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VIDHVATH IAS KAS ACADEMY & STUDY CENTRE

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FOR UPSC CIVIL SERVICE EXAMINATION

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9972258970 & 9740702455

#317/A SKB Arcade, D. Subbaiah Road,
Ramaswamy Circle, Mysuru-570004

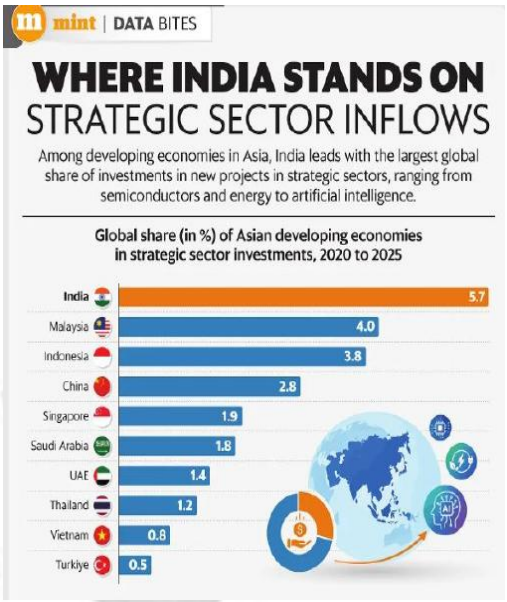
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1. Strategic Sector Inflows in India

Key Highlights & Summary



- **Global Leadership in Strategic Inflows**: Among developing economies in Asia, India leads with the largest global share of investments in new greenfield projects across key strategic sectors.
- **Share of Strategic Investments**: India captured a 5.7% global share of strategic sector investments from 2020 to 2025, outperforming peers such as Malaysia (4.0%), Indonesia (3.8%), China (2.8%), and Singapore (1.9%).
- **Focus Areas**: The primary investment drivers in India's strategic domain encompass high-tech and emerging fields such as semiconductors, renewable energy, and artificial intelligence.
- **Geopolitical Realignment**: The trend reflects global supply chain diversification strategies ("China Plus One"), positioning India as a preferred destination for critical technology investments.
- **Industrial Enablement**: Key policy initiatives including Production Linked Incentive (PLI) schemes and National Semiconductor Mission have significantly bolstered investor confidence in domestic manufacturing capabilities.
- **Economic Transformation**: Increased capital accumulation in strategic industries enhances domestic productivity, reduces critical tech imports, and fortifies national economic security.

Essential Definitions

- **Strategic Sectors**: Industries critical to national security, economic self-reliance, and future technological sovereignty, such as semiconductors, defense, clean energy, and AI.
- **Greenfield Investment**: A form of foreign direct investment (FDI) where a parent company builds its operations and facilities in a foreign country from the ground up.
- **Capital Inflows**: Net incoming flows of foreign capital investment into a country's domestic economy, encompassing FDI and foreign portfolio investments.

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Legal and Constitutional Framework

- **Foreign Exchange Management Act (FEMA), 1999**: Regulates foreign investments and inbound cross-border capital transactions into Indian strategic and non-strategic sectors.
- **Automatic vs. Government Route**: Automatic route permits up to 100% FDI without prior approval in key sectors, while the Government Route mandates security clearance for sensitive domains.
- **Consolidated FDI Policy**: Issued by DPIIT, setting sector-specific caps, entry routes, and security-related conditions for critical infrastructure and technology.
- **Article 39(b) of the Constitution**: Mandates that the state direct its policy towards securing that the ownership and control of the material resources of the community are so distributed as best to subserve the common good.

Conclusion

India's foreign investment inflows in strategic sectors demonstrate a robust shift toward high-value manufacturing and emerging technologies. To sustain this momentum, India must address infrastructure bottlenecks, streamline regulatory compliance, and deepen domestic R&D ecosystems.

UPSC Relevance

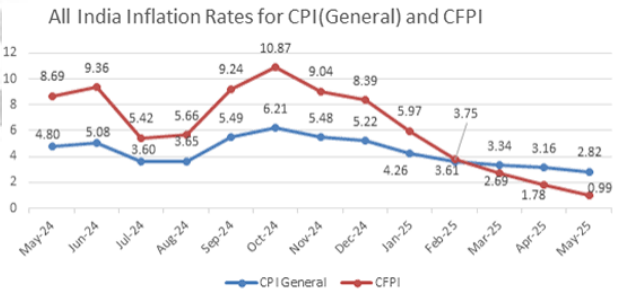
- **Syllabus Connection**: GS Paper-III (Indian Economy, Investment Models, Infrastructure, Science & Technology - Indigenization of Technology).
- **Prelims Takeaway**: Key investment data trends, regulatory frameworks governing FDI under FEMA, and national sector-specific missions.

