in Agri-GDP	>50%	NABARD

Crop Production and Productivity Trends

Indicator	Value	Source
Kharif Foodgrain Production (2024-25 Estimate)	1,647.05 LMT	Ministry of Agriculture
Increase from Previous Year	+89.37 LMT	PIB
Share of India in Global Cereal Production	11.6%	FAO
Average Growth Rate of Crop Sector (FY13-FY22)	2.1% CAGR	Economic Survey
Oilseeds Growth Rate (FY13-FY22)	1.9% CAGR	CACP Report
Fisheries Growth Rate (FY15-FY23)	13.67% CAGR	NABARD
Livestock Growth Rate (FY15-FY23)	12.99% CAGR	Department of Animal Husbandry
Floriculture Exports (FY24)	₹717.83 crore, 19,678 metric tonnes	APEDA

Irrigation & Water Management

Indicator	Value	Source
Percentage of Net Sown Area Irrigated	~55%	Agriculture Statistics at a Glance
States with Highest Irrigation Coverage	Punjab (98%), Haryana (94%)	Ministry of Agriculture
States with Lowest Irrigation Coverage	Jharkhand (<20%)	Agriculture Census
Micro-Irrigation Coverage Expansion (FY16-FY25)	104.67% increase	PMKSY
Loans Approved under Micro Irrigation Fund (MIF)	₹4,709 crore	NABARD
Increase in Gross Irrigated Area (FY10-FY22)	From 40% to 55% of Gross Cropped Area	Economic Survey

Agricultural Credit and Institutional Support

Indicator	Value	Source
Total Crop Loan Disbursed (FY24)	₹25.48 lakh crore	RBI
Increase from FY15 (₹8.45 lakh crore)	3x growth	Economic Survey
Kisan Credit Card (KCC) Coverage	7.75 crore farmers	Ministry of Agriculture
Interest Rate under Modified Interest Subvention Scheme (MISS)	7% (3% additional PRI for timely payment)	RBI
Share of Small & Marginal Farmers in Agri-Credit (FY24)	57%	NABARD
Decline in Non-Institutional Credit Dependence (FY22)	From 90% (1950) to ~25%	NABARD

Climate Change & Risk Mitigation

Indicator	Value	Source
Drought Probability in Arid Regions	>40%	NABARD Climate Risk Report
Climate-Resilient Seed Varieties Released Since 2014	2,177 varieties	ICAR
Increase in Extreme Rainfall Events (1950-2015)	+75%	IMD
Pradhan Mantri Fasal Bima Yojana (PMFBY) Enrolled Farmers (FY24)	4 crore (26% increase from FY23)	PMFBY Portal
Insured Area Under PMFBY (FY24)	600 lakh hectares	PMFBY Portal

Agricultural Markets and Price Stability

Indicator	Value	Source
Total Agricultural Marketed Surplus (FY24)	₹50 lakh crore+	Economic Survey
Number of APMCs Integrated with e-NAM	1,260+	e-NAM Portal
Registered Farmers on e-NAM	1.78 crore	Ministry of Agriculture
Registered Traders on e-NAM	2.62 lakh	Ministry of Agriculture
Agriculture Infrastructure Fund (AIF) Disbursement (FY24)	₹20,000 crore	Economic Survey
Share of Private Investment in Agri-Marketing Infrastructure	Less than 5%	NABARD

MSP Reforms & Pricing Trends

Indicator	Value	Source
MSP Increase for Arhar (FY25)	59% over production cost	CACP Report

Indicator	Value	Source
MSP Increase for Bajra (FY25)	77% over production cost	CACP Report
MSP Increase for Masur (FY25)	89% over production cost	CACP Report
MSP Increase for Rapeseed (FY25)	98% over production cost	CACP Report
Growth in MSP Procurement (FY15-FY24)	3x increase	Ministry of Agriculture

Deductions

These key statistics **highlight the progress and challenges** faced by Indian agriculture.

- **Growth in high-value sectors (fisheries, horticulture, livestock) is reshaping the sector.**
- **Expansion in irrigation and micro-irrigation is improving farm resilience.**
- **Institutional credit access has increased, reducing reliance on informal loans.**
- **Climate change remains a major risk, necessitating continued mitigation efforts.**
- **Agricultural market reforms (e-NAM, AIF) are improving price discovery & storage infrastructure.**

Analysis and evaluation

India's agriculture sector, often referred to as the **lifeline of the Indian economy**, has consistently showed **resilience amidst global and domestic challenges**. While growth has been steady, **structural inefficiencies, climate-induced risks, and policy limitations continue to hinder its full potential**.

Growth Trends and Their Implications

- Steady Growth but with Structural Bottlenecks
- **Agricultural GDP has grown at an average rate of 4.18% over the past five years**, but this masks **deep-rooted structural disparities**.
- **High-Value Agriculture (HVA) is emerging as the new driver**:
  - **Fisheries, livestock, horticulture, and floriculture now contribute over 50% of agricultural GDP**, signaling a shift from **traditional crop-centric agriculture**.
  - **Floriculture and grape exports have seen double-digit growth**, offering avenues for agribusiness expansion.
- **Crop production remains volatile**, driven by:
  - **Erratic monsoon patterns** (55% of net sown area is still rainfed).
  - **Stagnation in pulses and oilseeds productivity**, increasing import dependency.

Regional Disparities in Agricultural Growth

- **States like Punjab, Haryana, and Uttar Pradesh** continue to lead in **high-yield production due to strong irrigation infrastructure**.
- **Southern states like Andhra Pradesh and Tamil Nadu** have transitioned towards **HVA (livestock & horticulture-based models)**.
- **Central and Eastern states (Jharkhand, Odisha, Chhattisgarh) remain laggards**, owing to:
  - **Poor irrigation penetration (<20% in Jharkhand)**.
  - **Lower mechanization and institutional credit access**.

Policy Implication

- While **traditional foodgrain-focused policies** ensured food security, there's an **urgent need to prioritize value-added agriculture and diversified farming models**.

CLIMATE CHANGE AND ITS IMPACT ON AGRICULTURE

India's Agriculture is Facing a Climate Crisis

- **Drought probability exceeds 40% in arid regions**, affecting agricultural productivity and farm incomes.
- **Extreme weather events (heatwaves, unseasonal rains) have increased by 75% since 1950**, disrupting planting and harvesting cycles.
- **Shift in rainfall patterns**:
  - Higher intensity rainfall leading to **floods and topsoil erosion**.
  - Prolonged dry spells affecting **groundwater recharge and irrigation efficiency**.

Effect on Crop Yields and Farmer Incomes

- **Climate-induced yield variability** has led to **higher uncertainty in farm incomes**.
- **Staple crops like wheat, rice, and pulses are becoming more vulnerable** to temperature shocks.
- **India's agricultural productivity is already lower than global peers**:
  - **Paddy yield: ~3.8 tonnes per hectare (India) vs 6.7 tonnes per hectare (China)**.
  - **Maize yield: 2.8 tonnes per hectare (India) vs 6.1 tonnes per hectare (USA)**.

Policy Implication

- While **PM Fasal Bima Yojana (PMFBY) has expanded coverage**, insurance payouts remain **delayed**, limiting its impact. More **climate-smart agriculture investments** are needed, including **heat-resistant seed varieties, soil moisture conservation, and AI-based weather forecasting for farmers**.

IRRIGATION AND WATER MANAGEMENT: THE ACHILLES HEEL OF INDIAN AGRICULTURE

Water Security Concerns

- **55% of India's net sown area is still rainfed**, making it **highly vulnerable to monsoon fluctuations**.
- **Groundwater depletion is alarming**:
  - Punjab, Haryana, Rajasthan, and western Uttar Pradesh **have over-exploited aquifers**, leading to **declining water tables**.
  - **Eastern states (Bihar, Odisha) have abundant groundwater but lack irrigation infrastructure**.

Inefficiency in Water Use

- **Flood irrigation is still predominant**, causing **water wastage**.
- **Micro-irrigation adoption (drip & sprinkler) is still only ~8% of irrigated land**, far behind **China (13.7%) and the USA (68.6%)**.
- **PMKSY's 'Per Drop More Crop'** has expanded micro-irrigation but **financial and awareness barriers exist** for small farmers.

Policy Implication

- The focus must shift towards **efficient irrigation** rather than **expanding area under irrigation**. Investment in **drip irrigation, AI-based soil moisture monitoring, and localized water conservation (check dams, farm ponds)** should be prioritized.

AGRICULTURAL MARKETS AND PRICE VOLATILITY

MSP Effectiveness: Does it Really Help Farmers?

- While **MSP for cereals (wheat, rice) has increased**, procurement remains **highly skewed towards Punjab, Haryana, and Western UP**.
- **Pulses and oilseeds MSP hikes have failed to incentivize farmers**, leading to:
  - **Higher import dependency (India imports 60% of edible oil demand)**.
  - **Low domestic production growth (only 1.9% CAGR in oilseeds)**.

e-NAM and APMC Reforms: Slow Progress

- **e-NAM digitalization** is improving price discovery but:
  - **Small and marginal farmers still depend on local traders due to lack of infrastructure**.
  - **Only 1,260 APMCs (of ~7,000) are fully integrated with e-NAM**.

Policy Implication

- Reforms should **ensure market linkages for perishable crops, promote agro-processing, and encourage contract farming models** to stabilize farm incomes.

ROLE OF AGRICULTURAL CREDIT & INSTITUTIONAL SUPPORT

Credit Growth Has Been Strong, but Benefits Are Unequal

- **Crop loan disbursal has tripled (₹8.45 lakh crore in FY15 → ₹25.48 lakh crore in FY24)**.
- **Kisan Credit Card (KCC) penetration** has improved, but:
  - **Small & marginal farmers still struggle to access low-interest credit**.
  - **Reliance on non-institutional credit (local moneylenders) persists in rural India (~25% of farm credit demand)**.

PM Kisan and Interest Subvention: Effective but Limited

- **PM-KISAN transfers of ₹6,000 annually per farmer** have provided **direct support**, but with **rising input costs, this amount is too small** to make a meaningful impact.
- **Interest subvention under KCC helps, but procedural delays and red tape persist**.

Policy Implication

- Rural credit mechanisms should **move beyond production loans** to include **post-harvest credit, infrastructure loans, and agri-startup financing**.

FUTURE PATHWAYS: WHERE DOES INDIA'S AGRICULTURE NEED TO GO?

Diversification Beyond Cereals

- India needs to **move beyond rice & wheat dominance** and promote **horticulture, fisheries, and agroforestry**.
- **Livestock & dairy sector** can act as a **shock absorber during crop failure**.

Technology-Led Agricultural Growth

- **Precision farming (AI, remote sensing, smart irrigation) should be mainstreamed**.
- **Post-harvest infrastructure, storage, and food processing need urgent expansion**.

Climate-Resilient and Sustainable Agriculture

- **Shift from chemical-intensive farming to regenerative agriculture**.
- **Promote conservation agriculture, zero-budget natural farming (ZBNF), and agroecology principles**.

India's agriculture is at a **critical juncture—**it has **immense potential**, but **structural challenges** remain. The **future lies in sustainability, diversification, and technology integration**. Policies must **move beyond short-term MSP support and loan waivers** towards **long-term resilience-building, efficient water management, and market reforms**.

PRELIMS PRACTICE QUESTION

Q1: With reference to the growth trends in India's agriculture sector over the past five years, consider the following statements:

1. The agriculture sector has consistently grown at an average annual rate exceeding 5%.
2. High-value sectors such as fisheries and livestock have shown higher Compound Annual Growth Rates (CAGR) compared to traditional crop sectors.
3. The contribution of agriculture to India's GDP has increased significantly during this period.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 2 and 3 only

Q2: Consider the following statements regarding irrigation and water management in India:

1. More than 70% of India's net sown area is irrigated.
2. The 'Per Drop More Crop' initiative under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has led to a significant increase in micro-irrigation coverage.
3. Jharkhand has one of the highest irrigation coverage percentages among Indian states.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 2 and 3 only

Q3: Which of the following statements is/are correct regarding the Pradhan Mantri Fasal Bima Yojana (PMFBY)?

1. It provides insurance coverage to farmers against both yield losses and post-harvest losses.
2. The scheme has seen a decline in farmer enrollments in recent years.
3. It covers all types of crops, including horticultural and commercial crops.

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 2 only

(c) 1 and 2 only

(d) 1, 2, and 3

Q4: With reference to the National Agriculture Market (e-NAM) platform, consider the following statements:

1. It integrates all Agricultural Produce Market Committees (APMCs) across India onto a single digital platform.
2. It aims to facilitate better price discovery for farmers through transparent auction processes.
3. It restricts participation to farmers and licensed traders within the respective APMC.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 2 and 3 only

Q5: Consider the following crops:

1. Wheat
2. Rice
3. Soybean
4. Pulses

Arrange them in decreasing order of productivity (yield per hectare) in India (as per Economic Survey 2024-25).

(a) Rice > Wheat > Soybean > Pulses

(b) Wheat > Rice > Pulses > Soybean

(c) Rice > Soybean > Wheat > Pulses

(d) Wheat > Soybean > Rice > Pulses

ANSWERS

1. (b)	**2.** (b)	**3.** (a)	**4.** (b)	**5.** (a)

MAINS PRACTICE QUESTION

Q1: Assess the effectiveness of the Pradhan Mantri Fasal Bima Yojana (PMFBY) in mitigating risks faced by Indian farmers due to climate change-induced extreme weather events. What improvements can be made to enhance its reach and impact?

Q2: Discuss the role of micro-irrigation systems in improving water-use efficiency in Indian agriculture. What are the challenges in their widespread adoption, and how can they be addressed?

Q3: Analyze the impact of Minimum Support Prices (MSP) on crop diversification in India. To what extent has MSP influenced farmers' choices in crop cultivation?

Q4: Evaluate the significance of the National Agriculture Market (e-NAM) in integrating agricultural markets across India. What challenges persist in its implementation, and how can they be overcome?

Q5: Examine the role of the food processing industry in enhancing farmers' income and reducing post-harvest losses. What policy measures are necessary to promote the growth of this sector in India?

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CHAPTER: 10

CLIMATE AND ENVIRONMENT – ADAPTATION MATTERS

Key-Terms

- **Climate Adaptation:** Actions taken to minimize the negative impacts of climate change, such as extreme weather, rising sea levels, and water shortages, through infrastructure resilience, sustainable agriculture, and disaster preparedness.
- **Climate Finance:** Financial resources provided by developed nations to developing countries for mitigation and adaptation measures, often falling short of commitments under the Paris Agreement and COP negotiations.
- **Renewable Energy Transition:** The shift from fossil fuels to solar, wind, bioenergy, and hydrogen-based energy, which currently contributes 47% of India's total installed power capacity.
- **Carbon Footprint:** The total greenhouse gas (GHG) emissions produced by an individual, organization, or nation, often measured in tons of CO_2 equivalent per year.
- **Per Capita Emissions:** India's carbon emissions per person stand at 1.9 metric tons, significantly lower than the global average of 4.7 metric tons.
- **Urban Heat Islands (UHI):** A phenomenon where cities experience higher temperatures than surrounding rural areas due to concrete structures, lack of vegetation, and excessive heat absorption.
- **Heat Action Plans (HAPs):** City-specific emergency response strategies to protect vulnerable populations from heatwaves, which have increased in frequency and intensity in India.
- **Energy Storage Solutions:** Technologies like battery storage, pumped hydro, and hydrogen fuel cells that enable stable supply from intermittent renewable energy sources like solar and wind.
- **Green Bonds:** Financial instruments issued by corporates and governments to raise funds for environment-friendly projects such as clean energy, afforestation, and sustainable infrastructure.

Chapter Glimpse

- **Objective:** The chapter discusses India's path to achieving robust economic growth and developed nation status by 2047, emphasizing inclusive, sustainable development, low-carbon growth, and climate change adaptation.
- **Analysis:** India aims for low-carbon growth despite challenges like renewable energy deployment and limited storage technology.
  - Climate adaptation efforts have increased, with significant rise in adaptation expenditures.
  - The LiFE initiative promotes sustainable practices, while international finance remains insufficient.

INTRODUCTION

India is **one of the most vulnerable countries to climate change**, facing **extreme weather events, rising sea levels, erratic monsoons, and increased desertification**. While India's **per capita carbon emissions** remain at **one-third of the global average**, its climate policies are **focused on adaptation rather than mitigation** due to its **developing economy status** and **high energy demands**.

