POLICY PULSE

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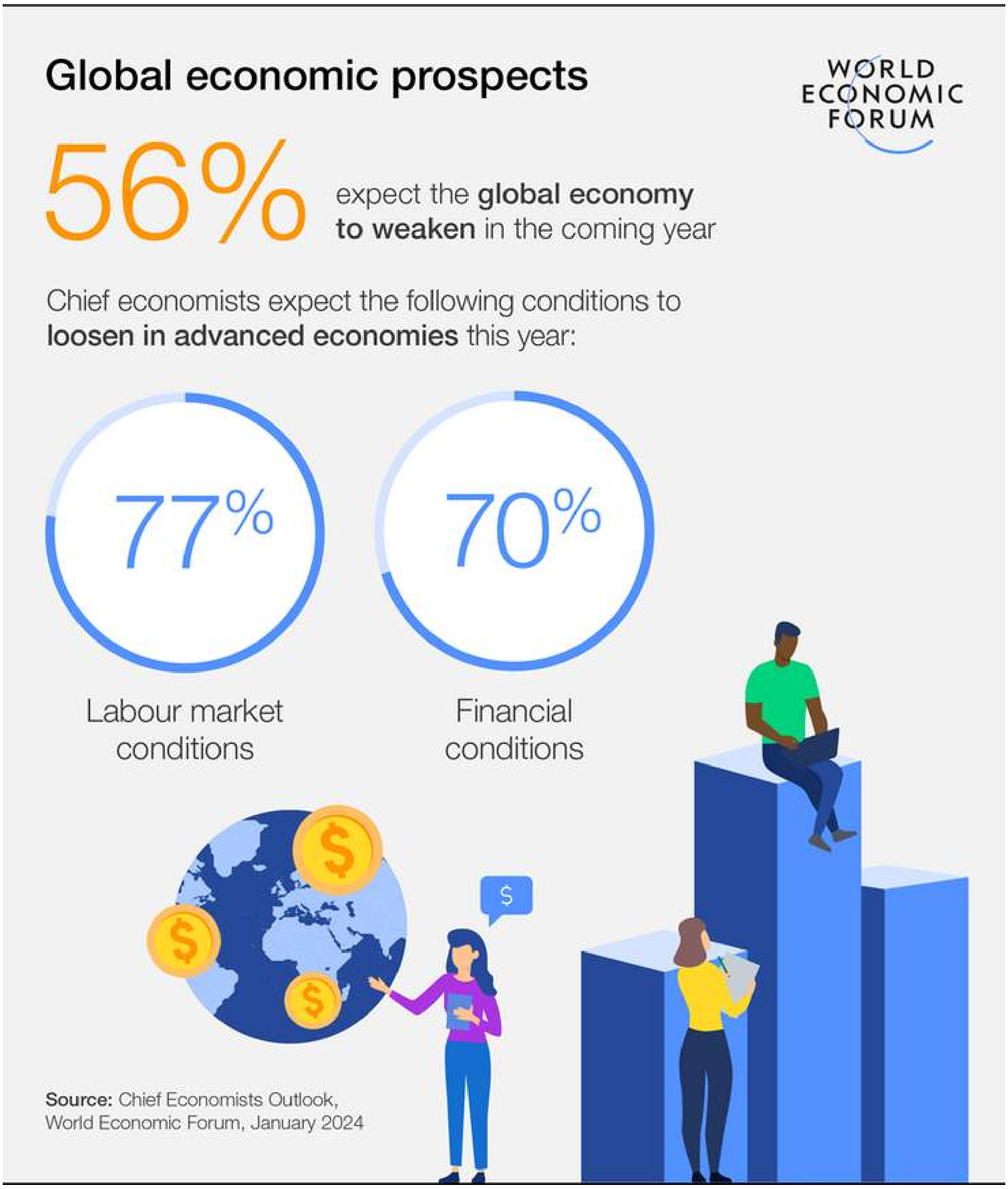
IN THIS ISSUE

ECONOMY

GLOBAL ECONOMY

Navigating the Challenges: A Closer Look at the World Economy in January 2024

As the world enters in the new year 2024, the global economy finds itself at a critical juncture, grappling with the aftermath of the COVID-19 pandemic and various geopolitical challenges. The World Bank's latest Global Economic Prospects report for January 2024 paints a sobering picture, predicting the weakest half-decade of GDP growth in 30 years. While the risk of a global recession has diminished, mounting geopolitical tensions and a myriad of economic challenges pose significant threats to the world economy.



ECONOMY
GLOBAL ECONOMY

Current Economic Landscape

The report highlights a relative improvement from the previous year, attributing this to the resilience of the U.S. economy. However, the medium-term outlook for many developing economies appears bleak, with slowing growth in major economies, sluggish global trade, and the tightest financial conditions in decades. Global trade growth in 2024 is anticipated to be only half of the pre-pandemic decade average. Developing economies, particularly those with poor credit ratings, are expected to face steep borrowing costs amid global interest rates stuck at four-decade highs in inflation-adjusted terms.