2. India's GDP Growth Forecast and Currency Dynamics

Key Highlights & Summary

- **IMF Growth Upgrade**: The International Monetary Fund (IMF), in its October update, raised India's FY27 (2026-27) GDP growth forecast to 7% from 6.5% earlier, driven by sustained domestic momentum and strong structural reforms.
- **Impact of Rupee Depreciation**: Despite high real growth (7.8% in Q1), currency depreciation against the US dollar has reduced India's projected nominal GDP in dollar terms.
- **Temporary Rank Shift**: Currency devaluation has temporarily pushed India down to the 6th largest economy globally, trailing behind the UK in FY26, after maintaining 5th position for three years.
- **$5 Trillion Target Timeline**: Due to dollar-denominated nominal valuation cuts, India is projected to narrowly miss the $5 trillion target in FY29 by approximately $4 billion.
- **Long-Term Projection**: The IMF forecasts India to surpass both the UK and Japan in FY28 to become the 4th largest economy, and surpass Germany by FY31-FY32 to reach 3rd place.
- **Drivers and Risks**: Growth resilience is backed by favorable demographics and investment booms, but elevated crude oil prices, rising interest rates, and foreign portfolio selling continue to exert pressure on the rupee.

Essential Definitions



- **Real vs. Nominal GDP**: Real GDP measures economic output adjusted for inflation using base year prices, while Nominal GDP evaluates output at current market prices without inflation adjustment.
- **Currency Depreciation**: A decline in the value of a floating currency relative to another currency in foreign exchange markets, reducing foreign currency purchasing power.
- **Exchange Rate Pass-Through**: The degree to which exchange rate fluctuations affect domestic import prices and inflation within an economy.

Legal and Constitutional Framework

- **Reserve Bank of India Act, 1934**: Empowers the RBI to conduct monetary policy and manage foreign exchange reserves to maintain price stability and curb excessive exchange rate volatility.

- **Foreign Exchange Management Act (FEMA), 1999**: Governs cross-border trade, external commercial borrowings, and foreign investments, regulating overall capital account flows.
- **Fiscal Responsibility and Budget Management (FRBM) Act, 2003**: Sets fiscal deficit targets to maintain macroeconomic stability, supporting sustainable exchange rates and debt management.
- **Article 112 of the Constitution**: Mandates the Annual Financial Statement (Budget) presentation, ensuring fiscal accounting for economic trajectory and national growth.

Conclusion

While India's domestic growth trajectory remains the fastest among major world economies, rupee depreciation creates a disparity between real domestic expansion and dollar-denominated rankings. Sustaining nominal growth above 10% alongside exchange rate stability is vital to achieving long-term economic benchmarks.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Indian Economy: Issues relating to planning, growth, development, inflation, and foreign exchange management).
- **Prelims Takeaway**: Difference between Real and Nominal GDP, role of IMF World Economic Outlook reports, and currency valuation drivers.

3. NTPC-Rosatom Tie-up for Nuclear Power Expansion

Key Highlights & Summary

- **Nuclear Collaboration Proposal**: State-run NTPC Ltd has proposed developing six nuclear reactors in collaboration with Russia's state-owned Rosatom at an estimated expenditure of ₹1.5 trillion.
- **2014 Inter-Governmental Agreement**: The proposed units are part of a 2014 pact between India and Russia to build 12 nuclear reactors; NPCIL is executing six at Kudankulam, while NTPC seeks allocation for the remaining six.
- **Capacity and Cost Dynamics**: NTPC plans to deploy 1000MW (1GW) VVER reactors across six units, adding a total capacity of 6GW at an estimated cost of ₹25 crore per megawatt.
- **Identified Strategic Sites**: NTPC has identified prospective sites across Madhya Pradesh, Bihar, and Odisha to build 2–4GW capacity at each location, with feasibility reports submitted to the Atomic Energy Commission.