The chapter highlights:

- The **rise in adaptation spending** from **3.7% to 5.6% of GDP (FY16-FY22)**.
- The **global failure of developed nations to meet climate finance commitments**, affecting India's transition plans.
- India's **efforts in energy security, urban resilience, water resource management, and disaster preparedness**.
- The **importance of circular economy practices** under the **LiFE (Lifestyle for Environment) initiative**.

Despite being the **world's third-largest emitter**, India has **consistently met its Nationally Determined Contributions (NDCs)** under the **Paris Agreement** and has **enhanced its green energy capacity**, yet it faces **challenges in renewable storage and global climate finance**.

CLIMATE ADAPTATION IN INDIA: KEY FOCUS AREAS

India's climate policy focuses on **adaptation** more than **mitigation**, given its development needs. Adaptation strategies have been implemented in **five key sectors**:

AGRICULTURE & FOOD SECURITY

- **Climate-Smart Agriculture:**
  - Over **2,177 climate-resilient seed varieties** released since 2014.
  - **Crop diversification programs** promote drought-resistant crops.
  - **PM-KUSUM Scheme** integrating **solar energy in irrigation** to reduce groundwater stress.
  - **Soil Health Management Programs** under **PM-PRANAM Scheme** to improve **soil fertility and water conservation**.
- **Challenges:**
  - **Frequent droughts (~40% probability in arid zones)** threaten food security.
  - **Erratic monsoons affecting kharif crop productivity.**
  - **India remains dependent on food imports for pulses & oilseeds.**

- **Policy Recommendation:**
  - **Expand micro-irrigation networks (drip & sprinkler irrigation)** under **PMKSY-Per Drop More Crop**.
  - **Promote agroforestry & regenerative farming models** to improve soil carbon sequestration.

WATER RESOURCE MANAGEMENT & DROUGHT RESILIENCE

- **Rising Water Stress:**
  - India **houses 18% of the world's population** but has only **4% of global freshwater resources.**
  - **Groundwater depletion in Punjab, Haryana, and Rajasthan** due to over-extraction.
- **Major Initiatives:**
  - **Jal Shakti Abhiyan (JSA):**
    - Focuses on **rainwater harvesting, watershed development, and aquifer recharge.**
    - In **FY24, 3,078 water body rejuvenation projects were sanctioned.**
  - **National Aquifer Mapping and Management Program (NAQUIM):**
    - **Bhu-Neer Portal launched for groundwater mapping.**
  - **Atal Bhujal Yojana (ABY):**
    - Aims to **improve groundwater governance in water-stressed areas.**
- **Challenges:**
  - **Nearly 60% of Indian districts face groundwater stress.**
  - **Low adoption of water-saving irrigation techniques.**
- **Policy Recommendation:**
  - **Enforce groundwater regulation using AI-based monitoring tools**.
  - **Expand wastewater treatment for reuse in urban & peri-urban agriculture**.

URBAN ADAPTATION: HEATWAVES & FLOOD RESILIENCE

- **Rapid Urbanization Impact:**
  - **Urban areas are increasingly vulnerable** to **heatwaves, air pollution, and waterlogging.**
  - India **recorded its highest-ever heatwave-related deaths (FY23).**
- **Government Initiatives:**
  - **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):**
    - Focus on **stormwater drainage, flood-resistant infrastructure.**
  - **Smart Cities Mission:**
    - Integrating **green roofs, solar cooling, and climate-resilient building materials.**
  - **National Adaptation Fund for Climate Change (NAFCC):**
    - Provides **funding for heat-resilient city planning.**
- **Challenges:**
  - **Indian cities lack heat action plans** compared to global counterparts.
  - **Poor urban water management increases flood risks in coastal metros (Mumbai, Chennai, Kolkata).**
- **Policy Recommendation:**
  - **Develop mandatory heat adaptation plans for all cities**.
  - **Expand green cover in urban zones to mitigate heat stress**.

COASTAL PROTECTION & DISASTER RESILIENCE

- **India's coastline (7,516 km) faces rising sea levels & cyclones**.
- **Mangrove loss has increased coastal vulnerability**.
- **Key Initiatives:**
  - **MISHTI (Mangrove Initiative for Shoreline Habitat & Tangible Income):**
    - **540 sq. km of mangroves** targeted for restoration by 2028.
  - **Integrated Coastal Zone Management (ICZM):**
    - Focuses on **coastal erosion mapping & seawall construction.**
  - **National Cyclone Risk Mitigation Project (NCRMP):**
    - Strengthening **early warning systems & cyclone shelters.**
- **Challenges:**
  - **Sea level rise affecting millions in coastal regions** (Mumbai, Chennai, Sundarbans).
  - **Illegal sand mining accelerating erosion.**
- **Policy Recommendation:**
  - **Expand MISHTI to include community-led mangrove conservation programs**.
  - **Develop sustainable blue economy strategies for climate-resilient coastal livelihoods**.

ENERGY TRANSITION & GREEN FINANCE

- **India's Renewable Energy Progress:**
  - **Renewable energy contributes ~47% of total installed power capacity.**
  - **Green Hydrogen Mission aims to make India a global leader in clean fuel production.**
  - **₹20,000 crore raised via Green Bonds (FY24).**
- **Challenges:**
  - **Intermittency in solar & wind power due to lack of large-scale storage.**
  - **High costs of green hydrogen production.**
- **Policy Recommendation:**
  - **Develop large-scale battery storage & hydrogen fuel technology**.
  - **Enhance green finance regulations for ESG investments**.

BALANCING GROWTH & SUSTAINABILITY

India faces **a twin challenge** – ensuring **high economic growth** while remaining **committed to its climate goals**. While **progress in adaptation is evident**, key challenges include:

- **Inadequate international climate finance**.
- **Slow urban climate adaptation measures**.
- **Technological gaps in energy transition**.
- **Way Forward:**
  - **Push for climate reparations & fair financing at COP30**.
  - **Prioritize resilience-building in vulnerable sectors**.
  - **Encourage decentralized renewable energy adoption**.

India's climate strategy must focus on **both adaptation and long-term sustainability**, leveraging **indigenous knowledge, technology, and international cooperation**.

KEY STATISTICAL DATA AND FACTS

Climate Change & Adaptation Financing

Indicator	Data/Fact	Source
Adaptation Expenditure as % of GDP (FY16-FY22)	Increased from 3.7% to 5.6%	Economic Survey 2024-25
Loss & Damage due to Climate Change (FY22-FY24)	Estimated at ₹12,300 crore annually	RBI Climate Risk Report
Average Temperature Rise in India (1901-2023)	1.02°C increase	IMD (2024)
India's per capita emissions (2024)	1.9 metric tons (Global Avg: 4.7 metric tons)	World Bank
CoP29 Climate Finance Shortfall (2024)	38% below commitments	UNFCCC Report
Climate Resilience Investments Required by 2030	$2.5 trillion needed for adaptation & mitigation	NITI Aayog

- **Analysis:**
  - **India's adaptation spending has increased**, but it remains **largely self-financed**.
  - **Developed nations have failed to meet their climate finance obligations**, impacting India's green transition.

Renewable Energy Transition & India's Energy Security

Indicator	Data/Fact	Source
Total Renewable Energy Capacity (2024)	47% of total installed power capacity	Ministry of Power
Solar Energy Installed Capacity (FY24)	72 GW (Target: 280 GW by 2030)	MNRE
Wind Energy Installed Capacity (FY24)	45 GW	MNRE
Hydrogen Energy Production Target (2030)	5 million metric tons	National Green Hydrogen Mission
PM-KUSUM Solar Irrigation Capacity	397 MW installed & 7.28 lakh pumps solarized	MNRE
Total Green Bond Issuance (FY24)	₹20,000 crore raised	SEBI

- **Analysis:**
  - **India is on track to exceed its renewable energy commitments**, but **storage technology & grid stability remain challenges**.
  - **Green finance (Green Bonds, ESG investments) is growing**, but needs policy support for scalability.

Water Resource Management & Drought Resilience

Indicator	Data/Fact	Source
Groundwater Extraction in India (FY24)	231 billion cubic meters (Over-exploitation: 56% of total resources)	Central Groundwater Board
Water Stress in Indian Districts (2024)	60% of districts face groundwater depletion risks	NITI Aayog
Jal Shakti Abhiyan (2024)	3,078 water body rejuvenation projects sanctioned	MoWR
National Aquifer Mapping & Bhu-Neer Portal	7 lakh sq. km of aquifers mapped	NAQUIM
Atal Bhujal Yojana (ABY) Impact	1.2 million wells rejuvenated	Ministry of Jal Shakti

- **Analysis:**
  - **Groundwater depletion is accelerating**, necessitating **aggressive conservation measures**.
  - **Jal Shakti Abhiyan & NAQUIM are playing a key role in aquifer recharge and mapping**.

Urban Climate Adaptation & Heatwave Resilience

Indicator	Data/Fact	Source
Urbanization Rate (2024)	36.2% of population in urban areas	Census 2021 Projections
Urban Heatwave Deaths (2023)	Highest recorded in Indian history	IMD
Heat-Resilient Infrastructure Funding (NAFCC 2023-24)	₹1,650 crore allocated	MoHUA
Smart Cities Mission Climate-Adaptation Projects	119 projects completed	Smart Cities Dashboard
Tree Cover Target in Cities (FY24-FY30)	8% increase under Green Urban Agenda	MoEFCC

- **Analysis:**
  - **Heatwaves and flooding require urgent urban resilience strategies**.
  - **India needs **mandatory heat action plans for all metro cities**.

Coastal Protection & Disaster Resilience

Indicator	Data/Fact	Source
Total Coastline of India	7,516 km	MoEFCC
Mangrove Cover (2023)	5,337 sq. km (Increase of 72 sq. km since 2019)	FSI Report

Indicator	Data/Fact	Source
MISHTI Target (2023-28)	540 sq. km of mangroves to be restored	Economic Survey 2024-25
Cyclone Losses (FY22-FY24)	₹38,000 crore in damages	NDMA
National Cyclone Risk Mitigation Project (NCRMP) Coverage	256 cyclone shelters constructed	MoES

- **Analysis:**
  - **Mangrove restoration under MISHTI is progressing well**, but **sea level rise is a long-term challenge**.
  - **Cyclone preparedness has improved**, yet **fishing communities remain highly vulnerable**.

Agriculture & Climate-Resilient Farming

Indicator	Data/Fact	Source
Agriculture's Share in GDP (FY24)	16%	Economic Survey 2024-25
Climate-Resilient Seed Varieties Released (Since 2014)	2,177 varieties	ICAR
Pulses & Oilseeds Import Dependency	~55% of total demand met through imports	Ministry of Agriculture
Micro-Irrigation Coverage (PMKSY-Per Drop More Crop)	104.67% increase (FY16-FY24)	NABARD
Fasal Bima Yojana (PMFBY) Insured Area	600 lakh hectares	PMFBY Dashboard

- **Analysis:**
  - **Crop diversification & climate-resilient seeds are improving farm adaptation**.
  - **PM-KUSUM is helping reduce fossil fuel dependency in irrigation**.

International Climate Commitments & Global Standing

Indicator	Data/Fact	Source
India's Nationally Determined Contributions (NDCs) Achievement (2023-24)	On track for 2030 targets	UNFCCC
Global Climate Finance Flow to India (2023-24)	$18.7 billion (Requirement: $200 billion/year)	Climate Policy Initiative
India's Rank in Global Emission Contributors	3rd largest emitter	IPCC Report
COP29 Climate Finance Deficit	Developed countries fell short by 38%	UNFCCC
India's Renewable Energy Export Growth (FY22-FY24)	22% YoY growth in solar module exports	MNRE

- **Analysis:**
  - **India is a global leader in renewable energy adoption**, but **funding remains a bottleneck**.

- **Developed nations have failed to meet their obligations**, necessitating stronger diplomatic negotiations at **COP30**.

CONCLUSION

India has made **significant progress** in **climate adaptation**, with **increased spending, renewable energy expansion, water conservation, and urban resilience initiatives**. However, key **challenges remain**, including:

- **Insufficient climate finance from developed countries**.
- **Growing energy demand and slow green transition**.
- **Coastal and urban climate vulnerability**.

The Way Forward:

- Strengthen **climate finance frameworks** for attracting private investments.
- Expand **climate-smart urban planning & water conservation strategies**
- Advocate for **climate justice at global forums**.

ANALYSIS AND EVALUATION

Understanding India's Climate Challenge

India is at a crucial **developmental crossroads**. On the one hand, it aspires to become a **developed nation by 2047** (*Viksit Bharat*), while on the other, it must **navigate the harsh realities of climate change**. Unlike developed countries that have built their economies on **fossil fuel-driven industrialization**, India has **inherited the climate crisis without being a major historical contributor**.

The **biggest dilemma** is:

- **How does India balance economic growth with sustainability?**
- **Can it transition to a greener economy without compromising its energy security and development goals?**

Where India Stands Today

- **Per Capita Carbon Emissions:** *1.9 metric tons* (Global Avg: *4.7 metric tons*).
- **Renewable Energy Contribution:** *47% of total installed power capacity*.
- **Adaptation Expenditure:** *5.6% of GDP (FY22), up from 3.7% in FY16*.
- **Climate Finance from Developed Nations:** *38% below commitments*.

While India is **taking aggressive climate action**, key **systemic challenges remain** in **renewable energy storage, urban adaptation, water resource management, and international climate finance**.

India's Climate Adaptation Strategy: Strengths and Weaknesses

- Strengths: India's Progress in Climate Resilience
  - Leadership in Renewable Energy Transition
  - **India is among the top five renewable energy-producing nations globally.**
  - **Green Hydrogen Mission aims for 5 million metric tons of hydrogen production by 2030.**
  - **PM-KUSUM (Solar Irrigation) has solarized 7.28 lakh pumps, reducing dependence on diesel.**

Why It Matters?

- Reducing dependence on **coal and oil imports** strengthens **energy security**.
- Makes India a **global leader in clean energy**, attracting **foreign investment in green technology**.

STRONG POLICY PUSH FOR WATER SECURITY

- **Jal Shakti Abhiyan (JSA) has rejuvenated 3,078 water bodies in FY24.**
- **National Aquifer Mapping (NAQUIM) has mapped 7 lakh sq. km for groundwater conservation.**
- **Atal Bhujal Yojana (ABY) promotes community-based groundwater management.**

Why It Matters?

- India's **60% of districts face water stress**, making aquifer mapping & conservation crucial.
- Agriculture remains **highly water-intensive**, and **water scarcity threatens food security**.

URBAN CLIMATE RESILIENCE IS GAINING FOCUS

- **Atal Mission for Rejuvenation & Urban Transformation (AMRUT) has improved urban drainage & flood mitigation.**
- **Smart Cities Mission integrates green roofs, heat-resistant materials, and stormwater drainage solutions.**
- **Heatwave resilience is improving through heat action plans in major cities.**

Why It Matters?

- **Urbanization rate is 36.2%**, meaning more people are at risk from **heatwaves and urban floods**.
- Extreme heat events in 2023 were **the highest recorded in Indian history**.

CLIMATE-SMART AGRICULTURE IS TAKING SHAPE

- **PM-PRANAM promotes sustainable fertilization using nano fertilizers & organic methods.**
- **Over 2,177 climate-resilient seed varieties released since 2014.**
- **PM-Fasal Bima Yojana (PMFBY) covers 600 lakh hectares of insured land.**

Why It Matters?

- Climate change-induced **erratic rainfall & droughts** are reducing crop productivity.
- **Soil health is deteriorating due to excessive fertilizer use**, requiring urgent interventions.

WEAKNESSES: MAJOR ROADBLOCKS TO INDIA'S CLIMATE GOALS

- Energy Transition Challenges: The Coal Dilemma
  - **Coal still accounts for ~55% of India's energy mix**.
  - **Renewables suffer from intermittent supply due to lack of large-scale battery storage.**

What's the Issue?

- **Energy security is tied to coal**, but moving away is **politically and economically difficult**.
- **Large-scale battery storage solutions for solar & wind remain expensive.**

- Water Crisis: Groundwater Depletion is Accelerating
- **Punjab, Haryana, Rajasthan are over-extracting groundwater at unsustainable rates.**
- **Only 8% of India's irrigated land uses water-efficient techniques like drip irrigation.**

What's the Issue?

- **Agriculture uses 80% of India's freshwater but remains highly inefficient.**
- **Jal Shakti Abhiyan & NAQUIM are important, but execution remains slow.**

CLIMATE FINANCE: DEVELOPED COUNTRIES AREN'T DELIVERING

- **Developed nations fell 38% short of their climate finance commitments in COP29.**
- **India needs $200 billion annually for climate resilience but gets less than $20 billion.**

What's the Issue?