Projections and Concerns

Global growth is set to decelerate for the third consecutive year, dropping from 2.6% in the previous year to 2.4% in 2024. Developing economies are projected to grow at just 3.9%, more than one percentage point below the previous decade's average. Low-income countries, after a disappointing performance in the preceding year, are expected to grow at 5.5%, weaker than earlier expectations. These projections raise concerns about the persistence of poverty, with a significant proportion of developing and low-income countries facing economic setbacks.

World Bank's Call for Reforms

Indermit Gill, the World Bank Group's Chief Economist and Senior Vice President, warns of a wasted decade without a significant course correction. Gill emphasizes the need for accelerated investment and strengthened fiscal policy frameworks, particularly for developing countries. The report suggests that a transformative investment boom, requiring an annual increase of about $2.4 trillion, is essential to achieve global development goals by 2030.

Investment Booms and Policy Packages

The report proposes a clear way forward, drawing on the experiences of 35 advanced economies and 69 developing economies over the past 70 years. It emphasizes the potential of investment booms, highlighting their ability to transform economies, accelerate the energy transition, and achieve diverse development objectives. To spark such booms, comprehensive policy packages are crucial, including improvements in fiscal and monetary frameworks, expansion of cross-border trade and financial flows, enhancement of the investment climate, and strengthening of institutions.

Addressing Boom-and-Bust Cycles

The report also sheds light on the challenges faced by commodity-exporting developing economies, identifying fiscal policies that intensify boom-and-bust cycles. The recommended solutions include disciplined government spending through a robust fiscal framework, adopting flexible exchange-rate regimes, and avoiding restrictions on international capital movement. Implementing these measures could potentially boost per capita GDP growth by up to 1 percentage point every four or five years for commodity-exporting developing economies.

Facing Turbulence with Resilience

As the world economy is on the way to confront a turbulent period in 2024, characterized by tight monetary policy, restrictive credit, and various geopolitical risks, there are nevertheless bright spots. The projected decline in inflation and expectations of stronger global growth in 2025, especially if monetary policy loosens in advanced economies, offer a ray of hope amid the challenges.

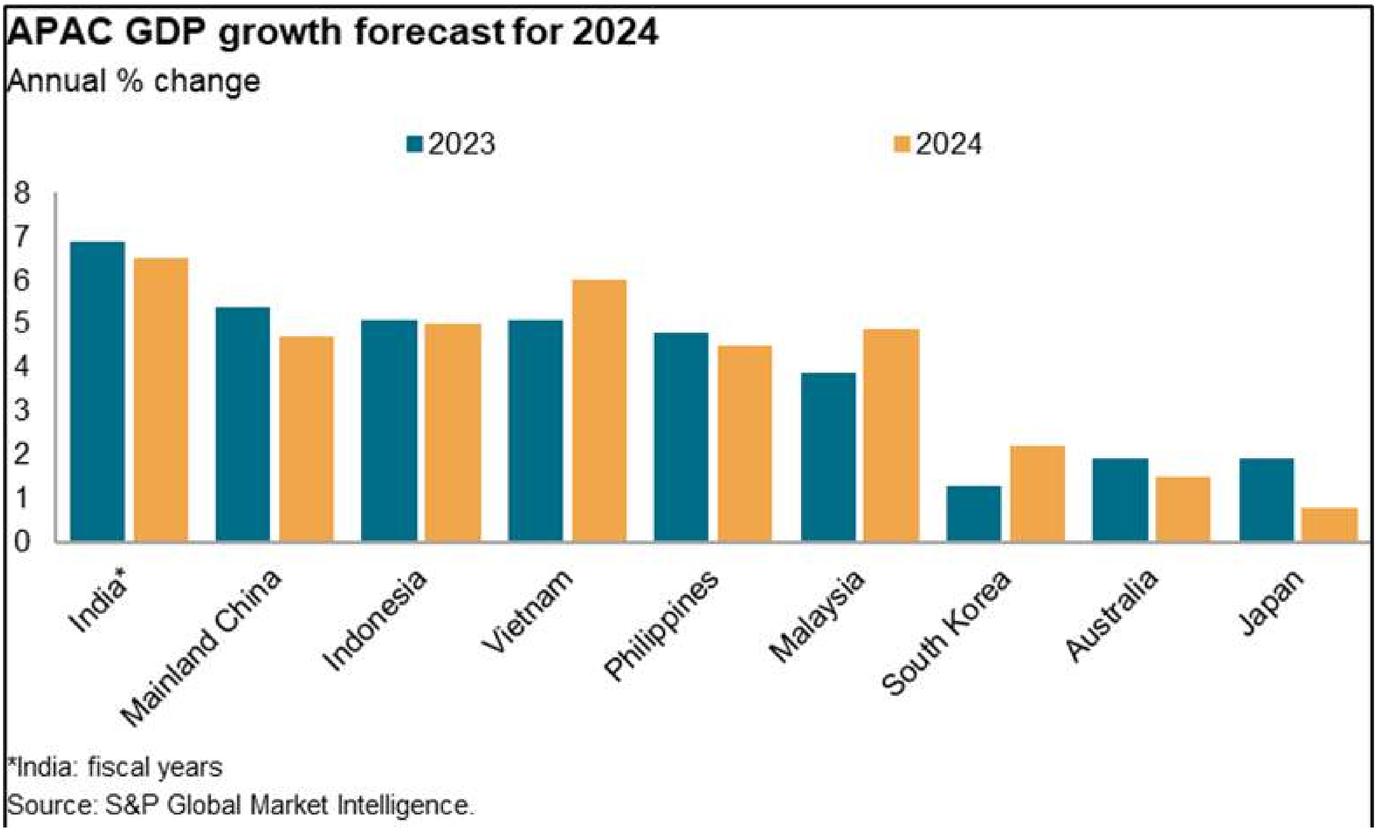
The world economy stands at a critical crossroads in January 2024, with the Global Economic Prospects report urging immediate action to avert a decade of missed opportunities. Reforms to boost investment, strengthen fiscal policies, and address the specific challenges faced by developing economies are essential. Navigating the complexities of the current economic landscape requires a concerted global effort to foster sustainable growth, tackle inequality, and achieve the ambitious development goals set for the transformative decade ahead.

