



# **POLICY PULSE**

**A MONTHLY NEWSLETTER**

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### India among the prime beneficiaries of evolving global economic landscape

India is expected to immensely benefit from the ongoing global supply change shifts occurring owing to evolving global order. A primary reason for this is US-China trade war, reverse globalization and disruptions in supply chain emerging from the pandemic.



Source: Schrodres as at August 2023

### Change in U.S. Fed rate to have implications for other economies

US is facing a very interesting scenario - while some indicators point to manufacturing decline, decelerating consumer spending, and credit stringency, all consistent with the ramifications of stringent monetary policies and subdued inflation pressures, the gross domestic product (GDP) continues to expand vigorously, surpassing the non-inflationary growth threshold of approximately 1.8%.

As the United States sustains robust economic growth, outpacing other key economies, a conundrum arises for policymakers. The potential risk emerges if this growth compels Federal Reserve officials to elevate interest rates beyond the current projections. While the global financial system was cautiously tested by the Federal Reserve's vigorous rate increases last year, synchronized actions taken by central banks worldwide mitigated the impact, averting widespread dollar funding dilemmas and currency devaluation repercussions for businesses.

Presently, countries such as Brazil, Chile, and China are initiating interest rate cuts, with similar measures expected elsewhere. Experts at the recent Jackson Hole conference (Jackson Hole is the site of the Fed's summer summit discussing the broad direction of American monetary policy) acknowledge these moves to be in sync with the assumption that the Federal Reserve will exercise restraint, possibly limiting its rate hikes to a quarter percentage point. Although U.S. inflation has receded and policymakers acknowledge the end of rate hikes, the persistence of unexpectedly resilient economic

growth raises concerns. Federal Reserve Chair Jerome Powell remarked that this persistence could stall progress on inflation, potentially prompting a central bank intervention.

The introduction of such a policy shift, especially when the U.S. economy diverges from global trends, could lead to reverberations across the international stage. Post the pandemic upheaval and the ensuing inflationary surge that prompted synchronous rate hikes, the divergence in economic policies is now customary, as noted by Cleveland Fed President Loretta Mester. However, the accuracy of the Federal Reserve's decisions carries substantial weight in this context.

### **Global Economic Divergence**

Critical insights into the economic outlook will be unveiled by Fed policymakers during the September 19-20 meeting. The widely anticipated outcome is the preservation of the policy rate (The policy interest rate is an interest rate that the monetary authority (i.e., the central bank) sets in order to influence the evolution of the main monetary variables in the economy (e.g., consumer prices, exchange rate or credit expansion, among others)) in the range of 5.25% to 5.5%. Should inflation and labour market data continue to exhibit signs of easing price and wage pressures, the current projection of a solitary quarter-point hike may stand.

Yet, Federal Reserve officials find themselves perplexed and mildly alarmed by the conflicting signals emanating from incoming data. While some indicators point to manufacturing decline, decelerating consumer spending, and credit stringency, all consistent with the ramifications of stringent monetary policies and subdued inflation pressures, the gross domestic product (GDP) continues to expand vigorously, surpassing the non-inflationary growth threshold of approximately 1.8%. In the second quarter, U.S. GDP achieved an annualized growth rate of 2.4%, and projections suggest that the current quarter could potentially exceed this pace twofold.

This discrepancy is particularly striking when juxtaposed with the economic trajectories of other key global economies. The euro area, for instance, merely expanded by an annualized 0.3% (annualize refers to converting a short-term number, such as an investment return or interest rate, into an annual rate (a number is annualized by multiplying the short-term figure by the number of periods that make up one year)) in the second quarter, indicative of sluggish growth. The challenges faced by China further compound global growth concerns if not ameliorated promptly. In this context, European Central Bank President Christine Lagarde highlighted the resilience of the euro area despite adversity, paralleling the dynamics witnessed in the United States.

The variance in trajectories is attributed to multiple factors. U.S. fiscal policy plays a pivotal role, with pandemic-related aid amounting to \$6 trillion bolstering consumer spending.

Additionally, the Biden administration's recent push towards investments has provided a boost to manufacturing and construction. The global impact of China's economic slowdown also factors in, potentially affecting Germany's exports (since it depends on China for raw materials) and, consequently, Europe's growth prospects.

### **Pandemic pushed nearly 70 million more individuals in developing Asia into extreme poverty**

An Asian Development Bank report reveal that around 155.2 million people, accounting for 3.9% of the region's population, were ensnared in extreme poverty last year, reflecting an increase of 67.8 million without the health and cost-of-living crises.