  - **Developed nations want India to decarbonize quickly, but aren't funding the transition.**
  - **India self-finances most of its climate projects, straining public resources.**

COASTAL & URBAN VULNERABILITIES NEED URGENT ATTENTION

- **India's 7,516 km coastline faces sea-level rise, cyclones & erosion.**
- **MISHTI (Mangrove Restoration) is promising but still under-implemented. What's the Issue: Illegal sand mining & real estate development are accelerating coastal erosion. Most cities lack climate-resilient drainage systems, leading to frequent urban flooding.**

WAY FORWARD: WHAT NEEDS TO BE DONE?

- **Strengthen Renewable Energy Storage & Battery Technology : Invest in large-scale battery storage for solar & wind power. Expand research in hydrogen fuel cells & lithium-ion alternatives.**
- **Prioritize Climate Finance & Green Bonds: Develop sovereign green bonds for funding large-scale climate projects. Push for climate reparations at COP30.**
- **Expand Water-Saving Technologies in Agriculture: Promote drip irrigation beyond just 8% of irrigated land. Subsidize adoption of precision farming & AI-based water management.**
- **Build Climate-Resilient Cities: Mandate Heat Action Plans for all major cities. Strengthen urban flood prevention measures under AMRUT & Smart Cities Mission.**

BALANCING CLIMATE ACTION & DEVELOPMENT

India **cannot afford to decarbonize at the cost of economic growth**, nor can it ignore the **climate crisis**.

- **It must chart its own unique development pathway**, balancing **industrial expansion with sustainability**.
- **The success of India's climate adaptation depends on three key factors:**
  - **Technology:** Green hydrogen, battery storage, climate-resilient crops.
  - **Finance:** Global climate funding, green bonds, private sector investment.
  - **Policy Execution:** Strengthening regulatory mechanisms & community-driven adaptation.

PRELIMS PRACTICE QUESTION

Q1: With reference to India's climate adaptation expenditure, consider the following statements:

1. India's adaptation expenditure as a percentage of GDP increased from 3.7% in FY16 to 5.6% in FY22.
2. This increase is primarily due to international climate finance contributions.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q2: Consider the following initiatives:

1. Jal Shakti Abhiyan
2. National Aquifer Mapping and Management Program (NAQUIM)
3. Atal Bhujal Yojana

Which of the above initiatives aim to address groundwater depletion in India?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Q3: With reference to India's renewable energy targets, which of the following statements is/are correct?

1. As of November 2024, renewable energy contributes approximately 47% of India's total installed power capacity.
2. The Green Hydrogen Mission aims to produce 5 million metric tons of green hydrogen by 2030.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q4: The MISHTI initiative, as mentioned in the Economic Survey 2024-25, is primarily concerned with:

(a) Promoting solar irrigation in agriculture

(b) Restoration and conservation of mangroves

(c) Developing climate-resilient seed varieties

(d) Enhancing urban flood management systems

Q5: Which of the following best describes the objective of the PM-KUSUM scheme?

(a) To promote the use of solar energy in irrigation and reduce farmers' dependence on diesel pumps

(b) To provide financial assistance to farmers for purchasing high-yield seed varieties

(c) To develop cold storage facilities in rural areas

(d) To implement watershed development projects in drought-prone regions

Q6: In the context of India's urban climate adaptation strategies, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) focuses on:

(a) Developing smart cities with advanced digital infrastructure

(b) Improving urban drainage systems and enhancing flood resilience

(c) Promoting rooftop solar installations in urban areas

(d) Establishing green belts around metropolitan cities

ANSWERS

1. (a)	**2.** (d)	**3.** (c)	**4.** (b)	**5.** (a)
6. (b)				

MAINS PRACTICE QUESTION

Q1: Discuss the effectiveness of India's current climate adaptation strategies in mitigating the economic impacts of climate change. Suggest improvements to enhance resilience in vulnerable sectors.

Q2: Analyze the role of renewable energy expansion in India's pursuit of sustainable economic growth. What challenges impede this transition, and how can they be addressed?

Q3: Evaluate the socio-economic consequences of groundwater depletion in India. How effective are government initiatives like the Jal Shakti Abhiyan and Atal Bhujal Yojana in addressing these challenges?

Q4: Examine the impact of urbanization on India's vulnerability to climate-induced disasters. Discuss the measures needed to enhance urban climate resilience.

Q5: Assess the significance of international climate finance for India's adaptation and mitigation efforts. How can India enhance its access to and utilization of such funds?

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CHAPTER: 11

SOCIAL SECTOR: EXTENDING REACH AND DRIVING EMPOWERMENT

Key-Terms

- **Inclusive Growth**: Inclusive growth refers to economic progress that ensures benefits are widely shared across all segments of society. It aims at reducing inequalities by providing equal opportunities for disadvantaged groups, including in areas like healthcare, education, and employment.
- **Innovation & Technology**: Innovation and technology encompass the development and application of new ideas, methods, and tools to solve problems and improve processes. In India, it involves leveraging technology to enhance efficiency in sectors such as agriculture, healthcare, and education.
- **Social Infrastructure**: Social infrastructure refers to physical and organizational structures that support social services such as healthcare, education, and housing. Developing robust social infrastructure is essential for fostering human capital and ensuring well-being, particularly in rural and underserved areas.
- **Digital Tools**: Digital tools are technological solutions that enable people to perform tasks more efficiently, such as mobile apps, online platforms, and cloud-based services. In India, digital tools are used for everything from education and healthcare delivery to government services and e-commerce.
- **Social Services Expenditure (SSE)**: SSE refers to government spending on programs aimed at improving social welfare, including education, healthcare, housing, and poverty alleviation. India's social services expenditure is critical to promoting equality and improving the standard of living for its citizens.
- **Public Distribution System (PDS)**: The PDS is a government program that provides subsidized food and essential commodities to low-income households. It plays a crucial role in combating food insecurity and poverty, especially in rural areas of India.
- **Gross Enrolment Ratio (GER)**: GER is a measure used to assess the total enrolment in a given level of education, regardless of age, as a percentage of the eligible population for that level. In India, improving GER is central to expanding educational access and achieving universal education.
- **Foundational Literacy and Numeracy (FLN)**: FLN refers to basic reading, writing, and arithmetic skills that are essential for further learning. In India, FLN is a key focus to address educational challenges, particularly in early childhood education, to improve overall literacy rates.
- **Social and Emotional Learning (SEL)**: SEL is an educational framework that focuses on developing the emotional intelligence and interpersonal skills of students. In India, SEL is being incorporated into school curricula to foster emotional well-being, resilience, and positive social interactions.

- **Digital Literacy**: Digital literacy involves the ability to use digital tools and technologies effectively and responsibly. In India, enhancing digital literacy is essential to bridge the digital divide and empower individuals to participate in the digital economy.
- **Ayushman Bharat**: Ayushman Bharat is a national health insurance scheme aimed at providing affordable healthcare to millions of low-income families in India. It includes coverage for hospitalization, treatment, and critical illnesses, thus reducing the financial burden of healthcare.
- **PM-ABHIM**: The PM Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) is a government initiative to strengthen the healthcare infrastructure in India, especially in rural and remote areas. It aims to improve hospital facilities, medical equipment, and access to healthcare services.
- **Universal Immunization**: Universal Immunization refers to the widespread vaccination of children to prevent various infectious diseases. India's Universal Immunization Programme (UIP) aims to reduce vaccine-preventable diseases, ensuring health equity across the country.
- **Telemedicine**: Telemedicine is the provision of medical care remotely using telecommunication technologies. In India, telemedicine has become crucial in improving access to healthcare services, particularly in rural and underserved areas.
- **AI in Healthcare**: AI in healthcare involves using artificial intelligence technologies to assist in diagnosing, treating, and managing diseases. In India, AI is being used for predictive analytics, personalized treatment, and improving the efficiency of healthcare systems.
- **Drones for Delivery**: Drones for delivery refer to the use of unmanned aerial vehicles (UAVs) to transport goods, including medical supplies and groceries. In India, drones are being explored to improve logistics, especially for remote areas with poor infrastructure.
- **Free Drugs Service**: Free Drugs Service is a government initiative that provides essential medicines to citizens at no cost. In India, it is part of efforts to make healthcare more accessible and affordable, especially for low-income populations.
- **Wearable Devices**: Wearable devices are electronic gadgets worn on the body that monitor various health metrics, such as heart rate, sleep patterns, and physical activity. In India, wearable technology is used to promote health awareness and improve personal health management.
- **Mental Well-being**: Mental well-being refers to the emotional, psychological, and social aspects of health. In India, mental health is increasingly recognized as a key area of focus, with the government and NGOs working to reduce stigma and increase access to mental health services.
- Rural Infrastructure: Rural infrastructure encompasses the physical and social facilities that support the development of rural areas, such as roads, electricity, water supply, and healthcare services. Improving rural infrastructure is vital for economic development and social well-being in India.

Chapter Glimpse

- **Objective:** This chapter highlights India's economic growth strategy focusing on inclusivity and welfare for all its citizens.
- **Analysis**: India's inclusive growth strategy aims to empower citizens through comprehensive social sector policies.
  - The integration of technology and innovation is central to improving service delivery in education and healthcare.

- Government initiatives like peer learning, life skills development, and the promotion of mental health in the workplace are expected to enhance productivity and societal harmony.
- Additionally, preventive healthcare strategies are seen as economically effective, reducing the burden on the healthcare system. The chapter also emphasizes the role of policies in ensuring equal opportunities and improving the quality of life for citizens, aligning with the vision **of Viksit Bharat 2047.**

INTRODUCTION

India's journey towards economic and social development is based on the principle of inclusive growth, ensuring that economic progress benefits all citizens. Economic growth lays the foundation for development, which in turn provides better opportunities, enhanced incomes, and reduced poverty. To achieve meaningful development, comprehensive policies focusing on education, healthcare, social security, and employment are essential.

- **Social Sector Focus**: India prioritizes inclusive growth through investments in education, healthcare, and social infrastructure.
- **Role of Innovation & Technology**: Technology enhances social service delivery in education, healthcare, and mental well-being.
- **Comprehensive Development Approach**: Inclusive growth policies in health, education, and employment are key to long-term progress.
- **Social Services Expenditure Growth**: Social sector expenditure has grown significantly, reaching 26.2% of total expenditure by FY25.
- **Household Consumption Expenditure Trends**: The urban-rural consumption gap is narrowing, aided by welfare programs and fiscal transfers.
- **Public Distribution System (PDS)**: PDS/PMGKAY provides significant welfare benefits, especially in rural areas, through food subsidies.
- **Education and Literacy Initiatives**: NEP 2020 aims for universal literacy, with initiatives like NIPUN Bharat and peer teaching for improved learning outcomes.

TREND IN SOCIAL SERVICES EXPENDITURE

- **Increased Social Sector Spending:** Social sector expenditure (SSE) has risen steadily since FY17, reflecting the growing importance of the sector. SSE as a percentage of total expenditure (TE) grew from 23.3% in FY21 to 26.2% in FY25 (BE). This represents a 21% increase in FY24 (RE) compared to FY23, and a 10% rise in FY25 (BE) over FY24 (RE).
- **Government Social Services Expenditure Growth:** From FY21 (₹14.8 lakh crore) to FY25 (BE) (₹25.7 lakh crore), the SSE has grown at a 15% compound annual growth rate (CAGR). Education and health spending saw notable growth, with education expenditure rising from ₹5.8 lakh crore in FY21 to ₹9.2 lakh crore in FY25 (BE), and health expenditure increasing from ₹3.2 lakh crore to ₹6.1 lakh crore over the same period.
- **Expenditure Distribution on Social Services:** The central and state governments have prioritized social services, including education, health, sanitation, housing, welfare of SC/ST/OBCs, and labor welfare. Education and health are key components, with health growing at a faster pace (18% CAGR) than education (12% CAGR) over the last five years.

HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY 2023-24

- **Urban-Rural Consumption Gap Narrowing:** The 2023-24 Household Consumption Expenditure Survey (HCES) shows the urban-rural gap in average monthly per capita expenditure (MPCE) narrowing from 84% in 2011-12 to 70% in 2023-24. Rural MPCE increased by 3.0% and urban MPCE by 1.4%, reflecting more balanced growth.

- **Impact of Social Sector on Inequality:** The Gini coefficient, which measures income inequality, decreased for both rural and urban areas, indicating reduced inequality due to social sector initiatives. The bottom 5% of rural households saw a 22% rise in MPCE, while the same segment in urban areas experienced a 19% growth.
- **Government Welfare Initiatives and Redistribution:** Government welfare schemes like free food grains, subsidized cooking fuel, and public health programs have positively impacted household income and consumption. These initiatives, particularly through fiscal transfers such as subsidies and pensions, are reshaping income distribution and helping improve living standards, especially for financially deprived groups.

EVIDENCE ON THE DISTRIBUTION OF BENEFITS FROM THE PUBLIC DISTRIBUTION SYSTEM (PDS)

- **Government Expenditure on Food Subsidies:** In FY2022-23, the Union government allocated 6.5% of its budget to the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY), which provides free and subsidized food rations. The Union food subsidy bill increased significantly from 0.5% of GDP in FY19 to 1% in FY23, as a response to COVID-19.
- **Coverage and Consumption of Food Rations:** 84% of the population had access to ration cards in 2022-23, with 59% holding Below Poverty Line (BPL), Antyodaya Anna Yojana (AAY), or Priority Household (PHH) cards. Around 74% of the population actively consumes food rations (rice and wheat), with higher coverage in rural (89%) areas than urban (72%) areas.
- **Welfare Gains from PDS/PMGKAY:** An imputation exercise based on HCES microdata revealed that the market-equivalent value of PDS/PMGKAY subsidies was 4% of nominal monthly consumption expenditure (MPCE) for all households, higher in rural areas (4%) than urban (2%). The subsidy also accounted for 7% of post-subsidy food consumption on average, indicating significant welfare benefits, particularly for low-income and rural households.
- **Progressive Benefits Distribution:** The PDS/PMGKAY benefits were found to be progressive, providing larger subsidies to lower-income groups. In rural areas, the bottom 20% of households received 7% of their consumption from PDS subsidies, compared to only 2% for the top 20%. The subsidy was also higher in rural areas than in urban ones, reflecting its targeted impact on economically disadvantaged groups.
- **Direct Benefit Transfers (DBTs) and Self-Help Groups (SHGs):** A survey of rural women aged 25-45, particularly those involved in SHGs, showed that government welfare schemes, including DBTs and loans, significantly improved consumption patterns. Many households used the funds for food consumption, non-food needs like electricity and water, and debt repayments. A significant share of the households (37%) were engaged in SHGs, with loans used for various needs such as household consumption, health, and starting businesses.
- **Impact of Cash Transfers:** The survey revealed that 77% of households received cash transfers from the government, preferring cash over in-kind benefits due to the flexibility it provides. Cash transfers enabled financially vulnerable households to make diverse expenditure choices, supporting both immediate consumption and longer-term financial stability. The findings underscore the effectiveness of replacing in-kind subsidies with direct, targeted cash transfers to address the needs of the poor.

EDUCATION: TREADING NEW PATHWAYS

- **Education** is crucial for **economic development** and **human capital**. The **NEP 2020** aims to create engaged, productive citizens to build an **inclusive society**.
- India's **school education system** serves **24.8 crore students** across **14.72 lakh schools** with **98 lakh teachers**. **Government schools** make up **69%** of the total, enrolling **50%** of students.
- The **NEP** aims for a **100% Gross Enrolment Ratio (GER)** by 2030, with near-universal GER at the **primary level** (93%) and efforts to improve it at **secondary** (77.4%) and **higher secondary** (56.2%) levels.
- **School dropout rates** have declined, with **retention rates** at **85.4%** for primary, **78%** for elementary, **63.8%** for secondary, and **45.6%** for higher secondary.
- Improvements in **school infrastructure** include better **sanitation**, **medical check-ups**, and **ICT facilities**.
- Programs like **Samagra Shiksha Abhiyan**, **DIKSHA**, **STARS**, **PM SHRI**, **ULLAS**, and **PM POSHAN** are aimed at achieving **NEP 2020** goals.

- In 2024, the government launched the **Navchetana** and **Aadharshila** frameworks to enhance **Early Childhood Care and Education (ECCE)**, focusing on **holistic development**, **inclusion**, and **play-based learning**.