ECONOMY
ASIAN ECONOMY

ASIAN ECONOMY

Asia-Pacific Economy: A Resilient Outlook for January 2024

The Asia-Pacific (APAC) region continues to shine as the beacon of economic growth on the global stage, with a promising outlook for January 2024. Having experienced rapid expansion in 2023, the APAC economies are poised to be the fastest-growing in the world this year, driven by robust domestic demand, improved exports, and a rebounding tourism industry.



Strong GDP Growth and Resilient Domestic Demand

The APAC economic landscape is characterized by a robust GDP growth, which surged to an estimated 4.5% year-over-year (y/y) in 2023, a significant uptick from the 3.3% recorded in 2022. The engine behind this growth is multifaceted, with mainland China, India, Japan, Indonesia, Malaysia, and the Philippines contributing significantly. The resilience of domestic demand in these large emerging markets, coupled with strong foreign direct investment inflows, is expected to sustain the region's economic expansion in 2024.

China's Moderate Yet Steady Recovery

Mainland China, a key player in the APAC region, is expected to witness a second year of economic recovery, albeit at a slightly moderated pace. Private consumption is anticipated to be a major growth driver in 2024, with retail sales showing a noteworthy improvement in the latter half of 2023. Despite a marginal contraction in export orders, the overall economic sentiment remains positive, as reflected in the Caixin General Manufacturing Purchasing Managers' Index (PMI).

Japan's Boost from the Service Sector

Japan experienced strengthened GDP growth in 2023, particularly boosted by improving private consumption as COVID-19 restrictions eased. The service sector played a pivotal role, as indicated by the au Jibun Bank Flash Japan Services Business Activity Index. However, the manufacturing sector faced challenges, witnessing a moderate contraction. Yet, the overall economic landscape in Japan appears optimistic.

South Korea's Export Rebound

South Korea's exports rebounded, marking a sharp turnaround after a challenging period in 2023. Semiconductors, a crucial export, showed strong growth, supported by a recovery in chip prices. The manufacturing sector signaled a return to neutral operating conditions, ending a 16-month sequence of decline.

Taiwan's Gradual Export Recovery

Taiwan's exports exhibited a positive trend, growing by 3.8% y/y in November, with a significant boost from information, communication, and audio-video products. Despite this improvement, the S&P Global Taiwan Manufacturing PMI indicated continued contraction, emphasizing the ongoing challenges in the manufacturing sector.

ASEAN Nations on a Growth Trajectory

ASEAN nations like Indonesia, Singapore, Malaysia, and the Philippines are on a growth trajectory. Indonesia's GDP growth remained strong in 2023, driven by robust private consumption and foreign direct investment. Singapore showcased a resilient private sector economy, with strong business conditions and rising new business at the end of 2023. Malaysia experienced resilient economic expansion in 2023, while the Philippines maintained strong economic growth, aided by an expected easing of monetary policy in 2024.

India's Buoyant Expansion

India's GDP growth remained buoyant in the second half of 2023, driven by strong industrial output. The manufacturing sector, as indicated by the HSBC India Manufacturing PMI, continued to show strong expansion, reflecting positive demand conditions.

ECONOMY
ASIAN/ INDIAN ECONOMY

Medium-Term Outlook: A Positive Trajectory

The medium-term outlook for the APAC region remains positive, supported by continued resilient expansion, strong domestic demand, and global competitiveness in electronics manufacturing. The transition to electric vehicles (EV) and the recovery of international tourism are expected to be significant growth drivers. Regional trade liberalization agreements, including RCEP and CPTPP, are anticipated to further strengthen APAC's position in the global economy.