The Asian Development Bank (ADB) recently unveiled a report underscoring the adverse ramifications of the coronavirus pandemic and rising living costs. The cumulative effect has catapulted nearly 70 million more individuals in developing Asia into the depths of extreme poverty. The report disclosed that around 155.2 million people, accounting for 3.9% of the region's population, were ensnared in extreme poverty last year, reflecting an increase of 67.8 million without the health and cost-of-living crises.

The ADB report encompasses 46 economies in the Asia-Pacific, excluding Japan, Australia, and New Zealand. "Asia and the Pacific is gradually recovering from the COVID-19 pandemic, but the escalating cost-of-living crisis hampers progress towards eradicating poverty," emphasized ADB Chief Economist Albert Park.

Extreme poverty, characterized by subsisting on less than US\$2.15 per day (based on 2017 metrics), was aggravated by inflation's ascent, attributed to a resurgence in economic activity and supply chain disruptions. Though inflation impacted all segments of society, vulnerable populations bore the brunt, as increased expenses on essentials like food and fuel hindered their ability to save and access healthcare and education.

Park stressed that bolstering social safety nets for the underprivileged and fostering investments and innovation to stimulate growth and employment opportunities can recalibrate the trajectory towards poverty alleviation. According to the ADB, developing Asia is poised to achieve a growth rate of 4.8% in the current year, surpassing the 4.2% expansion of the previous year. He also remarked that by 2030, an estimated 1.26 billion individuals, roughly 30.3% of the population, could remain economically vulnerable.

### India's 50th GST Council Meeting

The 50th GST Council Meeting convened on the 11th of July 2023 has brought forth significant developments and key decisions with far-reaching implications for businesses across India. The meeting addressed various aspects, ranging from tax rate changes and exemptions to measures aimed at fortifying the GST implementation. Notably, the decisions have stirred concerns among online gaming companies while uplifting the healthcare sector with crucial exemptions on pharmaceutical imports.

One of the standout decisions that garnered attention was the imposition of a 28 % GST rate on gaming, horse racing, and casinos. The move has raised concerns among companies in the online gaming industry, who fear the potential impact on their operations and profitability. This decision aims to generate additional revenue for the government and regulate the rapidly growing gaming and gambling activities in the country.

However, the healthcare sector emerged as one of the beneficiaries of the 50th GST Council Meeting. The council decided to exempt GST on crucial pharmaceutical imports, providing a much-needed boost to the industry. This exemption is expected to lower the cost burden on pharmaceutical companies and improve accessibility to essential medicines for the general public.

The meeting also placed a strong emphasis on strengthening the implementation of the Goods and Services Tax (GST) through a series of measures. Several amendments were proposed to simplify processes, enhance compliance, and address tax liabilities faced by businesses. The council aimed to streamline reporting requirements and make it easier for businesses to adhere to GST regulations.

The decisions taken during the 50th GST Council Meeting hold considerable importance for businesses operating in India. The revised tax rates, particularly on gaming and gambling, will have implications for the entire industry. Online gaming companies may need to re-evaluate their pricing strategies and business models to navigate the increased tax burden.

### **India's Gross Domestic Product (GDP) to surge to US\$6.7 trillion by fiscal year 2030-31**

A S&P report forecasts India's gross domestic product (GDP) to surge from US\$3.4 trillion in fiscal year 2022-23 to US\$6.7 trillion by fiscal year 2030-31. The report highlights the pivotal role to be played by capital, which will contribute 53% of India's average GDP growth during this period.

S&P Global's August volume report titled "Look Forward, India Moment" anticipates a transformative journey for India's economy. Predicting an average annual growth rate of 6.7% from fiscal year 2023-24 to fiscal year 2030-2031, the report forecasts India's gross domestic product (GDP) to surge from \$3.4 trillion in fiscal year 2022-23 to \$6.7 trillion by fiscal year 2030-31. Highlighting the pivotal role of capital, S&P Global anticipates it to contribute 53% of India's average GDP growth during this period.

India's burgeoning workforce, comprising 678.6 million individuals, is positioned to drive short-term economic growth. The report underscores the significance of increasing female workforce participation, as only 22% of women were engaged in the labour force in 2022. The country holds the potential to enhance its global manufacturing exports, in alignment with the government's aspiration to elevate manufacturing's contribution to GDP from 17.7% to 25% by 2025.