BUILDING STRONG FOUNDATIONS THROUGH LITERACY AND NUMERACY

- The **NEP 2020** emphasizes **Foundational Literacy and Numeracy (FLN)** as critical for lifelong learning. To ensure every child attains FLN by **Grade 3** by **2026-27**, the **NIPUN Bharat Mission** was launched in 2021, focusing on **preschool** to **Grade 3** education with innovative teaching methods.
- **Peer teaching** is a key strategy, allowing **older students** (Student Champions) to support peers, especially those who need extra help. This method promotes **collaborative learning**, fosters **individualized support**, and has proven effective globally in improving **academic performance** and **social skills**.
- Programs like **Mission Ankur** (Madhya Pradesh, Gujarat) and **Mission Daksh** (Bihar) focus on personalized mentoring, and successful models like **Nalli-Kali** (Karnataka) and the **Prerana model** (various states) use peer learning for **self-paced, personalized learning**. Early evaluations in **Karnataka's Anekal block** show a **15% improvement** in numeracy outcomes.
- Integrating **peer teaching** into **teacher training**, scaling successful models, and evaluating its impact will help achieve the goals of **NIPUN Bharat**.

EMPOWERING MINDS: UNLOCKING POTENTIAL WITH SOCIAL AND EMOTIONAL LEARNING (SEL)

- **SEL** plays a critical role in a child's holistic development, complementing academic achievements with essential **mental health** and **life skills**. According to **NEP 2020**, early education should focus on **cognitive**, **socio-emotional**, and **ethical development**. SEL fosters **self-awareness**, **self-management**, **social awareness**, **relationship skills**, and **responsible decision-making**, key for academic and personal success.
- Studies show that investing in SEL brings long-term benefits, including improved **academic performance**, **mental health**, and **employability**, with a return of USD 11 for every dollar spent. Globally successful models, like **SEE Learning** (Emory University) and **RULER** (Yale), highlight SEL's impact. **India** is integrating SEL through initiatives like **SEE Learning India** and the **Life Skills Collaborative**, reaching states such as **Maharashtra** and **Rajasthan**.
- The **Tim Tim Tare (TTT)** initiative focuses on imparting **life skills** such as **empathy**, **critical thinking**, and **time management**, essential for modern challenges. Launched in **Tamil Nadu** in 2009, it now reaches millions of students across **India**, promoting student engagement through activity-based learning. TTT has expanded nationwide, providing teacher training and ensuring broad dissemination of these skills.
- The NEP 2020 stresses integrating **SEL** into India's education system for a future-ready workforce, aiming for a **100% GER at the secondary level** by **2030**.

BRIDGING THE GAP: DIGITAL TECHNOLOGY IN EDUCATION AND THE ESSENTIALITY OF DIGITAL LITERACY

- **Digital literacy** is vital for students to thrive in the 21st century, encompassing skills from basic software use to advanced programming. It ensures that students can effectively **analyse**, **synthesise**, and **communicate** digital information. However, India faces a **rural-urban digital divide**, with rural areas, especially for females, having lower internet-search capabilities. Addressing this gap is crucial for ensuring equitable access to digital education.
- The **NEP 2020** recognizes technology's potential in enhancing **inclusive education**, with schemes like **DIKSHA**, **SWAYAM**, **e-VIDYA**, and **PMGDISHA** supporting digital education. The government also introduced **PM e-Vidya DTH** channels for hearing-impaired students, promoting accessibility. Financial support through **Samagra Shiksha** is enabling ICT labs and smart classrooms in schools.
- To equip educators with modern skills, the government launched **TeacherApp**, a digital platform providing over 260 hours of resources for teachers. This initiative supports continuous professional development, fostering effective teaching methods and improved student engagement.

- **Leveraging AI** is essential for personalized learning, offering AI-powered tutors, adaptive assessments, and tailored professional development for teachers. These AI-based systems help automate tasks, allowing teachers to focus more on instruction and mentoring. Initiatives like **Atal Innovation Mission** and **Frontier Technology Labs** provide students access to cutting-edge technologies such as **AI**, **robotics**, and **3D printing**.
- Moreover, **industry-academia partnerships** are integrated into the curriculum to improve employability. The **National Apprenticeship Promotion Scheme** and **Apprenticeship Embedded Degree/Diploma Programme** are prime examples of enhancing practical training and industry-relevant certifications.
- However, **traditional classroom learning** remains vital. In response to the **Covid-19 pandemic** and the **digital divide**, **Tamil Nadu** launched the **Illam Thedi Kalvi** initiative, providing **doorstep education**. This scheme helps bridge gaps by ensuring children receive education through physical methods, supported by volunteers. The programme has proven effective in increasing **student engagement**, especially in **math** and **language skills**, while also integrating marginalized groups like **girls**, **CwSN** (children with special needs), and **migrant workers' children** into mainstream education.
- In conclusion, leveraging **digital technology** can significantly transform education by providing scalable, equitable, and accessible learning opportunities. Combining **AI**, **industry partnerships**, and **innovative schemes** like Illam Thedi Kalvi creates a more inclusive and effective education system in India.

CHILDREN WITH SPECIAL NEEDS (CWSN): FOSTERING INCLUSIVITY IN EDUCATION

- The **National Education Policy (NEP) 2020** envisions a future where every child, including those with special needs (CwSN), is included, valued, and supported. The policy emphasizes creating **inclusive classrooms**, where diversity is celebrated and barriers are removed. It advocates for **barrier-free infrastructure**, **teacher training**, and the integration of **assistive technologies** to enable CwSN to learn alongside their peers.
- The **Samagra Shiksha scheme** aligns with the NEP 2020 and the **Rights of Persons with Disabilities Act (RPWD) 2016**. This scheme has allocated funds for providing **aids and appliances**, **assistive devices**, **Braille materials**, and **therapeutic interventions** for CwSN. Infrastructure improvements, such as **ramps**, **handrails**, and **accessible toilets**, have been made in millions of schools to ensure a more inclusive environment. Additionally, the **Accessibility Code for Educational Institutions (2024)** addresses both physical and informational barriers.
- Efforts to increase the enrolment of CwSN have been significant, with notable improvements at the **secondary** and **higher secondary levels**. Despite setbacks from the **COVID-19 pandemic**, the education system is actively working to reintegrate out-of-school CwSN into formal education. According to the latest **UDISE+ report** (2023-24), there are **16.8 lakh CwSN** at the elementary level, **2.87 lakh** at the secondary level, and **1.18 lakh** at the higher secondary level.

KEY INITIATIVES FOR CWSN INCLUDE:

- **PMeVidya Series**: NCERT's inclusive teaching materials with **Indian Sign Language (ISL)** interpreters.
- **Inclusive Cell in CBSE Schools**: Ensuring an equitable and barrier-free environment.
- **Disability Screening - PRASHAST**: A mobile app that supports the screening of **21 disabilities** in **23 languages**. Over 10 lakh users have completed more than 61 million screenings since 2022.
- **Accessible Content**: Over 4,250 **ISL videos**, **10,500-word ISL dictionary** on **DIKSHA**, and **24/7 educational channels** on **PM eVidya**.
- **Inclusive Education Guidelines**: The **National Guidelines and Implementation Framework on Equitable and Inclusive Education (2021–2030)** aims to ensure no child is left behind.
- **Teacher Training**: A 5-day capacity-building program under **NISHTHA** (2023-24) for 60 lakh teachers, along with additional training on digital resources and assistive technologies.

HIGHER EDUCATION IN INDIA: EXPANDING ACCESS AND QUALITY

- India's higher education system has shown impressive growth in recent years. By 2021-22, there were **4.33 crore students** enrolled, a 26.5% increase from 2014-15. The **Gross Enrollment Ratio (GER)** for the 18-23 age group also rose from **23.7% to 28.4%** between 2014 and 2022, reflecting increased access to higher education. The government aims to raise the GER to **50% by 2035**, which will require substantial expansion of both infrastructure and educational networks.
- India has made considerable strides in building its educational infrastructure. For instance, the number of **Indian Institutes of Technology (IITs)** grew from 16 in 2014 to 23 in 2023, and **Indian Institutes of Management (IIMs)** increased from 13 to 20. Similarly, the number of **medical colleges** has grown from **387** in 2013-14 to **780** in 2024-25, and the total number of **higher education institutions** (HEIs) rose from **51,534** in 2014-15 to **58,643** in 2022-23.

DESPITE THESE ADVANCEMENTS, THE INDIAN HIGHER EDUCATION SECTOR FACES SEVERAL CHALLENGES:

- **Regulatory Framework**: While the NEP aims for a **light-touch regulatory approach**, the current system remains heavily regulated, with over 50 rules governing different aspects of education. This often limits institutional autonomy and stifles innovation. For instance, regulations on credit hours and course sequencing may not always align with the needs of diverse institutions. The focus should shift to **self-regulation** based on accreditation standards, allowing institutions to chart their own path while ensuring quality.
- **Medical Education**: The medical education sector in India has made significant strides, with the number of **medical colleges** growing and **MBBS seats** increasing. However, challenges persist, such as the **high cost** of medical education in private institutions, which can range from **₹60 lakh to ₹1 crore** for an MBBS degree. This pricing makes it inaccessible for many, leading some students to study abroad, often in countries with lower tuition fees but with quality concerns.
- **Geographical Imbalances**: There is a notable imbalance in the distribution of medical education opportunities, with a large concentration in **urban** and **southern** states. This urban-rural divide affects healthcare access, as 80% of doctors are in urban areas, despite 75% of dispensaries being in cities.
- **Specialisation Gaps**: While medical specialities like **radiology** and **dermatology** are well-represented, fields like **psychiatry** and **geriatrics** are underserved. This mismatch poses a challenge for future healthcare needs, particularly with an aging population.
- **Faculty and Quality of Education**: Despite efforts to regulate and improve medical education, challenges like **ghost faculty**, **faculty shortages**, and **low patient load** in training hospitals still affect the quality of medical education. There is a need for **better incentives** and **simplified regulations** to improve compliance and educational outcomes.

FUTURE OF MEDICAL EDUCATION AND POLICY INTERVENTIONS .TO ADDRESS THESE CHALLENGES, THE GOVERNMENT IS FOCUSING ON:

- **Increasing the number of medical colleges** through centrally sponsored schemes.
- **Regulatory reforms** initiated by the **National Medical Commission (NMC)**, which has introduced competency-based curricula and new standards for college accreditation.
- Addressing **affordability** by exploring ways to reduce the high fees in private medical colleges, making medical education more accessible.

TOWARDS A HEALTHY NATION

- **Health as a Human Capital**: Good health is essential for economic prosperity, boosting productivity, life expectancy, and supporting social development, especially for India's youthful population.
- **Government Initiatives**: Various efforts like universal healthcare access, preventive measures, and strengthened public health infrastructure aim to improve accessibility and affordability in India.

- **Increase in Health Expenditure**: Total Health Expenditure (THE) for FY22 was ₹9,04,461 crore, 3.8% of GDP, with capital expenditure rising to 12.7%, indicating growth in health infrastructure.
- **Government Insurance Schemes**: Government-funded schemes, including Ayushman Bharat (AB-PMJAY) and others, now cover millions, reducing financial hardships and lowering out-of-pocket expenses.
- **Reduction in Out-of-Pocket Expenditure**: The share of government health expenditures (GHE) increased from 29% to 48%, with out-of-pocket expenses falling from 62.6% to 39.4%.
- **AB-PMJAY's Impact**: Providing healthcare for vulnerable populations, AB-PMJAY covers 12 crore families and offers up to ₹5 lakh benefits per family, significantly reducing healthcare costs and improving access.
- **Expansion for Senior Citizens**: In 2024, AB-PMJAY was expanded to include senior citizens above 70, benefiting 6 crore people with health coverage of ₹5 lakh per family.
- **Health and Socioeconomic Factors**: Health outcomes are also influenced by factors like sanitation, nutrition, education, and early child development, highlighting the need for a comprehensive approach.

THE TRANSFORMING HEALTHCARE FOR TOMORROW

- The **Transforming Healthcare for Tomorrow** section focuses on India's ongoing efforts to improve its healthcare infrastructure, with a particular emphasis on accessible and affordable care through initiatives like **Ayushman Bharat (AB)**, **PM-ABHIM**, and **Jan Aushadhi**, as well as the **Free Drugs Service Initiative (FDSI)** and **Universal Immunization Programme (UIP)**. These initiatives aim to bridge gaps in healthcare access, especially in rural and underserved areas, and work toward the country's goal of **universal health coverage**.
- **Ayushman Bharat (AB) and Ayushman Arogya Mandirs (AAM)**: Launched in 2018, Ayushman Bharat shifts the focus from selective healthcare services to comprehensive care across prevention, promotion, treatment, and rehabilitation. More than **1.75 lakh AAMs** were operationalized by December 2024, providing essential healthcare services, including screenings for hypertension, diabetes, and cancer. These centers have also facilitated wellness sessions, including yoga, and conducted over **31 million teleconsultations**.
- **PM-ABHIM (Pradhan Mantri Ayushman Bharat Health Infrastructure Mission)**: Initiated in 2021, this five-year mission is designed to fill critical gaps in India's health infrastructure, particularly in rural and urban areas. By November 2024, significant progress had been made, with the construction of **9,594 Building-less Sub Centre-Health Wellness Centres** and **577 Critical Care Blocks**, among other components, marking a substantial expansion of healthcare services.
- **Free Drugs Service Initiative (FDSI)**: Launched in 2015 under the National Health Mission, FDSI aims to reduce **out-of-pocket expenses (OOPE)** by ensuring that essential medicines are available at public health facilities. The initiative covers medicines across **sub-health centers**, **primary health centers**, and **district hospitals**, with a stringent quality assurance process in place.
- **Universal Immunisation Programme (UIP)**: UIP, a longstanding initiative that started in 1978, provides free vaccines against 12 vaccine-preventable diseases. In **FY24**, India achieved a **93.5% immunisation coverage**, a significant milestone in protecting children and pregnant women from preventable diseases.
- **Jan Aushadhi Scheme**: The **Jan Aushadhi Kendras**, which now number over **14,000** across India, provide **affordable medicines** to the public, especially benefiting low-income groups. Despite challenges like supply and profitability, the scheme continues to thrive, particularly in rural areas, helping to increase access to low-cost medicines for chronic conditions.

DISRUPTIVE TECHNOLOGIES IN HEALTHCARE: ENHANCING ACCESS, AFFORDABILITY, AND QUALITY

- **Introduction:** Disruptive technologies, such as AI, telemedicine, and drones, are reshaping healthcare delivery in India. By addressing challenges like accessibility, affordability, and quality, these technologies aim to provide equitable healthcare and improve patient outcomes, especially in remote or underserved areas.

- **How Technology is Integrating in Healthcare Delivery:**
  - **Wearable Devices:** Wearable devices allow for continuous monitoring of health parameters, offering timely diagnoses and personalized treatment recommendations. These devices are helping to reduce hospital visits and improve preventive care.
  - **Telehealth & Telemedicine (E-Sanjeevani):** Telemedicine platforms like E-Sanjeevani enable remote consultations, making healthcare accessible in remote areas. This service has served over 31.19 crore patients and connects doctors with patients in real-time, improving healthcare efficiency.
  - **U-WIN Portal:** The U-WIN portal digitizes vaccination records and allows beneficiaries to track schedules and receive reminders. It has registered over 1.7 crore pregnant women and 5.4 crore children, demonstrating its significant impact on immunization efforts.
  - **Drones for Healthcare Delivery:** Drones are being used to deliver essential medicines and collect medical samples in difficult-to-reach areas. Projects like 'Medicines from the Sky' and 'i-Drone' have revolutionized emergency medical responses, reducing delivery times and saving lives.
  - **AI in Healthcare:** AI is being used in drug discovery, diagnostics, and personalized treatments. AI technologies, such as tele-radiology and automated disease detection, have helped improve diagnostic accuracy and healthcare access.
  - **Ayushman Bharat Digital Mission (ABDM):** ABDM is building a digital health ecosystem to support universal health coverage. By creating over 72 crore ABHA (Ayushman Bharat Health Accounts), it aims to facilitate digital health management for the Indian population.
- **Recent Example:**
  - **Use of Drones in Telangana and Arunachal Pradesh:** The WEF's 'Medicines from the Sky' project has reduced delivery times drastically. For example, drone deliveries in Arunachal Pradesh cut emergency response time from 8 hours by ground transport to just 22 minutes.
- **Example:**
  - **AI for Silicosis in Rajasthan:** The use of AI and tele-radiology for silicosis diagnosis in Rajasthan has led to faster, more accurate detection, improving patient care and enabling quicker financial assistance for affected individuals.
- **Challenges in Technology Adoption:**
  - **Skill Shortage:** India faces a shortage of specialized talent in both AI and healthcare domains, making it difficult to scale up and implement these technologies nationwide.
  - **Data Management:** The complexity of managing healthcare data, ensuring privacy, and integrating it across systems remains a challenge.