In conclusion, as we step into January 2024, the APAC region stands at the forefront of global economic growth, fuelled by a combination of domestic resilience, export recovery, and strategic positioning in key industries. The outlook remains bright, setting the stage for continued prosperity in the months and years ahead.

INDIAN ECONOMY

The Indian January

In the face of global economic uncertainties, India's economic landscape shines brightly in January 2024, with projections indicating a GDP growth surpassing 7.2% for the fiscal year. This marks the third consecutive year of robust economic expansion, defying the worldwide struggle for growth that lingers at a modest 3%. A combination of strategic policies, financial resilience, and technological advancements has positioned India as a key player in the global economic arena.

Over the past decade, India has witnessed a remarkable surge in its GDP, attributed to increased public sector investment, a robust financial sector, and substantial non-food credit growth. These factors have collectively contributed to the country's ability to sustain a moderate growth rate, outpacing many of its global counterparts. In this period, India has also solidified its position as the world's third-largest fintech economy, trailing only the USA and the UK.

One noteworthy achievement is India's ascent to become the fourth-largest stock market globally, surpassing Hong Kong. This milestone is credited to the heightened interest from both domestic and global investors, coupled with sustained Initial Public Offering (IPO) activity. The buoyancy in the stock market serves as a testament to the confidence in India's economic prospects, further reinforcing its standing in the global financial landscape.

ECONOMY
INDIAN ECONOMY

A pivotal contributor to India's economic success story is the inclusive approach taken by the government, exemplified by the PM Jan Dhan Yojana. The initiative has led to a substantial increase in women bank account holders, rising from 53% in 2015-16 to an impressive 78.6% in 2019-21. This financial inclusion has had a cascading effect on the female labour force participation rate, which surged from 23.3% in 2017-18 to an encouraging 37% in 2022–23.

Empowering women in the workforce has been a focus of government policies, evident through initiatives like the Skill India Mission, Start-Up India, and Stand-Up India. These efforts have not only bolstered female participation in economic activities but have also contributed to human capital formation. The female Gross Enrolment Ratio (GER) in higher education has quadrupled from 6.7% in FY01 to an impressive 27.9% in FY21. Additionally, the overall GER has more than doubled from 24.5% to 58.2% between FY05 and FY22, underlining the strides made in education and skill development.

Micro, medium, and small enterprises (MSMEs) are playing a pivotal role in driving economic dynamism, supported by government initiatives. With conducive policies in place, MSMEs are emerging as key contributors to employment generation and economic growth. The adoption of the Goods and Services Tax (GST) has played a crucial role in enhancing economic efficiency. The unification of domestic markets and increased incentives for production have led to a reduction in logistics costs, further boosting the competitiveness of Indian businesses.

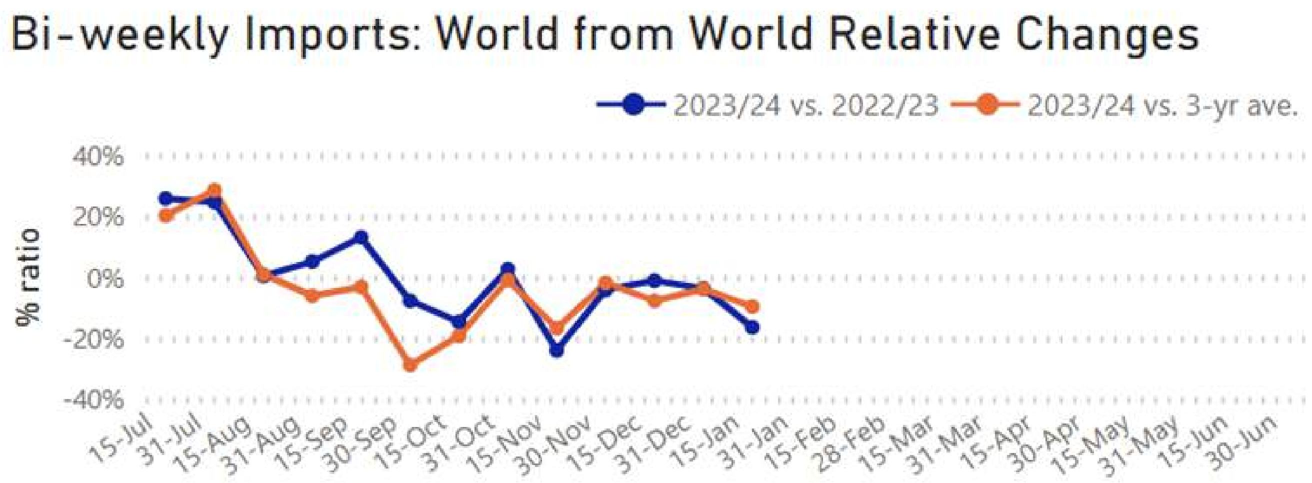
In conclusion, India's economic prowess in January 2024 stands as a beacon of growth amidst global challenges. The sustained GDP growth, coupled with strategic financial reforms and inclusive policies, positions India as a resilient and dynamic player in the global economic landscape. As the nation continues its journey of economic transformation, the world looks on, recognizing India's role as a key driver of growth and innovation.