- **Long-Term Nuclear Vision**: NTPC aims to achieve 30GW of nuclear generation capacity by 2047 through subsidiaries like Anu Shakti Vidyut Nigam Ltd (a JV with NPCIL) and NTPC Parmanu Urja Nigam Ltd.
- **Transition to Clean Energy**: Nuclear power provides vital, clean baseload power generation to maintain grid stability as coal-based generation declines and renewable integration increases.

Essential Definitions

- **VVER Reactor**: Voda-Vodyanoi Energetichesky Reaktor; a series of pressurized water reactors (PWR) developed by Russia that use light water as both coolant and neutron moderator.
- **Baseload Power**: The minimum amount of continuous electric power needed to supply an electrical grid over a 24-hour period under steady operational conditions.
- **Inter-Governmental Agreement (IGA)**: A legally binding bilateral agreement between sovereign nations that facilitates strategic technology transfers and large-scale infrastructure projects.

Legal and Constitutional Framework

- **The Atomic Energy Act, 1962**: Regulates the production, development, and control of atomic energy in India, restricting atomic power generation primarily to central government agencies and public sector undertakings.
- **Civil Liability for Nuclear Damage Act (CLNDA), 2010**: Establishes a strict civil liability regime for nuclear damage and defines options for recourse against suppliers, addressing global investor concerns.
- **The Shanti Act**: Framework enabling private and foreign entities to participate in India's nuclear power sector to support long-term energy transition goals.
- **Article 246 (List I, Entry 6)**: Places atomic energy and mineral resources necessary for its production exclusively within the legislative domain of the Parliament of India.

Conclusion

NTPC's proposed partnership with Rosatom marks a strategic expansion in India's nuclear power landscape beyond NPCIL's historical monopoly. Securing state-to-state technology agreements and streamlining regulatory clearances will be essential to meeting India's 2047 clean energy and net-zero commitments.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Infrastructure: Energy, Science and Technology - Indigenization of technology and development of new technology).
- **Prelims Takeaway**: Atomic Energy Act provisions, locations of nuclear power plants (Kudankulam), and key international agreements for nuclear technology.

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4. Stricter Rules Notified for Investments via Mauritius

Key Highlights & Summary

- **Stricter Tax Scrutiny**: Foreign investors routing capital into India via Mauritius will face heightened scrutiny under newly notified tax treaty rules that allow tax authorities to deny tax benefits.
- **Protocol Implementation**: A notification issued on 13 October formally implements the protocol amending the India-Mauritius Double Taxation Avoidance Agreement (DTAA), which was signed in March 2024 and came into force on 10 August 2026.
- **Introduction of Principal Purpose Test (PPT)**: The amendment incorporates PPT, permitting authorities to reject treaty benefits if obtaining those tax benefits was one of the primary purposes of an investment structure.

- **Conditional Benefit Granting**: Treaty benefits will be granted only if doing so aligns fully with the object and purpose of the relevant treaty provisions.
- **Impacted Financial Entities**: The revised rules affect Foreign Portfolio Investors (FPIs), Private Equity (PE) funds, Venture Capital (VC) funds, and holding companies operating out of Mauritius.
- **Requirement of Commercial Substance**: Investors must demonstrate clear business logic and economic substance beyond tax avoidance to claim treaty concessions in India.

Essential Definitions

- **Double Taxation Avoidance Agreement (DTAA)**: A bilateral tax treaty designed to prevent the same income from being taxed by two different countries, promoting cross-border trade and investment.
- **Principal Purpose Test (PPT)**: An anti-abuse standard under OECD's BEPS framework that denies tax treaty benefits if obtaining them was a main purpose of an arrangement.
- **Treaty Shopping**: A practice where a resident of a third country uses a conduit entity in a treaty partner nation purely to access tax benefits unavailable directly.



Legal and Constitutional Framework

- **Section 90 of the Income Tax Act, 1961**: Empowers the Central Government to enter into agreements with foreign governments for granting relief in respect of double taxation and prevention of fiscal evasion.
- **General Anti-Avoidance Rule (GAAR)**: Codified under Chapter X-A of the Income Tax Act to curb aggressive tax planning and disregard impermissible avoidance arrangements.
- **BEPS MLI (Base Erosion and Profit Shifting Multilateral Instrument)**: An international framework enabling signatories to modify existing bilateral tax treaties to counter tax avoidance strategies.
- **Article 73 of the Constitution**: Defines the executive power of the Union, under which international treaties, conventions, and notifications are executed and implemented in India.