IMPACT OF LIFESTYLE AND WORK CULTURE ON MENTAL WELL-BEING

- **Mental Well-being: Beyond Happiness**
  - **Definition**: Mental well-being involves navigating life's challenges, functioning productively, and maintaining emotional, social, cognitive, and physical health.
  - **Economic Impact**: Poor mental health leads to **12 billion lost workdays globally**, costing **$1 trillion annually**; in India, it affects productivity and economic growth.
  - **2. Lifestyle & Work Culture: Key Determinants**
  - **Workplace Factors**: Poor manager/peer relationships, excessive workload, and lack of pride/purpose reduce mental well-being by **100+ MHQ points**.
  - **Lifestyle Choices**: Regular consumption of **ultra-processed foods**, lack of exercise, and excessive social media use worsen mental health.
  - **Remote Work**: Fully remote workers report **17% lower MHQ scores** than hybrid/in-person workers, highlighting the importance of social interaction.
- **Impact on Productivity**
  - **Workdays Lost**: Individuals with low MHQ scores (-100 to -50) lose **15 workdays/month**, while those with high scores (150+) lose only **2 days/month**.

- **Productivity Loss**: Poor workplace culture and lifestyle choices lead to **2-3 extra lost workdays/ month**, affecting economic output.

- **Youth Mental Health & Preventive Strategies**
  - **Youth Crisis**: Overuse of social media and internet addiction are linked to rising mental health issues among children and adolescents.
  - **Global Interventions**: Countries like Australia are banning social media for under-16s; India needs **family and school-level interventions** to promote healthy pastimes and close family bonds.
- **Government Initiatives for Mental Health**
  - **Policy Framework**: National Mental Health Policy (2014) and Mental Healthcare Act (2017) provide a rights-based approach to mental health services.
  - **Programs**: **47 Mental Health Institutes**, Tele-MANAS (mobile app for mental health support), and video consultations in Karnataka, J&K, and Tamil Nadu.
  - **Future Focus**: Preventive strategies are critical to safeguarding India's **demographic dividend** and ensuring long-term economic growth.
- Impact of lifestyle choices on health
  - **NCDs and Lifestyle Risks**: The World Health Organization (WHO) reports that non-communicable diseases (NCDs) cause 74% of global deaths, with unhealthy lifestyles contributing to a major portion of these deaths. The major risk factors for NCDs include unhealthy diets, lack of physical activity, tobacco use, and alcohol consumption.
  - **Rising NCD Deaths in India**: In India, the proportion of deaths due to NCDs increased from 37.9% in 1990 to 61.8% in 2016. The government has launched programs like the National Programme for Prevention and Control of NCD (NP-NCD) to strengthen healthcare infrastructure, improve screening, and provide care across urban and rural areas.
  - **Ultra-Processed Foods (UPFs)**: The intake of UPFs, which are energy-rich and nutrient-poor, has been linked to a range of negative health outcomes, including obesity, cardiovascular diseases, mental health issues like depression and anxiety, and other chronic conditions. The rise in consumption of UPFs has been fueled by affordability, convenience, and aggressive marketing strategies.
  - **Health Impact of UPFs**: Studies show that increased consumption of UPFs is associated with obesity, metabolic disorders, cardiovascular diseases, and mental health problems. These foods are often low in fiber and high in sugar, salt, and unhealthy fats, leading to weight gain, poor mental health, and an increased risk of chronic diseases.
  - **Government Efforts**: To tackle the issue, the Indian government has introduced several measures, including the Eat Right India initiative and the Fit India Movement. These aim to encourage healthy eating habits and physical activity. There's also a push to regulate UPFs by enforcing stricter labelling, controlling misleading marketing, and promoting healthier food alternatives.
  - **Recommendations for Improvement**: The government and stakeholders are encouraged to focus on enhancing public awareness about the adverse effects of UPFs, particularly targeting children and adolescents who are vulnerable to marketing. Policies should be put in place to limit harmful food advertisements, and nutritional thresholds for UPFs should be defined to curb their negative impact. Additionally, a "health tax" on unhealthy foods and stricter monitoring of branded products could help reduce consumption.

RURAL ECONOMY AND INFRASTRUCTURE DEVELOPMENT

Introduction: The government has prioritized rural development to ensure inclusive growth, focusing on improving living standards, infrastructure, and economic opportunities in rural areas. Various initiatives have been launched, from road connectivity to health improvements, to enhance rural livelihoods and bridge developmental gaps.

Key Government Initiatives:

- **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Aims to provide road connectivity to all habitations. As of January 2025, 7.7 lakh km of road have been completed, ensuring nearly 100% rural connectivity.

- **Pradhan Mantri Awaas Yojana-Gramin (PMAY-G):** Provides housing to rural households. 2.69 crore houses completed since 2016.
- **Mission Amrit Sarovar:** Focuses on water body development with 68,843 ponds constructed to improve water accessibility.
- **National Health Mission:** Strengthens rural health infrastructure, with significant increases in sub-centres, health workers, and specialist availability.
- **Jal Jeevan Mission:** As of January 2025, 12.2 crore households in rural India have been provided with tap water connections.
- **Swachh Bharat Mission (Gramin):** Aimed at improving sanitation, with 11.8 crore toilets and 2.51 lakh community sanitary complexes built by January 2025.

Comprehensive Rural Development:

- **Saansad Adarsh Gram Yojana (SAGY):** Aimed at developing model villages, with 3,361 Gram Panchayats adopted by MPs and 2.3 lakh projects completed.
- **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN):** Focused on improving infrastructure for Particularly Vulnerable Tribal Groups (PVTG), with a target of 8,000 km road construction.

Financial Support to Rural Economy:

- Rural financial needs are addressed through microfinance institutions, self-help groups (SHGs), and other intermediaries.
- Emphasis is placed on digitization, with initiatives like **SVAMITVA** aiming to empower rural households by digitizing land records.

Health and Livelihoods:

- Improved health infrastructure and services in rural areas have become especially critical in the post-pandemic era, ensuring better healthcare delivery.
- Government schemes are also addressing rural livelihoods, enhancing economic participation and self-sufficiency.

RURAL HOUSING: A MILESTONE FOR IDENTITY AND ECONOMIC GROWTH

Introduction: Rural housing in India is a critical factor in improving the quality of life, especially for economically disadvantaged populations. Housing, particularly through schemes like the Pradhan Mantri Awaas Yojana-Gramin (PMAY-G), is not only about providing shelter but also empowers families by fostering economic growth, identity, and social inclusion. It plays a pivotal role in India's development strategy, particularly aligned with SDG Goal 11.1 on "Safe and affordable housing."

- **PMAY-G's Milestones in Rural Housing:** Since its inception in 2016, PMAY-G has completed the construction of 2.69 crore houses, with an additional target of 2 crore more houses by 2029. The scheme provides pucca houses with essential amenities to rural families, contributing significantly to India's goal of "Housing for All."
- **Inclusive Beneficiary Identification:** PMAY-G uses a combination of Socio-Economic Caste Census (SECC), Awaas+ surveys, and Gram Sabhas to identify beneficiaries. The eligibility criteria have been streamlined by reducing exclusions, enhancing the inclusivity of the target group. This ensures that even the most vulnerable communities benefit.
- **Financial Empowerment Through DBT:** The Direct Benefit Transfer (DBT) model has revolutionized fund transfers by ensuring that funds reach the beneficiaries directly. With geo-tagging and AI-based monitoring tools, the scheme has seen better fund utilization, reduced delays, and more transparent operations.
- **Skill Development and Employment:** PMAY-G is a significant source of employment in rural areas, creating both skilled and unskilled labor opportunities. In the first two years, the scheme generated 4.82 crore person-days of skilled labor and 7.60 crore person-days of unskilled labor. This translates into an economic upliftment for rural communities, especially in construction and related sectors.

- **Women's Empowerment and Social Inclusion:** A focus on women's empowerment is integrated into the scheme, with 74% of the houses being owned by women, either solely or jointly. This promotes gender equality and enhances the social standing of women in rural households.
- **Convergence with Other Schemes:** PMAY-G is effectively converging with other rural development programs such as MGNREGA, SBM-G, and Jal Jeevan Mission, offering comprehensive support for water, sanitation, electricity, and LPG connections. This multi-dimensional approach ensures a holistic improvement in the quality of life for rural families.

LOCALISING SDGS AND RURAL WELFARE INITIATIVES

Introduction: Localising SDGs ensures rural development aligns with global goals, focusing on basic amenities like housing, sanitation, water supply, and electrification. This process empowers local communities, promoting inclusive growth and better living conditions through initiatives such as Mission Antyodaya and the Transformation of Aspirational Districts Programme (TADP).

Key Aspects of Localising SDGs:

Mission Antyodaya & Panchayat Development Plans: SDGs are being localised through village-level planning under Mission Antyodaya and TADP, addressing regional needs while aligning with national frameworks.

Kerala's Community-Based Model: Kerala's strong local governance model focuses on SDG integration at the grassroots, with real-time monitoring dashboards and training programs for local officials.

SDG Coordination Centres: Operational in multiple states, SDGCCs assist in aligning state and district-level development with SDG goals, fostering integrated policymaking and inter-departmental cooperation.

Data and Financing Availability: Successful localisation requires accessible data and local financing, enabling targeted interventions at the ground level to achieve SDG outcomes.

Collaboration Among Stakeholders: A cooperative approach across government, civil society, and private sectors ensures the effective delivery of SDG-related projects, promoting sustainability and inclusion.

Impact on Local Governance: Localisation drives a shift towards result-based, outcome-linked planning, enhancing evidence-based decision-making for vulnerable populations under the principle of 'Leaving No One Behind.'

Examples in India:

- **FNHW Interventions**: DAY-NRLM implements health, nutrition, and sanitation interventions in 5369 blocks, promoting local produce and improving rural well-being.
- **Gender Inclusion Initiatives**: The creation of Gender Resource Centres (GRCs) under DAY-NRLM addresses gender issues at the local level, empowering over 25 lakh Gender Point Persons.

Additional Measures for Rural Welfare:

- **Free Legal Assistance**: National Legal Services Authority (NALSA) provides legal aid to disadvantaged sections through Lok Adalats and pro bono services, ensuring justice accessibility.
- **National Social Assistance Programme (NSAP)**: Offering social security for vulnerable groups, NSAP supports 3.09 crore BPL beneficiaries, complemented by state pension schemes for financial assistance.

Enhancing Rural Incomes:

- **Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM):**
  - Launched in 2011, DAY-NRLM aims to reduce rural poverty by creating self and wage employment opportunities. It focuses on social mobilisation, financial inclusion, and sustainable livelihoods.

- The program has mobilised 10 crore rural households into SHGs and provided financial support, including ₹49,000 crore for SHGs and 36,205 Custom Hiring Centres for farmers.
- Key components include the Start-Up Village Entrepreneurship Programme (SVEP) and Aajeevika Grameen Express Yojana, benefiting rural women and small farmers.

- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):**
  - MGNREGA guarantees 100 days of wage employment annually to rural households for unskilled work, with significant participation from women (57.97% in 2024-25).
  - It has evolved from a wage employment scheme to a rural asset creation program, focusing on soil improvement, water management, and infrastructure.
  - Efficiency reforms like Aadhaar-based payments and geotagging have improved implementation and transparency.

Outlook:

- **Welfare-Enhancement Approach:** The Indian government's growth strategy focuses on welfare, ensuring opportunities for all citizens to reach personal and professional goals. This includes advancements in education, health, and infrastructure to promote inclusive development.
- **Education and Health System Improvements:** Although progress has been made in education and health, there's a need to enhance delivery systems. Integrating innovation and technology can help ensure benefits reach the most underserved communities, addressing gaps in learning outcomes and improving healthcare access.
- **Focus on Learning Outcomes:** Addressing the gap between class standards and actual learning requires innovative teaching methods. Emphasizing peer learning, emotional development, digital literacy, and life skills will improve both academic performance and critical thinking.
- **Preventive Health and Quality of Life:** The National Health Policy aims for universal health coverage and prevention of non-communicable diseases (NCDs). Technological advancements in health infrastructure, like eSanjeevani and AI, are enhancing healthcare access, particularly in underserved regions.
- **Comprehensive Rural Development:** Initiatives focusing on rural infrastructure, housing, sanitation, and livelihoods are central to the government's welfare agenda. These efforts aim to improve rural connectivity, water access, and social inclusion, contributing to inclusive growth and bridging equity gaps.
- **Regulatory Reforms:** Regulatory institutions in health and education must balance societal needs and service provision. Evolving to trust-based regulation, backed by transparency and voluntary compliance, can improve outcomes and reduce the burden on state capacity.

PRELIMS PRACTICE QUESTION

Q1: Consider the following statements regarding trends in social services expenditure and welfare initiatives in India:

1. Social sector expenditure (SSE) as a percentage of total government expenditure has increased since FY21, with education and health being key components.
2. The urban-rural gap in average monthly per capita expenditure (MPCE) has narrowed over the years, reflecting more balanced growth.
3. The Public Distribution System (PDS) and Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) subsidies benefit higher-income households more than lower-income groups.
4. Direct Benefit Transfers (DBTs) have been found to be less effective in improving household consumption patterns compared to in-kind subsidies.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 3 and 4 only

Q2: Consider the following statements regarding India's education sector and the implementation of NEP 2020:

1. The National Education Policy (NEP) 2020 aims for a 100% Gross Enrolment Ratio (GER) by 2030, with significant progress in higher secondary education enrolment.
2. Peer teaching, promoted under initiatives like NIPUN Bharat, has been globally recognized for improving academic performance and social skills.
3. Government schools in India constitute 69% of total schools but enroll less than 40% of students.
4. Programs like PM SHRI, DIKSHA, and Samagra Shiksha Abhiyan are focused on achieving the NEP 2020 goals, including improving school infrastructure and digital learning.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 and 4 only

(c) 1 and 3 only

(d) 3 and 4 only

Q3: With reference to Social and Emotional Learning (SEL) and Digital Literacy in India's education system, consider the following statements:

1. The National Education Policy (NEP) 2020 mandates the integration of SEL into the education system to develop cognitive, socio-emotional, and ethical competencies.
2. The Tim Tim Tare (TTT) initiative, originally launched in Rajasthan, focuses on digital literacy and AI-based learning for students in secondary education.
3. The PM e-Vidya DTH channels cater specifically to hearing-impaired students, improving accessibility in digital education.
4. The Illam Thedi Kalvi initiative, launched in Tamil Nadu, addresses learning gaps caused by the digital divide by providing community-based education.

Which of the statements given above are correct?

(a) 1 and 4 only

(b) 2 and 3 only

(c) 1, 3, and 4 only

(d) 1, 2, and 3 only

Q4: With reference to Children with Special Needs (CwSN) and Higher Education in India, consider the following statements:

1. The NEP 2020 envisions a barrier-free education system for Children with Special Needs (CwSN) through the integration of assistive technologies and infrastructure improvements.
2. The Samagra Shiksha scheme provides funding for the establishment of disability-specific schools across India, particularly targeting rural areas.
3. The PRASHAST app facilitates the screening of disabilities in 23 languages, helping ensure inclusivity in education.
4. The government aims to raise the Gross Enrollment Ratio (GER) in higher education to 50% by 2035, with significant improvements in the number of medical colleges.

Which of the statements given above are correct?

(a) 1, 3, and 4 only

(b) 2, 3, and 4 only

(c) 1 and 3 only

(d) 1, 2, and 4 only

Q5: With reference to India's healthcare initiatives and their impact, consider the following statements:

1. The total health expenditure (THE) for FY22 was ₹9,04,461 crore, which accounted for 3.8% of the GDP, with capital expenditure increasing by 12.7%.
2. The Ayushman Bharat scheme covers 12 crore families and offers health benefits of up to ₹5 lakh per family, significantly reducing healthcare costs.
3. The Jan Aushadhi Scheme has over 14,000 Kendras across India, providing affordable medicines, particularly for low-income groups, despite challenges in supply and profitability.
4. The Universal Immunization Programme (UIP) achieved 90% immunization coverage in FY24, continuing to safeguard children and pregnant women against preventable diseases.

Which of the statements given above are correct?