WORLD TRADE ORGANISATION

Shipment passing through the Suez Canal is estimated at a 42% surge

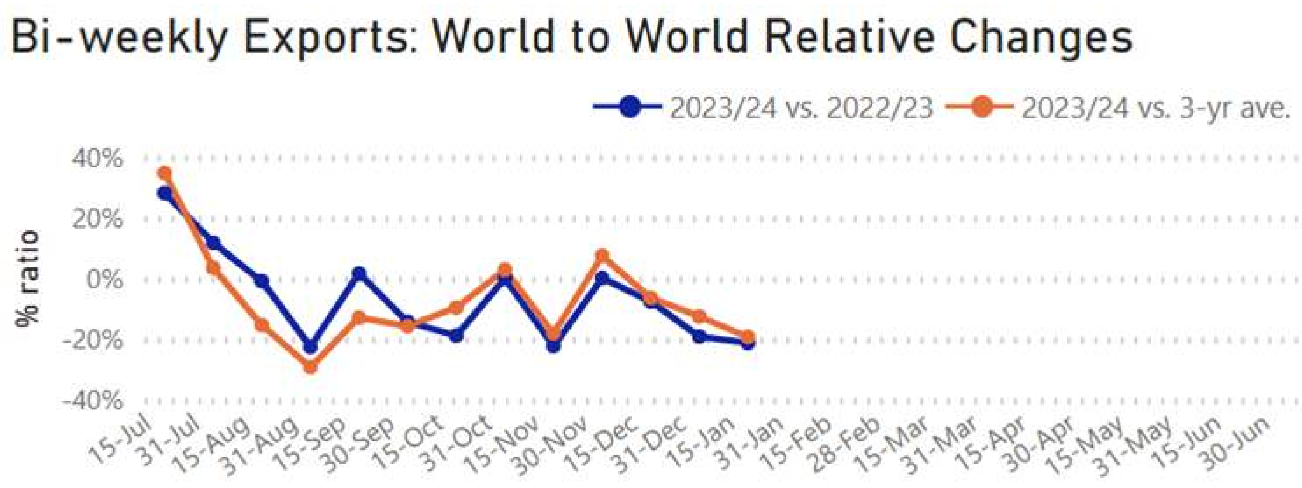
In the first half of January 2024, a growing number of shipping vessels have been redirected to circumvent the Suez Canal due to elevated security concerns. This shift has led to a significant decline of nearly 40% in year-on-year wheat shipments through the Canal, bringing the total to approximately 0.5 million metric tonnes, as reported by the WTO Wheat Dashboard.

Annually, an estimated 76 million metric tonnes of grains, oilseeds, and oilseed products are shipped from the European Union, the Russian Federation, and Ukraine to Asia and Eastern Africa, constituting 17% of the global trade in these commodities.



Source: WTO

In December 2023, approximately 8% of wheat shipments from the EU, the Russian Federation, and Ukraine to selected Asian countries and Eastern Africa took alternative routes instead of the Suez Canal. This marked an increase from the average of 3% observed before December. During the first half of January, the proportion of shipments using alternative routes surged to an estimated 42%.



Source: WTO

WORLD TRADE ORGANISATION

Wheat shipments from the EU via routes other than the Suez Canal totalled 330,000 metric tonnes from early December to mid-January, a significant rise compared to the 50,000 metric tonnes during the same period the previous year.

Over the same period, about 190,000 metric tonnes of wheat were diverted via alternative routes from the Russian Federation, a notable change from zero one year ago. However, all shipments from Ukraine to the specified Asian and Eastern African countries continued to transit via the Suez Canal during December and January.

Recent data also reveals a slight slowdown in global seaborne wheat imports in the past months compared to the previous year, with the cumulative volume as of mid-January being marginally lower year-on-year. This contrasts with a 17% year-on-year increase at the end of August 2023 and a 6% rise at the end of October.

Despite various market shocks, such as the COVID-19 pandemic and Black Sea hostilities, the world wheat trade has shown resilience, and no major disruptions have been noted in seaborne bulk shipments.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

INDIA

Next round of India-EU FTA discussions is planned for third week of February

India's exports to the European Union (EU) rose from USD 64,963.55 million in FY 2022 to USD 74,836.50 million in FY 2023. Concurrently, India's imports from the EU increased from USD 51,405.81 million in FY 2022 to USD 61,054.88 million in FY 2023.

The upcoming seventh round discussions, scheduled for the third week of February 2024, will see a 15-member team discussing services and investments and expanding on previous talks covering goods and public procurement. Geographical indications will also be a focal point, with the agreement encompassing lists of GIs to be safeguarded.