Conclusion

The notification of the Principal Purpose Test under the India-Mauritius DTAA strengthens India's anti-tax avoidance architecture and reduces treaty abuse. While it raises compliance requirements for foreign investors, it aligns Indian tax administration with global standards to ensure long-term market transparency.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Indian Economy: Issues relating to mobilization of resources, taxation, investment models, and capital flows).
- **Prelims Takeaway**: Principal Purpose Test (PPT) concept, DTAA provisions under Section 90 of the Income Tax Act, and OECD BEPS multilateral standards.

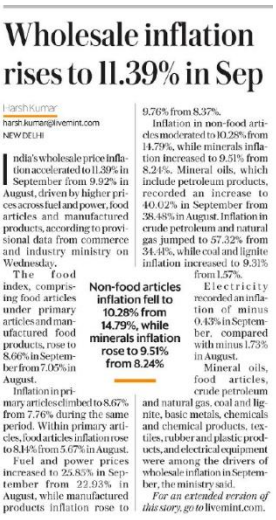
5. Wholesale Price Inflation Rises to 11.39% in September

Key Highlights & Summary

- **Surge in Headline WPI**: India's wholesale price inflation accelerated to 11.39% in September from 9.92% in August, driven by broad-based price increases across fuel, power, food items, and manufactured goods.
- **Energy and Fuel Pressure**: Fuel and power inflation climbed to 25.85% (from 22.93%), with crude petroleum and natural gas surging to 57.32% and mineral oils recording 40.02% growth.
- **Food Index Expansion**: The overall food index rose to 8.66% in September from 7.05% in August, primarily led by an uptick in primary food articles inflation to 8.14%.
- **Manufactured Goods Trajectory**: Inflation in manufactured products advanced to 9.76% from 8.37%, reflecting elevated input costs across basic metals, chemicals, textiles, and electrical equipment.
- **Divergence in Sectoral Trends**: Non-food articles inflation moderated to 10.28% from 14.79%, while minerals inflation climbed to 9.51% and electricity remained in negative territory at -0.43%.
- **Upstream Inflation Risk**: The sustained rise in wholesale prices signals potential pass-through pressures to retail inflation (CPI) and profit margin squeezes for domestic manufacturers.

Essential Definitions

- **Wholesale Price Index (WPI)**: An index measuring average price changes in goods sold and traded in bulk at the wholesale level prior to reaching final consumers.
- **Primary Articles**: A major WPI component comprising essential raw commodities such as agricultural food articles, non-food articles, and minerals.
- **Headline Inflation**: The raw inflation figure reflecting overall price increases across an economy, including volatile items like energy and food.



Wholesale inflation rises to 11.39% in Sep

Harsh Kumar
harsh.kumar@livemint.com
NEW DELHI

India's wholesale price inflation accelerated to 11.39% in September from 9.92% in August, driven by higher prices across fuel and power, food articles and manufactured products, according to provisional data from commerce and industry ministry on Wednesday.

The food index, comprising food articles under primary articles and manufactured food products, rose to 8.66% in September from 7.05% in August.

Non-food articles inflation fell to 10.28% from 14.79%, while minerals inflation rose to 9.51% from 8.24%

Inflation in primary articles climbed to 8.67% from 7.76% during the same period. Within primary articles, food articles inflation rose to 8.14% from 5.67% in August.

Fuel and power prices increased to 25.85% in September from 22.93% in August, while manufactured products inflation rose to 9.76% from 8.37%.

Inflation in non-food articles moderated to 10.28% from 14.79%, while minerals inflation increased to 9.51% from 8.24%. Mineral oils, which include petroleum products, recorded an increase to 40.02% in September from 38.48% in August. Inflation in crude petroleum and natural gas jumped to 57.32% from 34.44%, while coal and lignite inflation increased to 9.31% from 1.57%.

Electricity recorded an inflation of minus 0.43% in September, compared with minus 1.73% in August.

Mineral oils, food articles, crude petroleum and natural gas, coal and lignite, basic metals, chemicals and chemical products, textiles, rubber and plastic products, and electrical equipment were among the drivers of wholesale inflation in September, the ministry said.