(a) 1, 2, and 3 only

(b) 1, 2, and 4 only

(c) 2, 3, and 4 only

(d) 1, 2, 3, and 4

Q6: With reference to India's healthcare initiatives and the role of disruptive technologies, consider the following statements:

1. The Ayushman Bharat Digital Mission (ABDM) aims to build a digital health ecosystem, facilitating digital health management for over 72 crore people in India.
2. Telemedicine platforms like E-Sanjeevani have served over 31 crore patients, making healthcare accessible in remote areas.
3. Drones, as part of the 'Medicines from the Sky' initiative, have successfully reduced emergency response times, such as in Arunachal Pradesh, where delivery times were reduced from 8 hours to 22 minutes.
4. AI in healthcare is primarily being used for patient care and personal consultations, rather than drug discovery or diagnostics.

Which of the statements given above are correct?

(a) 1, 2, and 3 only

(b) 1, 2, and 4 only

(c) 2, 3, and 4 only

(d) 1, 3, and 4 only

Q7: With reference to the impact of lifestyle choices on health and mental well-being, consider the following statements:

1. Poor mental health leads to a global loss of $1 trillion annually due to lost workdays, with India experiencing similar productivity impacts.
2. Excessive social media use, lack of exercise, and regular consumption of ultra-processed foods are key contributors to poor mental health and lifestyle-related diseases.
3. The National Mental Health Policy (2014) and Mental Healthcare Act (2017) are crucial government initiatives to improve mental health care in India, with preventive strategies being a primary focus for future planning.
4. The rise in non-communicable diseases (NCDs) in India is largely due to an increase in the consumption of ultra-processed foods, contributing to obesity, cardiovascular diseases, and mental health issues.

Which of the statements given above are correct?

(a) 1, 2, and 3 only

(b) 2, 3, and 4 only

(c) 1, 3, and 4 only

(d) 1, 2, 3, and 4

ANSWERS

1. (a)	**2.** (b)	**3.** (c)	**4.** (c)	**5.** (a)
6. (a)	7. (d)			

MAINS QUESTION

Q1: "Discuss the measures taken under the National Education Policy (NEP) 2020 to promote inclusive education for Children with Special Needs (CwSN). How effective have these measures been?"

Q2: "The Rights of Persons with Disabilities Act, 2016 and Samagra Shiksha scheme aim to create an inclusive learning environment. Critically analyze their impact on the education of CwSN in India."

Q3: "Examine the role of assistive technology and digital initiatives like PM eVidya in enhancing educational accessibility for differently-abled children in India."

Q4: "The Gross Enrollment Ratio (GER) in higher education has seen significant growth, yet challenges persist. Analyze the key issues affecting access and quality in India's higher education sector."

Q5: "Discuss the impact of the National Education Policy (NEP) 2020 on higher education reform in India. How does it address issues of accessibility, affordability, and quality?"

Q6: "Despite an increase in medical colleges and MBBS seats, the affordability and regional imbalance in medical education remain concerns. Suggest policy measures to address these issues."

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CHAPTER: 12

INFRASTRUCTURE: LIFTING POTENTIAL GROWTH

Key-Terms

- **Sustainable Development**: Sustainable development refers to growth that meets the needs of the present without compromising the ability of future generations to meet their own needs. It balances economic, social, and environmental goals, with an emphasis on long-term ecological health and resource conservation.
- **Secularism**: Secularism is the principle of separating religion from government institutions and policies. It ensures that individuals' rights and freedoms are not influenced by religious doctrines, promoting equality among different religious and non-religious communities.
- **Inclusive Growth**: Inclusive growth involves policies and actions that ensure all segments of society, particularly disadvantaged groups, benefit from economic development. It focuses on reducing inequalities and improving access to resources like education, healthcare, and employment.
- **Demographic Dividend**: Demographic dividend refers to the economic growth potential resulting from a favorable age structure, where the working-age population (15-64 years) is larger than the dependent population (children and elderly). It can lead to increased productivity and economic growth if harnessed properly.
- **Governance**: Governance involves the processes and mechanisms through which institutions, organizations, and governments make and implement policies. Good governance is characterized by transparency, accountability, participation, and rule of law, ensuring efficient and equitable decision-making.
- **Federalism**: Federalism is a system of government where power is divided between a central authority and regional or state governments. In India, it ensures that states have significant control over their affairs while being unified under a central government.
- **Social Justice**: Social justice refers to the fair distribution of wealth, opportunities, and privileges within a society. It aims to ensure that all individuals, especially marginalized groups, have access to rights, resources, and opportunities to achieve equality.
- **Human Development**: Human development focuses on improving people's well-being, expanding their capabilities, and ensuring equitable access to resources such as education, healthcare, and employment. It measures progress in terms of human potential rather than just economic growth.
- **Digitalization**: Digitalization is the integration of digital technologies into all areas of business, society, and government. It enables more efficient operations, communication, and service delivery, with a major impact on sectors like healthcare, education, and commerce.

- **Economic Growth**: Economic growth refers to the increase in the value of goods and services produced by an economy over time. It is typically measured by the growth in GDP and reflects improvements in productivity, employment, and overall economic prosperity.
- **Governance**: (Duplicate keyword) Governance is the process of decision-making and implementation within an organization or government. Effective governance is vital for managing resources, ensuring fairness, and fostering development.

Chapter Glimpse

- **Objective**: The chapter focuses on India's economic growth strategy, emphasizing inclusivity and welfare for all citizens. The government aims to empower citizens through investments in education, healthcare, skill development, and social infrastructure.
- **Analysis**: India's strategy for inclusive growth focuses on creating equal opportunities for all citizens. Significant progress has been made in areas like education, healthcare, and infrastructure, but there is still potential for improvement through innovation and technological advancements.
  - Policies that prioritize mental health, preventive healthcare, and skill development are integral to the country's long-term development.
  - The chapter emphasizes the role of comprehensive and holistic social policies that address multiple factors affecting citizens' well-being.
  - It also discusses how effective welfare delivery systems, enhanced by technology, can empower individuals and improve their overall quality of life. The chapter ties this strategy to the vision of achieving Viksit Bharat 2047.

INTRODUCTION

India's economic and social development is rooted in the pursuit of sustainable and inclusive growth. Economic growth expands the economy, while development ensures that the benefits of growth reach all sections of society. This dual approach enhances incomes, reduces poverty, and improves living standards through better healthcare, education, and access to basic necessities.

For growth to lead to meaningful development, effective policies are essential. These policies must focus on education, healthcare, social security, and employment opportunities, all of which contribute to improved social and economic infrastructure. The government has adopted several interventions aimed at ensuring welfare for all, including integrating technology in service delivery, which has the potential to make welfare systems more transparent and cost-effective. This approach aligns with the vision of Viksit Bharat 2047, which seeks to create a developed and inclusive India. The chapter underscores the importance of holistic, comprehensive, and sound policies in achieving these goals, ensuring that all citizens have the opportunity for self-growth and progress.

EMPLOYMENT AND SKILL DEVELOPMENT: EXISTENTIAL PRIORITIES

- **Post-Pandemic Recovery and Formalisation:** India's labour market has seen improvement, with a notable decline in the unemployment rate, enhanced labour force participation, and a resilient manufacturing sector, showcasing the impact of the post-pandemic recovery.

- **Harnessing Demographic Dividend:** India's demographic advantage, with a young population and declining dependency ratio, offers significant growth potential. To fully capitalize on this, creating quality jobs and improving employability through reskilling and upskilling is vital for long-term growth.
- **Reskilling and Upskilling:** The government focuses on reskilling, upskilling, and new-skilling to align the workforce with global demands, fostering both domestic and international employability. Key sectors like the digital economy and renewable energy are seen as significant job creators.
- **Simplification and Labour Flexibility:** Deregulation and simplifying business compliances are key to reducing costs and encouraging enterprises to hire more. Labour flexibility is crucial for driving sustainable job growth, particularly in formal sectors.
- **Women's Workforce Participation:** Increasing women's workforce participation is a priority through targeted skill development and entrepreneurial support, aimed at creating more inclusive employment opportunities and addressing gender disparities in the labour market.
- **Sectoral Focus on Job Creation:** The Indian government is focusing on sectors like digital economy and renewable energy to generate high-quality jobs. These sectors offer vast potential for job creation, contributing to the vision of Viksit Bharat (developed India).

KEY INSIGHTS FROM EMPLOYMENT TRENDS AND DEMOGRAPHIC ADVANTAGE

- **India's Demographic Opportunity:** With a young population and a declining dependency ratio, India's economic success hinges on integrating this workforce into productive roles, which can fuel inclusive growth.
- **Job Creation Target:** India must generate 78.5 lakh non-farm jobs annually until 2030 to productively engage its growing workforce, ensuring sustainable economic growth.

PLFS REPORT ON EMPLOYMENT IN INDIA

- **Post-Pandemic Employment Recovery**:The all-India unemployment rate has decreased from 6% in 2017-18 to 3.2% in 2023-24. This signifies a robust recovery post-pandemic, reflecting stronger employment trends across India, both in urban and rural areas. (Source: PLFS 2023-24)
- **Improvement in Labour Force Metrics**: Both the Labour Force Participation Rate (LFPR) and Worker-to-Population Ratio (WPR) have risen, suggesting more people are either employed or seeking employment. Urban areas have shown notable progress, with LFPR improving from 49.3% to 50.4% between Q2 FY24 and Q2 FY25. (Source: PLFS 2023-24)
- **Rise in Self-Employment**: The proportion of self-employed workers has increased significantly from 52.2% in 2017-18 to 58.4% in 2023-24, reflecting a shift towards entrepreneurship and flexible work structures. (Source: PLFS 2023-24)
- **Changes in Employment Categories**: The share of casual laborers has decreased from 24.9% to 19.8%, while regular wage/salaried employment has slightly decreased from 22.8% to 21.7%. This indicates a shift towards more stable forms of employment, particularly self-employment. (Source: PLFS 2023-24)
- **Impact on Women's Employment**: Women have increasingly engaged in self-employment or household enterprises, especially in rural areas, where the share of "own account workers/employers" rose from 19% in 2017-18 to 31.2% in 2023-24. (Source: PLFS 2023-24)
- **Government Support for Entrepreneurship**: Programs like Mudra Yojana, Skill India, and Start-Up India have played a crucial role in empowering individuals to pursue entrepreneurship, especially for women, thereby facilitating the growth of self-reliant livelihoods. (Source: Economic Survey 2024-25)
- **Case Study: Rural Women's Employment**: In rural areas, the proportion of women engaged as "helpers in household enterprises" rose, highlighting a trend towards family-run businesses and self-employment. **Data**: Women's participation in regular salaried employment fell from 10.5% to 7.8% from 2017-18 to 2023-24, reflecting a shift towards flexible, family-oriented work.

SECTORAL DISTRIBUTION OF THE WORKFORCE

- **Agriculture Employment**: The agriculture sector continues to dominate employment in India, with a rise from 44.1% in 2017-18 to 46.1% in 2023-24.
- **Shift in Industry & Services**: Employment in the industry and services sectors declined. Manufacturing's share fell from 12.1% to 11.4%, and services from 31.1% to 29.7%.
- **Gender Dynamics**: Female workers in agriculture have increased from 57% to 64.4%, while male participation decreased from 40.2% to 36.3%. Male workers are more involved in construction, trade, and services.
- **Rural vs Urban Employment**: In rural areas, female agricultural employment rose from 73.2% to 76.9%, while male participation fell. In urban areas, women predominantly work in other services, manufacturing, and agriculture.
- **Increase in Female LFPR**: The Female Labour Force Participation Rate (FLFPR) increased from 23.3% in 2017-18 to 41.7% in 2023-24, mainly driven by rural women.
- **State-level FLFPR Growth**: In 2017-18, 20 states had FLFPR below 20%; by 2023-24, only 3 states remained in this category, with many now in the 30-40% range.
- **Rural Initiatives**: The rise in FLFPR is linked to government schemes like the Deendayal Antyodaya Yojana, promoting women's economic participation.
- **Unpaid vs Paid Work**: A survey highlighted that a significant portion of women in rural areas are engaged in unpaid agricultural work, but increasing numbers are transitioning to paid work, especially in poorer households.
- **Entrepreneurship Support**: Women-led entrepreneurship is growing, with 73,151 startups featuring female directors under the Startup India Initiative, and significant funding through schemes like the Startup India Seed Fund.
- **Challenges in Female Employment**: Gender norms and childcare responsibilities are major barriers to female participation in the workforce. Policies are focusing on skill development, childcare facilities, and transitioning women to non-traditional sectors.

HARNESSING THE POWER OF WOMEN ENTREPRENEURS FOR INDIA'S ECONOMIC FUTURE

Promoting Women-Owned Enterprises: A recent **World Bank paper** highlights the potential of **women-owned, growth-oriented enterprises** to boost **female labor force participation rate (FLFPR)** and contribute to India's economic growth. Providing **business development services** to support women entrepreneurs is key to enhancing their entrepreneurial efforts, especially in rural areas.

- **Women's Role in Key Sectors**:
  - In sectors like **khadi, sericulture, handicrafts, and handlooms**, women are the backbone of production. For example:
  - Over **80%** of people in the khadi sector are women.
  - **50%** of sericulture practitioners are women.
  - Women account for **56.1%** of the workforce in handicrafts and **72%** of handloom workers, according to the Handloom Census 2019-20.
- **Government Initiatives to Support Female Entrepreneurship**:
  - Several government programs have been introduced to **boost women entrepreneurship**:
  - **63%** of formalized enterprises since January 2023 are women-owned.
  - **PM Employment Guarantee Programme**: In FY24, **41%** of loans were sanctioned to women, with increased subsidies.
  - **Marketing and Credit Support**: Women entrepreneurs benefit from **100% subsidy** on **ZED certification** and **90% guarantees** under the **Credit Guarantee Scheme**.

- Other initiatives include **SANKALP** (training women in entrepreneurship) and the **Women Entrepreneurship Platform**, which aggregates and showcases policies for women-led startups.

- **Focus on Rural Women Entrepreneurs**:
  - **Rural women** face additional challenges, including **limited business skills**, **market access**, and **technology gaps**. Innovative solutions, such as **credit linkages**, **skill training**, and improved access to government benefits, can empower them.
  - The **Women Entrepreneur Financial Empowerment Programme (WEFEP)**, in partnership with **GAME**, helps rural women entrepreneurs improve credit access by assisting them with loan applications, business proposals, and bank visits. As of the initiative's latest update, **2,400 loans** were sanctioned, amounting to ₹30 lakh in loans for rural women.

- **Digital and E-Commerce Platforms for Women**:
  - Programs like **GAME's Women Economic Empowerment (WEE)** foster gender-responsive policies to bridge the gap in access to **digital platforms**. This initiative targets to empower **2.5 lakh women** in the **digital platform economy** by 2025, enabling rural women to engage in e-commerce, gig work, and job tech.
  - **State-Level Initiatives**: **WE Hub** in Telangana is India's first state-led incubator focused on supporting **women entrepreneurs**. It offers access to technical, financial, and policy support, helping women scale up their businesses and secure global market access. Over **6,376 startups and SMEs** have been incubated, with **75%** of these startups surviving beyond 2 years.
  - **Empowerment and Economic Growth**: Women's growing participation in entrepreneurship contributes to **job creation**, economic development, and more **inclusive growth**. By tapping into their **latent potential**, women can drive the country toward higher levels of development and economic prosperity.

TRENDS IN WAGES AND EARNINGS

Earnings Growth:

- From 2018-19 to 2023-24, average monthly earnings for regular/salaried workers and self-employed workers grew at a compound annual growth rate (CAGR) of 5%, while the daily wages of casual workers grew at a CAGR of 9%.
- Self-employed workers experienced fluctuations, but wages rebounded significantly post-pandemic.
- Casual workers have seen an increase in nominal wages, though their real wage growth is lower than that of regular and self-employed workers.

Gender Wage Gap:

- The data reveals a significant gender disparity, with male workers earning notably higher wages than their female counterparts across all categories (self-employed, regular, and casual workers).
- For instance, the average monthly earnings for self-employed men in urban areas is ₹22,930, while women in the same category earn ₹8,489.
- In casual labor, women earn ₹354 per day on average in urban areas compared to ₹529 for men.

Rural Wage Trends:

- Rural wages in agriculture and non-agriculture sectors have seen growth, with women benefiting more in some cases. In FY25 (April-September 2024), nominal wages grew by 7% for women in agriculture and 7.9% in non-agricultural activities, outperforming their male counterparts.
- Real wages in agriculture have seen modest increases, with women experiencing a stronger rise than men. Non-agricultural real wages also show notable gains for women.

Unincorporated Sector Enterprises:

- The average emolument per hired worker in the unincorporated sector rose by 13% in 2023-24, with the manufacturing sector leading the way with a 16.1% increase.

- There was a rise in the number of hired workers in non-agricultural unincorporated sectors, signaling positive employment growth in these areas.