Additionally, both parties must address challenges to negotiate the India-EU Free Trade Agreement successfully. One primary challenge involves aligning with international standards and EU climate regulations. According to a news report, another challenge is the EU is pushing its demand to remove trade barriers for small firms and open the Indian procurement market. But for India, sectors like agriculture, dairy, and micro, small, and medium enterprises are very sensitive, and New Delhi would not like to open these sectors to European producers.

India to conclude FTA with UK before Lok Sabha Elections

According to the officials, the 14th round of negotiation focused on resolving the remaining issues. These include aspects such as business mobility, Scotch whiskey, automobiles, farm products, pharmaceuticals, rules of origin, and a separate agreement to enhance bilateral investments.

The deadline for entering into an agreement is quickly approaching, with India anticipated to implement a model code of conduct ahead of the upcoming general elections.

According to media reports, approximately 21 out of 26 chapters are nearly concluded, but some small issues persist. Notably, the UK has raised requests for reduced tariffs on whiskey and automobiles, including electric vehicles.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

INDIA/ WORLD

Additionally, the UK is actively seeking opportunities in telecommunications, legal, and financial services within the Indian markets.

Negotiations are set to continue virtually in February until the commencement of the model code of conduct.

WORLD

Vietnam and the UAE are expediting discussions for a comprehensive economic partnership agreement

In the year 2023, Vietnam recorded exports to the UAE exceeding 4 billion USD, while its imports from the UAE amounted to over 676 million USD. This represented a 4.3% year-on-year increase in exports and a substantial 16% increase in imports.

Key export items from Vietnam to the UAE encompass mobile phones, computers and components, electrical products, household electronics, pepper, seafood, footwear, textiles, grain products, plastic, and wooden furniture. On the other hand, Vietnam's imports from the UAE include raw plastics, liquefied petroleum gas (LPG), petroleum products, animal feed materials, metals, and chemicals.

Both parties have mutually agreed to expedite the negotiation process. Minister of Industry and Trade, Vietnam Nguyen Hong Dien, addressed mutual cooperation between the two countries. He urged the UAE side to consider and support the exchange of business delegations and collaborate in organizing trade promotion activities. Additionally, he suggested that UAE businesses explore investment opportunities in Vietnam within specific areas of shared interest.

European Union Trade negotiation with ASEAN member state

In 2022, on the 45th anniversary of the European Union–Association of Southeast Asian Nations (ASEAN), dialogue partnership was commemorated. Initially, the European Union (EU) commenced negotiations with ASEAN in 2007 to establish a region-to-region free trade agreement (FTA) to enhance access to opportunities in the regional market.

However, negotiations were halted in 2009, prompting the EU to pursue individual bilateral trade agreements with ASEAN member states. Six member states have initiated discussions on bilateral FTAs with the EU: Singapore and Malaysia in 2010, Vietnam in 2012, Thailand in 2013, the Philippines in 2015, and Indonesia in 2016.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

WORLD

Two of these negotiations have been successfully concluded, resulting in FTAs with Singapore and Vietnam coming into effect in November 2019 and August 2020, respectively. Ongoing negotiations are underway with Indonesia, the Philippines, and Thailand, while talks with Malaysia are currently on hold.

Negotiations started with Thailand and Indonesia

The EU started the negotiation talks with Thailand in September 2023 and is keen on concluding the FTA by early 2025. As per the official statement by the Thailand Trade Negotiations Department, the EU seeks a comprehensive deal and high standards in all areas, including intellectual property, state-owned enterprises and market access for government procurement. It will also include the environment & sustainability of natural resources, and promoting sustainable fisheries is a shared responsibility.

On the other side, the EU had last round of negotiations with Indonesia in July 2023 and is expected to hold the next round in February 2024. EU is keen to conclude the FTA in 2024 itself.

POLICY/ REGULATORY UPDATES
INDIA

Guideline for Advertisements making Environmental/ Green claims

Advertising Standards Council of India (ASCI) issued the guidelines for Advertising making environmental/green claims, which will be effective from 15 February 2024. The guidelines prevent false, deceptive, and misleading environmental claims about products called greenwashing. This violates Chapter I of the ASCI code on misleading advertisements.

These regulations stipulate those assertions like "environmentally friendly," "eco-friendly," "planet-friendly," or "sustainable" must be supported by solid data accompanied by reputable accreditations. Similarly, comparative statements like "greener" or "friendlier" should also be substantiated with evidence.

The guidelines also require all seals and certifications from accredited organizations. Further, visual elements in an ad should not give a false impression about the product/ service being advertised. In the case of carbon offset claims, the draft guidelines stated that advertisers must disclose if the reduction in emission will occur only in 'two years' or 'over a longer time period'. Ads also cannot make carbon offset-related claims that represent an emission reduction that is required by law.

According to the news report by the CEO and Secretary-General of ASCI, “ASCI have been monitoring those brands across sectors are increasingly making green claims and often charging a premium from consumers. This is because of growing awareness among consumers who are willing to pay a premium for green products.” ASCI is also working closely with the Department of Consumer Affairs on the issue of the prevention of greenwashing in ads.