For an extended version of this story, go to livemint.com.

Legal and Constitutional Framework

- **Office of the Economic Adviser (DPIIT)**: Functioning under the Ministry of Commerce and Industry, this office holds legal authorization to compile and publish WPI data in India.
- **Essential Commodities Act, 1955**: Grants the government statutory powers to regulate production, supply, distribution, and price control of essential items during supply shocks.
- **Reserve Bank of India Act, 1934**: Mandates the Monetary Policy Committee (MPC) to maintain price stability, using retail inflation (CPI) as the primary nominal anchor while monitoring wholesale input trends.
- **Article 307 of the Constitution**: Empowers Parliament to appoint an authority to enforce provisions relating to trade and commerce across states.

Conclusion

The acceleration of WPI inflation to 11.39% highlights persistent supply-side cost pressures, especially in crude petroleum and essential input materials. Containing wholesale inflation requires calibrated fiscal intervention, trade policy adjustments, and efficient supply chain management to prevent downstream retail price escalation.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Indian Economy: Inflation, Issues relating to growth, mobilization of resources, and macroeconomic stability).
- **Prelims Takeaway**: Base year and base weights of WPI vs. CPI, agencies publishing economic indicators (DPIIT vs. NSO), and key weightages (Manufactured Goods, Primary Articles, Fuel & Power).

6. BS-VII Emission Norms for New Cars and SUVs

Key Highlights & Summary

- **Implementation Timeline**: The Ministry of Road Transport and Highways (MoRTH) plans to roll out stricter Bharat Stage-VII (BS-VII) emission standards for new cars and SUVs starting 1 April 2029.
- **Phased Rollout Strategy**: According to a draft gazette notification dated 12 October, the ministry intends to implement all new norms across three distinct phases spanning six years, from April 2029 to April 2035.
- **Target Vehicle Segments**: The draft notification specifically focuses on tightening vehicular emission controls for passenger light motor vehicles, including new cars and sport utility vehicles (SUVs).
- **Alignment with Global Standards**: BS-VII norms are designed to harmonize India's automotive emission benchmarks with global standards such as Euro 7, imposing stricter limits on harmful pollutants like tailpipe particulate matter, nitrogen oxides (NOx), and carbon monoxide.
- **Technological Transformation**: The transition will necessitate advanced vehicular technology integration, including improved real driving emissions (RDE) monitoring, enhanced engine efficiency, and lower exhaust gas toxicity.
- **Environmental Impact**: The policy shift directly addresses urban air quality degradation, helping curb vehicular pollution contribution to atmospheric particulate pollution and greenhouse gas accumulation.

Essential Definitions

- **Bharat Stage (BS) Norms**: Institutionalized emission standards instituted by the Government of India to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles.
- **Real Driving Emissions (RDE)**: An emission testing mechanism that measures pollutants emitted by vehicles while driven on real public roads rather than under standardized laboratory conditions.
- **Particulate Matter (PM2.5/PM10)**: Fine inhalable microscopic particles suspended in air, largely generated by fossil fuel combustion in motor vehicles, posing severe health hazards.

Legal and Constitutional Framework

- **Motor Vehicles Act, 1988**: Grants MoRTH regulatory authority under Section 110 to prescribe technical and environmental standards for motor vehicle construction, equipment, and emissions.
- **Central Motor Vehicles Rules, 1989**: Serves as the primary statutory framework through which specific Bharat Stage emission limits and compliance timelines are notified in official gazettes.

- **Environment (Protection) Act, 1986**: Authorizes the Central Pollution Control Board (CPCB) and Union Ministry of Environment to set ambient air quality standards and enforce pollution control thresholds.
- **Article 48A of the Constitution**: Directive Principle obligating the State to protect and improve the environment and to safeguard the forests and wildlife of the country.
- **Article 21 of the Constitution**: Fundamental right guaranteeing the right to life and personal liberty, judicially expanded by the Supreme Court to include the right to a clean, healthy, and pollution-free environment.