Corporate Profitability and Wage Share:

- Corporate profits surged to a 15-year high in FY24, driven by sectors like financials, energy, and automobiles, but wage growth lagged behind. While profits grew by 22.3%, employment increased by just 1.5%.
- This disparity between profit growth and wage growth raises concerns about income inequality and suggests that the distribution of wealth between labor and capital is skewed.
- A greater share of profits concentrated in large companies while wages stagnate could undermine consumer demand, potentially slowing economic growth.

International Comparison: The section also draws an analogy to Japan's post-WWII industrialization, where workers, consumers, and retirees contributed to economic growth by accepting lower wages in exchange for investment in manufacturing and infrastructure. This highlights the importance of a balanced distribution of income between workers and capital for sustained growth.

EMPLOYMENT IN FACTORIES

Factory Employment Trends:

- **Post-Pandemic Recovery**:The **manufacturing sector** showed resilience with a **7% increase in employment** in FY23 compared to FY22, adding over **22 lakh jobs** since the pre-pandemic levels (FY19). This marks a significant recovery, especially after the sector lost around **5 lakh jobs** during the pandemic in FY21. This growth reflects a strong rebound as economic conditions improved.
- **Factory Size and Employment Share**: The **number of large factories** (with over 100 workers) increased by **7%** compared to FY22, while **small factories** (fewer than 100 workers) saw a **2% increase**. Large factories now make up **22% of all operational factories** but employ around **80% of the total factory workers**.
- **Emoluments and Productivity**: Data shows growth in both **emolument per person** and **net value added (NVA) per person**, indicating increased productivity and rising compensation for workers in the manufacturing sector.

FORMALIZATION OF THE JOB MARKET

EPFO Data and Formal Job Growth:

- The **Employees' Provident Fund Organisation (EPFO)** data highlights that **net additions to EPFO memberships** more than doubled from **61 lakh in FY19** to **131 lakh in FY24**. By the first eight months of FY25 (April-November), **95.6 lakh** net payroll additions were recorded.
- The largest share of EPFO payroll additions comes from **expert services** (50% of total additions in FY25), followed by **trading industries** and **commercial establishments**.

Youth Employment: The **18-25 age group** contributed **47% of the net payroll additions** during April-November 2024, with **61% of net payroll additions** coming from those under 29 years old. This shows that **youth employment** is a major driver of the **formal job market's expansion**.

SUPPORT FOR UNORGANISED WORKERS:

eShram Portal:

- The **eShram portal**, launched in August 2021, helps register unorganised workers and provides them with a **Universal Account Number (UAN)**. As of December 2024, over **30.51 crore** unorganised workers have registered.

- The government aims to make **eShram a one-stop solution** by integrating various social security and welfare schemes, such as **PMAY**, **MGNREGA**, and **Ayushman Bharat**, to ensure unorganised workers can access benefits directly through the portal.
- The **manufacturing sector's** recovery and growth in factory employment are strong indicators of a post-pandemic resurgence in industrial jobs.
- The **formalization** of the job market, as seen in the growth of EPFO memberships, is an important step towards improving social security and creating a more structured workforce.
- The **youth-driven growth** in formal employment is promising, reflecting a dynamic shift towards a younger workforce in India's organized sector.
- The **eShram portal** and its integration with social welfare schemes are positive steps in improving the livelihoods and security of **unorganised workers**, making it easier for them to access benefits.

JOB CREATION: ACTION TOWARDS ENHANCED EMPLOYMENT OPPORTUNITIES

Labour Law Reforms:

- The central government introduced four new Labour Codes (Wages, Social Security, Industrial Relations, and Occupational Safety, Health, and Working Conditions), consolidating and simplifying 29 existing laws. These reforms aim to strengthen worker rights, improve safety standards, and promote transparency and accountability in business practices.
- States have begun implementing aspects of these codes, such as increasing thresholds for retrenchment approval and allowing women to work night shifts with safety provisions.

Occupational Safety and Health (OSH):

- OSH regulations are key to enhancing worker productivity. The introduction of the OSH Code in 2020 is intended to improve working conditions and prevent accidents, particularly in sectors like manufacturing and construction, where injuries are prevalent.
- Statistics show a decline in industrial injuries from 2015 to 2020, illustrating the impact of better safety standards.

Challenges with Compliance:

- While labour laws are crucial for protecting workers, the extensive and sometimes micromanaged regulations can hinder business flexibility, particularly for small and medium enterprises (SMEs). For example, restrictions on working hours and overtime can limit a company's ability to scale production in response to market demands.
- Some of these laws may also reduce workers' earning potential due to limitations on overtime hours, though new reforms are starting to offer greater flexibility in this area.

Social Security for Gig and Platform Workers: The Code on Social Security (2020) aims to address the lack of coverage for gig and platform workers by providing life insurance, accident cover, maternity benefits, and old-age protection. A dedicated fund is set up to finance these measures.

Public Social Security Schemes: The government launched schemes like the Pradhan Mantri Suraksha Bima Yojana (PMSBY) and Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) in 2015 to provide social security to low-income and underprivileged populations. Millions have enrolled in these programs, which are accessible through the eShram portal.

DRIVING EMPLOYMENT OPPORTUNITIES THROUGH THE DIGITAL ECONOMY

- **Broadening Job Opportunities:** The digital economy in India is expected to surpass USD one trillion by 2025. This sector has created a wide range of job opportunities, from gig work (like delivery and ride-sharing) to technical roles (software engineers and data analysts).

- **Gig Economy Growth:** According to NITI Aayog, India's gig workforce is projected to reach 23.5 crore by 2029-30. These jobs are reshaping the labor market, providing flexibility and new employment avenues.
- **Gender Inclusion:** The digital economy offers an opportunity to reduce gender inequality by providing remote work options, which can help overcome barriers such as limited mobility, cultural biases, and workplace safety concerns. Studies show that fintech adoption and digital platforms can improve female employment and financial inclusion, empowering women in developing economies.
- **Dual Effect of Digital Technologies:** Automation can displace jobs, but it also creates new roles through technological advancements, leading to increased labor demand.

GREEN ECONOMY AND JOB CREATION

- **Renewable Energy Sector:** India's renewable energy sector, particularly hydropower, provides significant employment opportunities. In 2023, India's renewable energy sector employed over a million people, with hydropower being the largest contributor.
- **Empowering Women in Renewable Energy:** The renewable energy sector also supports women's employment. The Solar Urja Lamps project in Rajasthan trained women from self-help groups (SHGs) to assemble, sell, and maintain solar lamps, giving them financial independence. Similarly, GEAPP India's solarizing initiatives aim to empower women entrepreneurs in rural areas.
- **Climate-smart Solutions for Women Entrepreneurs:** Technological solutions powered by decentralized renewable energy (DRE), such as solar energy, can boost women's productivity in agriculture, agro-processing, and micro-enterprises. The SELCO Foundation's work in empowering women farmers through solar-powered processing units is one such example.

CHALLENGES AND OPPORTUNITIES

- **Gender and Climate Challenges:** Women, especially in rural areas, are disproportionately impacted by climate change. Solutions like DRE can offer alternative livelihoods, but challenges remain, including socio-cultural barriers, lack of financing, and inadequate infrastructure.
- **Policy Needs:** The growth of both the digital and green economies requires supportive policies that address issues like automation's impact on labor, gender inequality, and climate risks. Additionally, strategies to integrate women into these sectors, particularly through energy-efficient technologies and financial inclusion, are crucial.

SKILL DEVELOPMENT: UPSKILLING, RESKILLING AND NEW SKILLING FOR A CHANGING WORLD

India's Skill Landscape:

- **Current Situation**: A significant portion of India's workforce has low educational attainment, with 90.2% having secondary education or less. A similar proportion (88.2%) are engaged in elementary to semi-skilled jobs. This demonstrates a considerable gap in skill levels when compared to the current demands of the job market.
- **Vocational Training**: A critical issue is the lack of vocational training; 65.3% of the workforce did not receive formal vocational or technical training. However, efforts are underway to increase this figure, and vocational training is being emphasized across different socio-economic groups.

Mismatch Between Education and Occupation:

- **Skill Mismatch**: Many graduates and postgraduates are underemployed in roles beneath their educational qualifications. This mismatch highlights the need for alignment between academic qualifications and job market demands.
- **Growing Importance of Technical and Vocational Education (TVET)**: The government's initiatives focus on providing practical, industry-specific skills, which are crucial for reducing this gap.

Government Initiatives for Skill Development:

- **Schemes and Training Programs**: Several programs aim to upskill the workforce:
- The **Pradhan Mantri Kaushal Vikas Yojna (PMKVY)**, which trains millions in short-term skills, has already certified over 1.21 crore people.
- The **PM Vishwakarma** and **National Apprenticeship Promotion Scheme (NAPS)** have seen increases in female participation, with women constituting a larger share of beneficiaries under PMKVY and other programs.
- Upgrading **Industrial Training Institutes (ITIs)** is also part of a broader initiative to modernize skill training infrastructure to cater to the evolving needs of industries.

Future Directions:

- **Focus on Emerging Skills**: With advancements in AI, automation, and digital technologies, there is an urgent need for skills related to these fields. This is recognized in the government's efforts to introduce new-age courses like those in AI, Big Data, and sustainability.
- **Policy Alignment**: The National Education Policy (NEP) 2020 and other government schemes stress foundational literacy and numeracy, alongside skill education that aligns with Industry 4.0 demands.

Strategic Plans:

- **Skilling Initiatives for Youth**: Over the next five years, the government has set up ambitious plans, such as a ₹2 lakh crore package, to benefit 4.1 crore youth by improving skilling and employment. This includes:
- **Financial Support for Employers and Youth**: Initiatives like salary support for first-time job entrants and incentives for employers to create jobs in manufacturing sectors.
- **Internship Opportunities**: A scheme to place youth in internships with top companies, enhancing their practical exposure to industries.

TIERED SKILL FRAMEWORK AND IMPORTANCE OF INTERNSHIP PROGRAMMES:

- **Evolving Labour Market Needs:** The global and Indian job market demands skilled, AI-ready workers, requiring flexible skill strategies to keep up with fast-paced technologies like AI and automation.
- **Current Skilling Strategies:** Existing policies focus on re-skilling and up-skilling workers, especially IT professionals, in emerging technologies such as AI through programs like FutureSkills Prime.
- **Tiered Skilling Framework:** A layered approach is needed to address diverse industry demands and workforce needs, with three skill tiers: **Advanced Skills:** For leadership and innovation roles. **Intermediate Skills:** Targeted at specific industries or tasks. **Foundational Skills:** Basic AI literacy for everyone.

Role of Internships in Skill Development:

- Internships offer work-based learning, providing real-world experience and helping develop key skills like communication, collaboration, and problem-solving.
- The **PM Internship Scheme (PMIS)**, launched in 2024, aims to provide 12-month paid internships to one crore youth over five years, bridging the gap between academic knowledge and industry needs.

PM Internship Scheme Highlights:

- Offers internships in 24 sectors with a monthly stipend of ₹5000, targeting youth aged 21-24, particularly from non-metro areas.
- The scheme focuses on youth empowerment and aims to improve employability and career prospects, especially for women and those from rural areas.
- Over 1.27 lakh internships have been facilitated in the pilot phase, covering 740 districts.

Industry Partnerships for Skill Development: Public-private partnerships are key in upgrading vocational training and creating industry-ready workers. Collaborations with companies like Dassault, Pidilite, and Skoda help enhance training infrastructure.

Building a Resilient Skill Ecosystem: A collaborative effort from job seekers, employers, and trainers is essential to adapt to emerging industry needs. Employers must plan for workforce skills, while trainers must design sector-specific programs to meet future challenges.

International Mobility of Skilled Workers:

- **India's Demographic Advantage:** India has a large diaspora of 32 million people, making it one of the largest in the world. With 65% of its population under 35 years old, India has the potential to become a global talent hub, provided it develops a skilled, industry-relevant workforce.
- **Global Job Demand:** The World Economic Forum estimates that by 2025, 97 million new jobs will be created globally in sectors like healthcare, construction, IT, agriculture, and financial services. India's young population could fill this demand, strengthening its economic position and global influence.
- **Skilling for International Mobility:** India is focusing on creating a high-quality, globally competitive workforce through skill development programs. This can enhance employability in international job markets and stimulate both domestic and global economic growth.

Government Initiatives for Skill Mobility:

- **Bilateral Partnerships:** India has agreements like Migration and Mobility Partnership Agreements (MMPAs) and Labour Mobility Agreements (LMAs) with countries such as Australia, Israel, Germany, and the UK, facilitating safe, skilled labor migration.
- **Government-to-Government (G2G) MoUs:** The Ministry of Skill Development and Entrepreneurship (MSDE) has MoUs with countries like Australia, Japan, and Singapore, focusing on vocational training, capacity building, and international certification.
- **Skill Gap Assessments:** India conducts assessments in 16 countries (including the USA, Canada, and UAE) to identify global skill needs and align training programs with international standards.

International Skill Development Programs:

- **National Skill Development Council (NSDC):** Offers domain-specific, foreign language, and Recognition of Prior Learning (RPL) programs to prepare workers for international mobility, especially in fields like AI and robotics.
- **Skill India International Centres (SIICs):** These centres aim to streamline the process of international job placement by reducing the time and cost associated with mobility. Two SIICs are operational, with more planned.
- **Pre-Departure Orientation Training (PDOT):** Launched in 2018, this free training program helps migrant workers prepare for their destination countries by providing information on cultural, legal, and welfare aspects.
- **e-Migrate Platform:**The MEA's e-Migrate platform facilitates emigration by connecting stakeholders and offering services like online registration, grievance redressal, and PDOT.
- **Future Directions:** Regular demand-supply analyses are essential to map global skill gaps and align India's skill programs with international labor market needs, ensuring the workforce remains globally competitive.

CONCLUSION:

- **Growth in Employment:** India has experienced significant employment growth in recent years, driven by post-pandemic recovery, formalization of the economy, entrepreneurship, skill development, and regulatory transformations.
- **Labour Reforms for Gender Inclusivity:** India's new Labour Codes aim to address barriers faced by women in the workforce, such as enabling night shifts with safety measures, extending maternity leave to gig and informal workers, and mandating creche facilities in workplaces with 50+ employees.
- The reforms promote gender equality by ensuring equal pay, prohibiting gender discrimination in recruitment, and allowing women to work in all sectors, including hazardous roles, with necessary safeguards.
- **Balanced Labour Reforms:** Labour law reforms have streamlined compliance, introduced labour flexibility, and enhanced worker welfare, creating an environment conducive to business growth while ensuring the protection of workers' rights.
- **Fostering Job Creation and Economic Growth:** These reforms have contributed to a "virtuous cycle of job creation," fostering sustainable employment growth and economic inclusivity. Additionally, deregulation plays a key role in reducing business costs, promoting expansion, and enhancing the employment landscape.

PRELIMS PRACTICE QUESTION

Q1: With reference to employment trends and skill development in India, consider the following statements:

1. India's demographic advantage, with a young population and declining dependency ratio, presents a significant opportunity for economic growth through effective workforce integration.
2. The government's focus on reskilling and upskilling is aimed at enhancing employability in sectors like digital economy and renewable energy.
3. The unemployment rate in India has increased from 6% in 2017-18 to 8% in 2023-24, reflecting a worsening employment situation.
4. Programs like Mudra Yojana, Skill India, and Start-Up India have been crucial in promoting entrepreneurship and self-employment, particularly for women.

Which of the statements given above are correct?

(a) 1, 2, and 4 only

(b) 2, 3, and 4 only

(c) 1, 2, and 3 only

(d) 1, 2, 3, and 4

Q2: With reference to sectoral distribution of employment and women entrepreneurship in India, consider the following statements:

1. The share of employment in agriculture has increased from 44.1% in 2017-18 to 46.1% in 2023-24, reflecting the continued dominance of this sector in India's workforce.
2. Female Labour Force Participation Rate (FLFPR) has seen a significant rise from 23.3% in 2017-18 to 41.7% in 2023-24, driven primarily by rural women.
3. Government schemes like the Deendayal Antyodaya Yojana have supported female entrepreneurship, with women-led enterprises growing significantly, especially in rural areas.
4. Women's contribution to sectors like khadi, sericulture, handicrafts, and handlooms is substantial, with women accounting for over 70% of workers in these industries.
5. The Women Entrepreneur Financial Empowerment Programme (WEFEP) has facilitated rural women in securing loans, with ₹30 lakh in loans sanctioned for 2,400 rural women.

Which of the statements given above are correct?