Tamil Nadu Semiconductor and Advanced Electronics policy

The Tamil Nadu Semiconductor and Advanced Electronics Policy 2024, launched by Chief Minister MK Stalin at the Global Investors Meet, focuses on incentivising strategic investments, nurturing talent and fostering collaborations across industry, academia, and Government.

The State has emerged as the highest electronics exporter in India and achieved an impressive 5.37 billion USD in exports during 2022-23, which signifies a phenomenal growth of 223% compared to the 1.6 billion USD in exports recorded in 2020-21. Tamil Nadu is home to leading players in semiconductor design. The State has more than 100 academic institutions offering courses in Very Large-Scale Integration (VLSI), electronics design, nanotechnology, etc., supporting the required semiconductor industry talent pool.

The policy aims to position Tamil Nadu at the forefront of the semiconductor and advanced electronics industry's value chain. This strategic positioning is expected to yield benefits such as the creation of high-skilled employment opportunities, the acceleration of innovation, and advancements in technology.

The policy outlines several key goals, including attracting significant investments in semiconductor and advanced electronics manufacturing, and fostering a semiconductor design ecosystem within the state through incentives, funding, and collaborations between industry and academia. Another aim is to contribute to 40% of India's electronics exports by 2030, surpassing the current 30%, and to cultivate a skilled talent pool of 200,000 individuals in this sector by the same year.

To support eligible units, the government of Tamil Nadu will provide a Capital Subsidy, covering up to 50% of the CAPEX assistance offered by the Government of India. The policy specifically targets global research and design entities engaged in semiconductor design for Integrated Circuits (IC), Chipsets, Systems on Chips (SoC), Systems and IP Cores, as well as semiconductor-related design, semiconductor equipment design, high-end electronic product design and development, and high-end ESDM software.

OPINION COLUMN

Getting Inside Economics

Aditya Sinha

The Crucial Role of Consumer Price Inflation for Producers

In the intricacies of economics, one of the key metrics that producers closely monitor is consumer price inflation. This vital indicator not only shapes the purchasing power of consumers but also plays a pivotal role in the decisions and sustainability of producers across various industries. Understanding the nuances of consumer price inflation is crucial for producers as it directly impacts production costs, demand dynamics, and overall market dynamics.

Consumer price inflation, commonly measured by the Consumer Price Index (CPI), reflects the average change in prices that consumers pay for a basket of goods and services over time. For producers, this metric serves as a barometer for gauging the overall health of the economy and is instrumental in shaping their production strategies.

One of the primary ways in which consumer price inflation influences producers is through its impact on production costs. As inflation rises, the costs of raw materials, labour, and other inputs typically increase. Producers, therefore, face the challenge of maintaining profitability in the face of rising expenses. Effective cost management becomes paramount, prompting producers to explore innovative production methods, streamline operations, and negotiate favourable deals with suppliers.

Moreover, consumer price inflation directly affects the pricing strategies of producers. In an inflationary environment, producers may be compelled to pass on the increased costs to consumers through higher prices for their products and services. This delicate balancing act requires producers to assess the elasticity of demand for their offerings – an understanding of how changes in price affect consumer demand. Striking the right balance between maintaining profitability and retaining market share is crucial for producers navigating the complexities of an inflationary landscape.

On the flip side, moderate inflation can be beneficial for producers in certain scenarios. It often signals a growing economy with increased consumer spending. As consumers' purchasing power rises, the demand for goods and services tends to increase, providing producers with opportunities for higher sales volumes. Producers must be agile in adapting to these shifting demand patterns, aligning their production levels with the prevailing market conditions.

Additionally, consumer price inflation influences interest rates, which, in turn, impact the cost of borrowing for producers. Inflationary pressures may lead central banks to raise interest rates to cool down the economy. This can result in higher borrowing costs for producers looking to expand their operations or invest in new technologies. Producers need to factor in these financial considerations when planning for future growth and development.

OPINION COLUMN

The psychological aspect of inflation cannot be ignored. High and unpredictable inflation rates can erode consumer confidence, impacting spending behaviour. Producers must stay attuned to consumer sentiments and adapt their marketing strategies accordingly to maintain brand loyalty and market share.

In conclusion, consumer price inflation is not just a statistical figure but a critical factor that shapes the landscape for producers. The interconnected web of rising costs, pricing strategies, demand dynamics, and financial considerations requires producers to navigate these challenges with agility and foresight. As they strive for sustainable growth and competitiveness, a nuanced understanding of consumer price inflation is an invaluable tool for producers in charting their course through the ever-evolving economic terrain.

(The writer is an Senior Research Analyst at VeKommunicate)

Smart Manufacturing

Akriti Kumari

Role of Scientific Technologies in Developing Harm Reduction Strategies

Harm reduction strategies refer to a set of practical and evidence-based approaches aimed at minimizing the negative consequences associated with various behaviors, substances, or activities. These strategies focus on pragmatic steps to reduce the harm caused by preventable diseases rather than promoting abstinence.