Conclusion

The proposed roadmap for BS-VII emission standards reflects a major step forward in India's vehicular pollution abatement trajectory. While the phased adoption over six years offers automotive manufacturers adequate adaptation time, strict enforcement will be essential to ensuring clean air and sustainable mobility.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Environment & Ecology: Environmental pollution and degradation, Conservation; S&T: Indigenization of technology).
- **Prelims Takeaway**: Key implementation dates (1 April 2029 to April 2035), difference between BS-VI and BS-VII standards, role of MoRTH under Central Motor Vehicles Rules.

7. Evasion of Facial Recognition Systems via Adversarial Makeup

Key Highlights & Summary

- **Anti-Surveillance Tactics**: Recent public discussions highlight using cosmetics, painted facial features, and high-contrast patterns to scramble computer vision algorithms during public gatherings.
- **Working Mechanism of FRS**: Facial Recognition Systems (FRS) utilize artificial intelligence models to convert facial features into numerical "face embeddings" to match against database records.
- **Adversarial Makeup Research**: Historically inspired by WWI military camouflage ("Dazzle"), projects like Adam Harvey's 2010 CV Dazzle and 2021 Ben-Gurion University experiments proved that machine-learning-designed makeup can bypass state-of-the-art FRS.
- **Practical Limitations**: Evasion techniques designed for machine algorithms often fail under varying light conditions or high-resolution cameras and leave individuals highly conspicuous to human observers.
- **Regulatory Exemption Gaps**: In India, public surveillance deployment operates without a dedicated statutory regulatory framework governing facial recognition use by law enforcement agencies.
- **Privacy and Data Safeguards**: Facial images and numerical digital templates qualify as personal biometric data under domestic data protection laws, raising significant civil liberty concerns.

Essential Definitions

- **Facial Recognition System (FRS)**: A biometric technology that maps visual facial characteristics using AI models to create numerical face embeddings for identity verification or surveillance.
- **Face Embedding**: A mathematical or numerical vector representation of an individual's unique facial geography generated by deep learning models.

- **Adversarial Attack**: Technique in artificial intelligence where subtle modifications are made to input data (such as facial makeup) to cause machine learning models to make false predictions.

Legal and Constitutional Framework

- **Digital Personal Data Protection (DPDP) Act, 2023**: Classifies facial images and digital templates as personal data; however, Section 17 grants state instrumentalities broad exemptions for law enforcement, crime prevention, and public order maintenance.
- **Puttaswamy Judgment (2017)**: The Supreme Court declared privacy a Fundamental Right under Article 21, establishing the three-fold test of legality, legitimate state aim, and proportionality for state surveillance.
- **Information Technology Act, 2000**: Governs digital data storage and processing, including rules for reasonable security practices for sensitive personal data.
- **Article 21 of the Constitution**: Protects individual autonomy, bodily privacy, and right against arbitrary state surveillance without proportional legislative safeguards.

Conclusion

While software-generated makeup patterns can occasionally disrupt FRS identification, tech variability limits its real-world reliability. Addressing AI surveillance risks requires robust statutory frameworks that balance public order imperatives with constitutional privacy rights.

UPSC Relevance

- **Syllabus Connection**: GS Paper-II (Governance, Fundamental Rights, Statutory Frameworks) & GS Paper-III (Internal Security, AI & Cyber Security).
- **Prelims Takeaway**: DPDP Act 2023 provisions (Section 17 exemptions), Puttaswamy doctrine, and basic mechanics of FRS/face embeddings.

8. Government Plan to Rein in Prices of Expensive Cancer Drugs

Key Highlights & Summary

- **Trade Margin Capping**: The Union government decided to cap trade margins on 110 expensive cancer medicines, including around 35 patented ones, covering branded, generic, domestic, and imported versions.
- **Significant Price Reduction**: Trade Margin Rationalisation (TMR) is expected to reduce maximum retail prices (MRP) of select cancer drugs broadly by 20-70%, yielding estimated annual savings of ₹2,500 crore for patients.
- **Healthcare Access Deficit**: A Tata Memorial Hospital study revealed that only 1.6% of patients needing advanced targeted and immunotherapy treatments can afford them due to prohibitive costs.
- **Address Extreme Markups**: Non-scheduled anti-cancer drugs currently carry an average trade markup of roughly 170%, with extreme cases escalating up to 700-1000% over the first point of sale.
- **Judicial Scrutiny**: The Supreme Court of India recently raised concerns regarding excessive nearly ten-fold markups on life-saving oncology medicines, spurring administrative intervention.
- **Implementation Challenges**: Experts note that capping margins without controlling initial sale prices to stockists or considering manufacturing/import costs leaves loopholes for artificial price inflation.