(a) 1, 2, and 5 only

(b) 2, 3, and 4 only

(c) 1, 3, 4, and 5 only

(d) 1, 2, 3, 4, and 5

Q3: Which of the following statements about employment trends in India are correct?

1. From 2018-19 to 2023-24, regular and self-employed workers experienced a 5% compound annual growth rate (CAGR) in their earnings, while casual workers saw a 9% CAGR.
2. The gender wage gap persists across all sectors, with women earning significantly less than men, especially in urban areas.
3. Rural wages, particularly for women, saw notable growth in both agricultural and non-agricultural sectors during FY25.
4. The unincorporated sector saw a 13% rise in hired workers in FY24, led by growth in the manufacturing sector, which grew by 16.1%.
5. Corporate profitability surged in FY24, but the wage growth in these sectors lagged behind, indicating a skewed distribution of wealth.

Select the correct statements:

(a) 1, 2, 3, and 4

(b) 1, 2, 4, and 5

(c) 1, 3, 4, and 5

(d) 1, 2, 3, 4, and 5

Q4: With reference to job creation and labour law reforms in India, consider the following statements:

1. The central government introduced four new Labour Codes, aiming to simplify and consolidate existing labour laws.
2. The introduction of the Occupational Safety and Health (OSH) Code in 2020 aims to improve working conditions in sectors like agriculture and retail.
3. The Code on Social Security (2020) includes provisions for gig and platform workers, offering them benefits like life insurance and old-age protection.
4. The Pradhan Mantri Suraksha Bima Yojana (PMSBY) was launched to provide health insurance for underprivileged populations.

Which of the statements given above are correct?

(a) 1, 2, and 3 only

(b) 1, 3, and 4 only

(c) 2, 3, and 4 only

(d) 1, 2, 3, and 4

Q5: With reference to driving employment opportunities through the digital and green economies in India, consider the following statements:

1. The digital economy in India is expected to surpass USD one trillion by 2025, creating a wide range of job opportunities, including gig and technical roles.
2. India's gig workforce is projected to reach 23.5 crore by 2029-30, offering flexible employment avenues, particularly for women.
3. The renewable energy sector in India, especially hydropower, employed over a million people in 2023.

Which of the statements given above are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Q6: With reference to skill development and upskilling initiatives in India, consider the following statements:

1. A significant portion of India's workforce has low educational attainment, with 90.2% having secondary education or less.
2. The Pradhan Mantri Kaushal Vikas Yojna (PMKVY) has trained millions in short-term skills, with over 1.21 crore certifications already issued.
3. The PM Internship Scheme (PMIS), launched in 2024, aims to provide paid internships to one crore youth over five years, with a monthly stipend of ₹10,000.

Which of the statements given above are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

ANSWERS

1. (a)	**2.** (d)	**3.** (a)	4. (b)	5. (d)
6. (a)				

MAINS PRACTICE QUESTION

Q1: How has digitalization transformed India's economy and governance in recent years? Discuss the challenges and opportunities that come with this transformation.

Q2: Analyze the role of digital infrastructure in bridging the rural-urban divide in India. What steps should be taken to ensure equitable access to technology?

Q3: In the context of India's digital economy, examine the impact of innovations such as e-governance, digital payments, and fintech on socioeconomic development.

Q4: Assess the cybersecurity and data privacy challenges posed by increasing digitalization in India. What measures should the government take to safeguard citizens' data and secure critical digital infrastructure?

Q5: What are the implications of the digital divide for inclusive growth in India? Discuss how the government and private sector can work together to bridge this gap.

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CHAPTER: 13

LABOUR IN THE AI ERA: CRISIS OR CATALYST?

Key-Terms

- **Artificial Intelligence (AI) –** The simulation of human intelligence by machines, enabling problem-solving, learning, decision-making, and automation, with profound implications for labour markets.
- **AI Automation –** The use of artificial intelligence to perform tasks traditionally carried out by humans, potentially improving efficiency but also leading to job displacement in some sectors.
- **Labour Market Disruption –** The transformative impact of AI on employment patterns, with the potential to replace routine jobs while simultaneously creating new roles requiring advanced skills.
- **Technological Revolution –** A historical shift in economic and labour structures due to groundbreaking technological advancements, such as AI, industrialization, and digital transformation.
- **Enabling Institutions –** Organizations and policies that equip workers with skills and training to transition into AI-driven industries, ensuring adaptability and workforce readiness.
- **Insuring Institutions –** Social safety mechanisms like unemployment benefits and retraining programs that provide financial and job security to workers affected by AI-induced displacement.
- **Stewarding Institutions –** Regulatory bodies responsible for ensuring ethical AI deployment, mitigating biases, and balancing technological innovation with societal well-being.
- **Winner-Takes-All Effect –** The economic phenomenon where a few major AI-driven companies dominate markets, leading to wealth concentration and increasing economic inequality.
- **Job Polarization –** The AI-induced shift where middle-skill jobs decline, while demand rises for high-skill (AI-related) and low-skill (service) jobs, widening income disparities.
- **Generative AI –** A subset of artificial intelligence capable of creating content, including text, images, and code, revolutionizing creative industries and automation processes.
- **Creative Destruction –** The economic process where technological advancements displace traditional industries and jobs while fostering innovation and economic transformation.
- **Labour Augmentation –** The complementary role of AI in enhancing worker productivity by automating repetitive tasks, allowing humans to focus on creative and complex work.
- **AI Skill Premium –** The wage advantage enjoyed by workers proficient in AI-related skills due to the increasing demand for AI expertise across industries.

- **Digital Infrastructure** – The technological foundation necessary for AI deployment, including data centers, computing power, cloud services, and high-speed internet.
- **Tripartite Compact** – A cooperative strategy involving the government, private sector, and academia to ensure AI-driven economic transformation is inclusive and sustainable.

Chapter at a Glance

- **Objective:** This chapter attempt to analyze the impact of **Artificial Intelligence (AI)** on **labour markets globally**, with a focus on **India**.
  - It discusses **technological disruptions, opportunities**, and **policy measures** for equitable economic growth.
  - Furthermore, it examines **AI-driven job automation, workforce transitions**, and **skill requirements** for the future.
- **Analysis:**
  - AI-driven automation may lead to **job displacement** but can also **increase productivity** and **create new job roles**.
  - Historical trends show that **technological revolutions** disrupt jobs **initially** but generate employment **in the long run**.
  - The key to minimizing negative effects lies in **institutional frameworks, workforce upskilling, and inclusive economic policies**.

INTRODUCTION

- **Rising Concerns:**
  - AI advancements in **healthcare, finance, education, and manufacturing** are raising concerns about **job displacement**.
  - **Korinek & Stiglitz (2021):** AI adoption could **worsen economic inequality** if benefits are concentrated in large corporations.
  - **AI Research & Development:** Controlled by **a few tech giants**, raising fears of **monopolization** and **labour market disruptions**.
  - **IIM Ahmedabad (2024) Survey:**
    - **68%** of white-collar workers expect AI to **replace their jobs within five years**.
    - **40%** fear that AI will make their skills **completely redundant**.

REVOLUTIONS AND RIPPLES

- **Historical Trends:**
  - Previous **technological revolutions** displaced jobs **short-term** but expanded employment **long-term**.
  - **Andrew Haldane:** Unmanaged labour disruptions can lead to **economic hardship and inequality**.
  - **IMF (2024):**
    - AI poses **significant job risks** for **emerging markets**.
    - **75 million jobs** at **complete risk** globally (**ILO estimates**).

- **Goldman Sachs (2023):**
  - **300 million full-time jobs** exposed to **AI-driven automation**.
- **McKinsey (2024):**
  - By **2030**, up to **30% of current work hours** in the **US & Europe** could be automated.
- **Bank for International Settlements (2024):**
  - **45% of high-wage jobs** in the **US** are **exposed to AI**.

THE NEED FOR ROBUST INSTITUTIONS

- **Institutional Role in AI Adaptation:**
  - **Daron Acemoglu & James Robinson (2012) – Why Nations Fail:**
    - **Inclusive institutions** are necessary for **broad-based economic benefits**.
  - **Andrew Haldane's Three Institutional Pillars:**
- **Enabling Institutions –** Equip the workforce with **AI-relevant skills**.
- **Insuring Institutions –** Provide **financial & social safety nets** for displaced workers.
- **Stewarding Institutions –** Ensure **ethical AI adoption & regulatory oversight**.

VISION TO VIABILITY: AI'S REAL-WORLD CHALLENGES

- **AI's Current Challenges:** AI remains **experimental**, requiring significant **investment in scalability & reliability**.
  - **High Computational Costs:**
    - **OpenAI GPT-4:** Training cost **$78.4 million**.
    - **Google Gemini Ultra:** Training cost **$191.4 million**.
  - **Energy & Infrastructure Demands:**
    - AI energy demand projected to reach **1,580 terawatt-hours**, equal to **India's total electricity consumption** (**Bloomberg, 2024**).
    - AI development requires **vast amounts of land, water, and minerals**, raising concerns over **resource competition**.

AI AND INDIA: OPPORTUNITIES AND CHALLENGES

- **Potential Benefits of AI in India:**
  - **AI-driven job augmentation:** Instead of replacing jobs, AI can **enhance workforce efficiency**.
  - **Historical Context:**
    - **Bessen (2018):** Automation **increased employment** in **textiles, steel, and automotive** industries.
    - **Albanesi et al. (2024):** AI **increased high-skilled employment** by **3.1-6.6%** over a **decade** in Europe.
    - **NBER (2023):** AI **boosted productivity** of **customer support agents** by **14%**, with **34% improvement for new workers**.
  - **AI-driven Innovations:**
    - **Healthcare:** AI-powered **diagnostic tools** improving **early disease detection**.
    - **Financial Services:** AI-driven **risk assessment models** enhancing **investment decisions**.
    - **Manufacturing:** AI-powered **automation** increasing efficiency but requiring **reskilling efforts**.

Key Recent Breakthroughs in AI:

- **Generative AI**: Models like OpenAI's GPT-4 and Google's Bard enable human-like content generation (text, images, code) across fields such as education, healthcare, and creative industries.
- **Multimodal AI**: AI systems like Meta's LLaMA and OpenAI's DALL·E 3 integrate text, image, and video processing, enhancing cross-format understanding and output generation.
- **AI in Drug Discovery**: DeepMind's AlphaFold has revolutionized medical research by predicting protein structures, accelerating drug development.
- **Generative AI for Code**: Tools like GitHub's Copilot X and OpenAI's Codex automate software development, boosting productivity and coding efficiency.
- **Generative AI in Speech**: ElevenLabs and VALL-E (Microsoft) enable high-quality voice synthesis for virtual assistants, audiobooks, and customer service.
- **Autonomous Agents**: Models like AutoGPT and BabyAGI can perform multi-step tasks autonomously, advancing AI capabilities beyond single-task functions.
- **AI in Creative Industries**: Tools like Runway Gen-2 and Adobe Firefly facilitate AI-generated video and image editing, transforming content creation.
- **AI in Climate Modeling:** Google's GraphCast predicts weather conditions with greater speed and accuracy than traditional weather simulation systems.

AUGMENTING INDIA'S SERVICES SECTOR

- **Demand Elasticity of India's Key Sectors:** (**RBI KLEMS Database, 1994-2023**)
  - **Financial Services: 1.86** (High elasticity – growth potential with AI adoption).
  - **Health & Social Work: 1.3** (AI can enhance efficiency & expand employment).
  - **Retail & Wholesale Trade: 1.2** (AI-driven insights improving productivity).
  - **Business Services: 1.08** (AI could support job creation in high-value services).
  - **Education: 0.77** (Risk of AI replacing educators unless carefully regulated).
  - **Telecom: 0.32** (Highly saturated sector – likely to experience job losses).
- **Skills for AI-driven Workforce:**
  - AI will increase demand for **critical thinking, creativity, and cognitive agility**.
  - AI **does not replace reasoning** – instead, it **augments human decision-making**.
  - **Tripartite Collaboration Needed: Government, Private Sector, Academia** must work together.

PYQ

Q1: With reference to foreign-owned e-commerce firms operating in India, which of the following statements is/are correct? (2022)

1. They can sell their own goods in addition to offering their platforms as market-places.
2. The degree to which they can own big sellers on their platforms is limited.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (b)

CONCLUSION

- **AI's Economic Uncertainty:**
  - AI is **still in its infancy**, with **labour market impacts unclear**.
  - Labour shifts require **policy interventions & proactive upskilling efforts**.
  - **IMF (2024):** Recommends **taxing AI-driven profits** to fund **social safety nets**.
- **Government & Industry Response:**
  - **Institution-building & skill development** critical for **inclusive AI adoption**.
  - If left unchecked, **AI-driven automation could worsen economic disparities**.
  - **Public-Private-Academic Partnerships** essential for **equitable economic transition**.

Case Studies & Reports Referenced:

- **ILO (2024): 75 million** jobs at **high risk** due to AI.
- **Goldman Sachs (2023): 300 million** full-time jobs **exposed** to AI.
- **McKinsey (2024): 30% of US & Europe work hours** could be automated by **2030**.
- **Bloomberg (2024):** AI energy demand **equal to India's total electricity consumption**.
- **Bessen (2018):** Automation **historically increased employment** in industries.
- **Albanesi et al. (2024):** AI increased **high-skilled jobs by 3.1-6.6% in Europe**.
- **NBER (2023):** AI-enhanced **customer support worker productivity by 14%**.
- **RBI KLEMS Database (1994-2023):** Sector-wise **demand elasticity estimates**.

PRELIMS PRACTICE QUESTION

Q1: Which of the following statements about AI's impact on the labour market are correct?

1. AI automation has the potential to displace jobs but also increase productivity.
2. Historically, technological revolutions have led to permanent job losses without new job creation.
3. AI adoption in financial services has led to higher efficiency in risk assessments and investment strategies.
4. The Indian government has established dedicated institutions to manage AI-driven labour transitions.

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 1, 3, and 4 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

Q2: Which of the following sectors in India is expected to be most impacted by AI-driven automation?

1. Agriculture
2. IT & Services
3. Construction
4. Traditional Retail

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

Q3: Which initiative aims to enhance AI research and adoption in India?

1. Atmanirbhar Bharat Abhiyan
2. National AI Strategy (NITI Aayog)
3. Startup India
4. Digital India

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

Q4: What is the major limitation of AI in decision-making processes?

1. High energy consumption
2. Bias in training data
3. Lack of digital infrastructure
4. High cost of AI implementation

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

Q5: What percentage of organizations globally have AI reskilling programs in place?

1. 10%
2. 20%
3. 30%
4. 50%

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 only

(c) 3 and 4 only

(d) 1, 2, and 3 only

Q6: What percentage of the global workforce is expected to be impacted by AI by 2030?

1. 10%
2. 30%
3. 50%
4. 70%

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 3 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

Q7: Which of the following factors contribute to the growing impact of AI on the labour market?

1. Increased automation in manufacturing
2. Growth of generative AI in knowledge-based jobs
3. Declining need for digital literacy
4. AI-driven job creation in emerging fields

Select the correct answer using the codes below:

(a) 1 and 2 only

(b) 1, 2, and 4 only

(c) 2 and 4 only

(d) 3 and 4 only

Q8: Which government initiative in India aims to promote AI research and adoption?

1. Atmanirbhar Bharat Abhiyan
2. National AI Strategy (NITI Aayog)
3. Make in India
4. Skill India Program

Select the correct answer using the codes below:

(a) 1 and 3 only

(b) 2 and 4 only

(c) 2 only

(d) 1, 2, and 3 only

ANSWERS

1. (a)	**2.** (b)	3. (b)	4. (b)	5. (b)
6. (b)	7. (b)	8. (b)		

MAINS PRACTICE QUESTION

Q1: How can India mitigate the risks associated with AI-driven automation while leveraging its benefits for economic growth?

Q2: Discuss the role of AI in bridging the urban-rural employment gap in India.

Q3: Examine the impact of AI adoption on gender disparity in the workforce.

Q4: Analyze the potential of AI in enhancing India's manufacturing sector under the 'Make in India' initiative.

Q5: What steps can the government take to enhance AI-skilling initiatives for India's workforce?

Q6: Discuss how AI-driven automation is reshaping the service sector in India.

Q7: How can policymakers ensure ethical AI deployment while preventing large-scale job displacement?

Q8: Evaluate the long-term implications of AI replacing routine white-collar jobs.

Q9: Assess the role of Public-Private Partnerships (PPP) in upskilling India's workforce for AI-driven industries.

Q10: How can AI assist in labor-intensive sectors such as agriculture and construction in India?

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