Scientific technologies play a crucial role in the development, implementation, and monitoring of harm reduction strategies across various public health domains. Here are several ways in which scientific technologies contribute to the effectiveness of harm-reduction efforts:

Data Collection and Analysis:

- Surveillance Systems: Advanced surveillance technologies help collect real-time data on the prevalence and patterns of harmful behaviors, enabling authorities to identify trends and allocate resources effectively.
- Big Data Analytics: Analyzing large datasets provides insights into the impact of harm reduction interventions, helping policymakers make informed decisions.

Predictive Modeling:

- Machine Learning Algorithms: Predictive modeling can identify high-risk populations, areas, or times, on the other hand, may have legacy allowing for targeted interventions and resource allocation.

Telemedicine and Mobile Health (mHealth):

- Remote Monitoring: Telemedicine and mHealth applications facilitate remote monitoring of individuals engaged in harm-prone behaviors, enabling timely interventions and support.

Diagnostic Technologies:

- Rapid Testing Devices: Advanced diagnostic tools provide quick and accurate results, essential for harm reduction strategies such as HIV testing, drug testing, or infectious disease screening.

Geographic Information Systems (GIS):

- Mapping and Spatial Analysis: GIS technologies help visualize and analyze geographic patterns, aiding in the identification of high-risk areas and optimizing the deployment of resources.

Pharmacotherapy and Medication-Assisted Treatment (MAT):

- Development of Medications: Advances in pharmaceutical research leads to the development of medications for substance use disorders, supporting harm reduction through medication-assisted treatment.

Biometric Technologies:

- Biometric Identification: Biometric technologies enhance the accuracy of identification and tracking of individuals participating in harm reduction programs, ensuring targeted services.

Digital Health Platforms:

- Online Counselling and Support: Digital health platforms provide accessible and confidential channels for counselling, support, and education on harm reduction strategies.

Simulation Technologies:

- Training Simulators: Virtual and augmented reality simulations enable healthcare professionals and first responders to train for emergencies, such as administering naloxone for opioid overdoses.

Blockchain Technology:

- Supply Chain Monitoring: Blockchain can be utilized to track the distribution and authenticity of medications, reducing the risk of counterfeit drugs in harm reduction programs.

Social Media and Online Platforms:

- Public Awareness Campaigns: Social media and online platforms serve as effective tools for disseminating information and conducting public awareness campaigns on harm reduction.

Sensor Technologies:

- Environmental Monitoring: Sensors can be used to monitor air and water quality in areas affected by harmful behaviors, providing insights into the environmental impact.

Robotics and Automation:

- Automated Testing and Monitoring: Robotics and automation technologies can streamline testing processes and continuous monitoring, ensuring efficiency and accuracy.

By integrating these scientific technologies into harm reduction strategies, public health efforts can become more targeted, efficient, and responsive. Continued research and innovation in these areas contribute to the evolution and improvement of harm reduction interventions over time.

(The writer is an Senior Research Analyst at VeKommunicate)

OPINION COLUMN

Environment Equity

Saloni Goyal

Solar Waste Challenges in India

Photo-Voltaic waste is the electronic waste generated by discarded solar panels. PV waste may contain hazardous materials, including heavy metals such as cadmium, copper, lead, antimony, and selenium.

India has emerged as the world's third-largest solar PV deployment country. The installed solar capacity as of December 2023 is 73.32 GW. This contributes to a large amount of solar PV waste.

A report prepared by the National Solar Energy Federation of India predicted that India could generate over 34,600 tonnes of cumulative solar waste in India by 2030.

India's solar PV installations are dominated by crystalline silicon (c-Si) technology. A typical PV panel is made of c-Si modules (93%) and cadmium telluride thin-film modules (7%). Both technologies have a recovery rate of 85-90 per cent.

The market value of raw materials recovered from solar panels could reach 450 million USD by 2030, according to a projection by the International Renewable Energy Agency. This amount of raw materials is approximately the same as that required to build 60 million new solar panels or to generate 18 GW of electricity.

Challenges in Managing PV Waste in India

- A substantial amount of waste from extracted and recycled Solar PV Panels is managed informally, resulting in the build-up of waste in landfills and environmental pollution.
- In India, the waste produced by PV modules and their components is designated as 'hazardous waste.'
- The market for reusing recycled PV waste in India is presently limited due to a scarcity of viable business incentives and investment schemes.
- There is an absence of a central insurance or regulatory entity to safeguard against financial losses associated with waste collection and treatment.

To tackle this challenge, handling solar PV waste is emerging as a crucial focus. Initiatives are underway to champion resource efficiency and circular practices in the end-of-life management of solar PV waste. Nevertheless, there is a requirement for a comprehensive approach and cooperation among stakeholders to ensure effective solar waste management.

It is imperative for both the government and the industry to earmark dedicated funding and enact policies that encourage the recycling and appropriate disposal of solar panels and cells. Through such measures, India can establish a sustainable and environmentally friendly approach to address the escalating challenge of solar waste.

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