Essential Definitions



- **Trade Margin Rationalisation (TMR)**: A regulatory mechanism that limits the percentage markup charged between the price at which a drug is sold to stockists and its Final Maximum Retail Price (MRP).
- **Scheduled vs. Non-Scheduled Drugs**: Scheduled drugs belong to the National List of Essential Medicines (NLEM) with direct ceiling prices, whereas non-scheduled drugs are subject only to annual price hike caps (maximum 10% per year).
- **National Pharmaceutical Pricing Authority (NPPA)**: The independent statutory body under the Department of Pharmaceuticals mandated to fix and regulate prices of pharmaceutical products in India.

Legal and Constitutional Framework

- **Drugs (Prices Control) Order (DPCO), 2013**: Issued under the Essential Commodities Act, 1955, empowering NPPA to fix ceiling prices for essential medicines and regulate trade margins of non-scheduled drugs.
- **Essential Commodities Act, 1955**: Grants authority to the Central Government to control the production, supply, distribution, and pricing of essential items, including drugs.
- **Article 21 of the Constitution**: Protects the Right to Life, which the Supreme Court has interpreted to include the right to accessible, affordable, and timely healthcare services.
- **Article 47 of the Constitution**: Directive Principle obligating the State to regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties.

Conclusion

Capping trade margins on critical anti-cancer drugs is a vital policy intervention to lower out-of-pocket health expenditures. However, to achieve true affordability, price controls must be expanded to base manufacturing and import costs alongside promoting domestic drug innovation.

UPSC Relevance

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- **Syllabus Connection**: GS Paper-II (Issues relating to development and management of Social Sector/Services relating to Health) & GS Paper-III (Economics of Pharmaceuticals, Intellectual Property Rights).
- **Prelims Takeaway**: Difference between Scheduled and Non-Scheduled drugs, DPCO 2013 provisions, and NPPA's regulatory jurisdiction.

9. Kigali Amendment at 10: Cooling Challenges in India

Key Highlights & Summary

- **10-Year Milestone**: Adopted in Rwanda on October 15, 2016, the Kigali Amendment to the Montreal Protocol aims to phase down hydrofluorocarbons (HFCs), potent greenhouse gases used in refrigeration and air conditioning.

- **Global Climate Impact**: Full implementation of the amendment is projected to prevent up to 0.5°C of global warming by the year 2100, aligning with the Paris Agreement goal to limit warming well below 2°C.
- **India's Phase-down Roadmap**: Having ratified the amendment in 2021, India must freeze its HFC production and consumption by 2028, achieve a 10% reduction below baseline by 2032, and reach an 85% cut by 2047.
- **Surging Cooling Demand**: According to the IEA, cooling accounts for over 10% of India's total electricity demand (rising up to 33% on summer nights), with national cooling demand projected to more than double by 2035.
- **Dual Emissions Mechanism**: Cooling contributes to climate change via direct emissions (HFC refrigerant leakage) and indirect emissions (electricity generated from fossil fuels to run appliances).
- **Financial and Technological Support**: The Multilateral Fund (MLF) assists developing nations like India with incremental compliance costs, factory technological overhauls, and workforce training.

Essential Definitions

- **Hydrofluorocarbons (HFCs)**: Synthetic organic compounds containing hydrogen, fluorine, and carbon atoms, serving as non-ozone-depleting alternatives to CFCs but possessing high global warming potential.
- **Short-Lived Climate Pollutants (SLCPs)**: Powerful climate warmers—including HFCs, methane, black carbon, and tropospheric ozone—that remain in the atmosphere for shorter periods than carbon dioxide but have significant warming impacts.
- **Global Warming Potential (GWP)**: A relative measure of how much heat a greenhouse gas traps in the atmosphere compared to carbon dioxide over a specific time horizon.

Legal and Constitutional Framework



- **Montreal Protocol on Substances that Deplete the Ozone Layer (1987)**: International environmental treaty under which the Kigali Amendment operates as a legally binding framework for phasing down HFCs.
- **Ozone Depleting Substances (Regulation and Control) Rules, 2000**: Statutory rules framed under India's Environment (Protection) Act, 1986, to regulate production, import, export, and consumption of ozone-depleting substances and fluorinated gases.
- **India Cooling Action Plan (ICAP)**: National policy framework aimed at reducing cooling demand across sectors by 20% to 25% and refrigerant demand by 25% to 30% by 2037–38.
- **Article 48A of the Constitution**: Mandates the State to protect and improve the environment and safeguard the national ecology.
- **Article 21 of the Constitution**: Guarantees the fundamental right to life, which incorporates the right to a clean and sustainable environment free from catastrophic climate impacts.

Conclusion

The 10th anniversary of the Kigali Amendment highlights the crucial need to balance rising cooling needs with climate mitigation. For India, pairing low-GWP refrigerants with enhanced appliance energy efficiency is essential for achieving domestic cooling goals while fulfilling international climate obligations.

UPSC Relevance

- **Syllabus Connection**: GS Paper-III (Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment, International Treaties).
- **Prelims Takeaway**: Kigali Amendment targets for Group 2 countries (India's 2028 freeze year, 2047 reduction timeline), distinction between Ozone Depleting Substances (CFCs/HCFCs) and HFCs, and SLCP characteristics.

10. Procurement Integrity and Single Tender Norms in Defence PSUs

Key Highlights & Summary

- **Single Tender Controversy**: Defence Public Sector Undertaking Bharat Dynamics Ltd (BDL) issued a non-competitive "single tender" worth ₹56.8 crore to Aindri Defence Advisory for supplying 300 optical sights for anti-tank guided missiles.
- **Conflict of Interest**: Aindri Defence Advisory was set up in May 2024 by former BDL Chairman and Managing Director (CMD) Siddharth Mishra and his wife, with the wife currently holding a 95% equity stake.
- **Justification of Urgency**: BDL cited operational "urgency" to bypass competitive bidding routes, making it the first time in three years BDL turned to a private firm for these vital accessories.
- **Operational Discrepancy**: Investigations revealed that the supplier firm lists no plant assets in balance sheet records and operates out of a locked office space at the NSIC campus in Hyderabad.
- **Financial Evaluation Stage**: The firm successfully cleared technical evaluation after supplying five sample units, and its ₹56.8 crore bid is currently undergoing financial evaluation.
- **Governance Concerns**: The incident highlights procedural gaps in post-retirement cooling-off compliance, insider knowledge leverage, and transparent public procurement practices in defense PSUs.

Essential Definitions

- **Single Tender Procurement**: A non-competitive procurement method where a bid is solicited from only one specific vendor, permitted solely under exceptional urgency, proprietary technology, or national security considerations.
- **Conflict of Interest**: A situation in which a public official's personal or financial interests potentially bias or influence their official duty, professional judgment, or administrative decision-making.
- **Optical Sights**: Precision electro-optical sighting accessories mounted on missile systems, such as Anti-Tank Guided Missiles (ATGMs), to enable target acquisition and guidance.

Legal and Constitutional Framework

- **General Financial Rules (GFR), 2017**: Rules 166 and 194 lay down strict conditions under which single-tender enquiry or limited tender enquiry can be invoked by government departments and PSUs.
- **CVC Guidelines on Public Procurement**: Central Vigilance Commission directives mandate maximum transparency, open competitive bidding, and restrict single tenders to prevent arbitrariness and corruption.

- **Post-Retirement Cooling-Off Period**: Rules governing senior executives of Central Public Sector Enterprises (CPSEs) that restrict commercial employment or business transactions with former organizations without prior government sanction.
- **Article 14 of the Constitution**: Guarantees equality before the law and protection against arbitrary State action in the award of public contracts and commercial tenders.

Conclusion

The single-tender allocation by BDL underscores the critical need to enforce stringent procurement governance, audit mechanisms, and post-retirement conflict-of-interest guidelines within defense PSUs. Ensuring open competition and objective checks in defense acquisitions is vital to maintaining institutional integrity and public trust.

UPSC Relevance

- **Syllabus Connection**: GS Paper-II (Governance, Transparency & Accountability, Institutional Mechanisms, Role of CVC) & GS Paper-III (Indigenization of Technology, Internal Security, Defense Procurement).
- **Prelims Takeaway**: Rules governing single tender procurement under GFR 2017, role of BDL under the Ministry of Defence, and CVC procurement guidelines.

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