### **Growth of Indian Automobiles Market and Conflicting Issues with Sustainability**

S&P Global Commodity Insights anticipates the country's energy demand to double by 2050. Despite being the third-largest global energy consumer, India's per capita energy consumption is merely a fraction of that in the United States. India's efforts to satiate escalating energy needs while curbing emissions serve as a model for other emerging economies' sustainability endeavours.

However, the path to mobility in India faces hurdles, particularly concerning urban infrastructure. The report underlines that burgeoning car ownership, synonymous with congestion and pollution, obstructs the nation's growth narrative. To navigate these challenges, the report advocates prioritizing public mobility over individual car ownership, fostering demand for shared mobility solutions and innovative public transportation modes.

### Performance of Key Indicators

The combined Index of Eight Core Industries (ICI) increased by 8.2 per cent (provisional) in June 2023 as compared to the Index of June 2022. The production of Steel, Coal, Cement, Refinery Products, Natural Gas, Fertilizers and Electricity increased in June 2023 over the corresponding month of last year. ICI measures combined and individual performance of production of eight core industries viz. Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizers, Steel, Cement and Electricity. The Eight Core Industries comprise 40.27 % of the weight of items included in the Index of Industrial Production (IIP).

Final growth rate of Index of Eight Core Industries for March 2023 is revised to 4.2 % from its provisional level 3.6 %. The cumulative growth rate of ICI during the quarter April to June, 2023-24 reported 5.8 % (provisional) as compared to the corresponding period of last year.

### Summary of the Index of Eight Core Industries

**Coal production** (weight: 10.33 per cent) increased by 14.9 per cent in July, 2023 over July, 2022. Its cumulative index increased by 10.1 per cent during April to July, 2023-24 over corresponding period of the previous year.

**Crude Oil production** (weight: 8.98 per cent) increased by 2.1 per cent in July, 2023 over July, 2022. Its cumulative index declined by 1.0 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Natural Gas production** (weight: 6.88 per cent) increased by 8.9 per cent in July, 2023 over July, 2022. Its cumulative index increased by 2.3 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Petroleum Refinery production** (weight: 28.04 per cent) increased by 3.6 per cent in July, 2023 over July, 2022. Its cumulative index increased by 2.3 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Fertilizer production** (weight: 2.63 per cent) increased by 3.3 per cent in July, 2023 over July, 2022. Its cumulative index increased by 9.1 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Steel production** (weight: 17.92 per cent) increased by 13.5 per cent in July, 2023 over July, 2022. Its cumulative index increased by 15.3 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Cement production** (weight: 5.37 per cent) increased by 7.1 per cent in July, 2023 over July, 2022. Its cumulative index increased by 11.2 per cent during April to July, 2023-24 over the corresponding period of previous year.

**Electricity generation** (weight: 19.85 per cent) increased by 6.9 per cent in July, 2023 over July, 2022. Its cumulative index increased by 2.7 per cent during April to July, 2023-24 over the corresponding period of previous year.

# WTO UPDATES

## **Indonesia alleges violation of the WTO's agreement on subsidies and countervailing measures on Biodiesel by EU**



Indonesia has contested the EU's judgements concerning the Indonesia Oil Palm Plantation Fund, the claimed government support for the provision of crude palm oil, and the existence of a threat of substantial injury and a causal link.

Indonesia requested WTO dispute consultations with the EU over the imposition of countervailing duties on biodiesel imports from Indonesia. The EU accounted for about 52% of its 2018 biodiesel shipments and 45% in 2019. Indonesia shipped 435,827 tonnes of biodiesel in 2022, with 22.47% of that shipped to the EU.

The EU had launched an investigation into whether biodiesel from Indonesia was circumventing EU duties by going through China and Britain. The EU's probe followed an initial request from

the European Biodiesel Board, an association of European producers. According to European Commission, "The request contains sufficient evidence that the existing countervailing measures on imports of the product concerned are being circumvented by imports of the product under investigation."

According to Indonesia, the restrictions are in violation of the WTO's agreement on subsidies and countervailing measures, as well as GATT 1994. Indonesia has contested the EU's judgements concerning the Indonesia Oil Palm Plantation Fund, the claimed government support for the provision of crude palm oil, and the existence of a threat of substantial injury and a causal link. Similarly, the EU's rejection of Indonesia's pricing undertaking offer has been questioned.

# FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

## INDIA

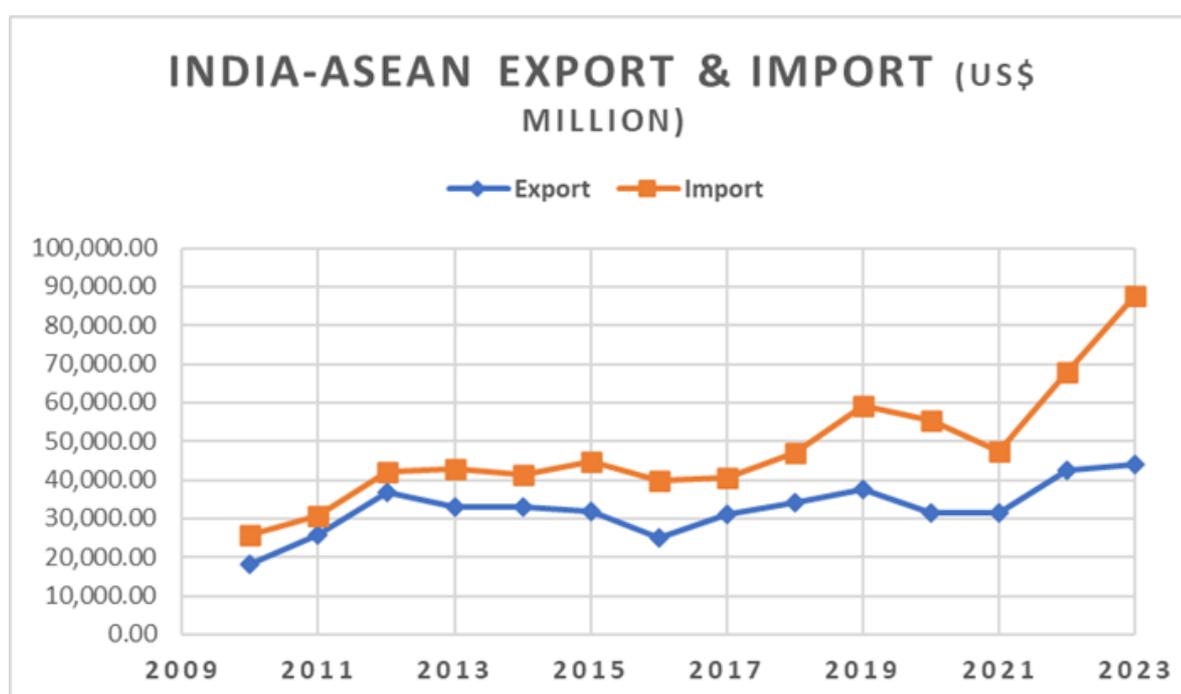
### Review of India and the ASEAN Free-Trade Agreement (AITIGA) to conclude by 2025

*In view of increasing trade imbalance in favor of ASEAN member states, and emerging global dynamics, India and ASEAN countries have started the process of reviewing the India and the ASEAN existing free-trade agreement (AITIGA). All parties have agreed to conclude the review by 2025.*

During the economic ministers' meeting in Indonesia, Shri Rajesh Agarwal, Additional Secretary, Department of Commerce, represented India. India and the ASEAN bloc reviewed the bilateral trade and investment relations and underscored their commitment to strengthen and enhance the economic partnership.

India and the ASEAN bloc identified priority areas of cooperation such as resilient supply chains, food security, energy security, health and financial stability. India has requested to review the agreement to eliminate barriers and misuse of the trade pact. In addition, some other concerns have been raised about routing goods from third countries in India through ASEAN members by taking the duty advantages of the agreement. Moreover, the FTA review will certainly include trade facilitation, customs cooperation, and economic and technological collaboration.

According to the ministry statement, the review of AITIGA is expected to enhance and diversify trade while addressing the current asymmetry in bilateral trade. The decision for review of AITIGA will now be placed in the forthcoming India-ASEAN Leaders' Summit scheduled in early September for further guidance.



Source: Department of Commerce

# FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

## INDIA

### UK to stress upon stronger IP rights under India-UK FTA



*UK supports stronger IP rights for companies doing business with India, notably in the pharmaceutical industry. UK feels that Indian laboratories could produce their products at lower costs.*

The 12th negotiation round ended on 31st August 2023. Both sides are keen to conclude the talks as soon as possible. However, it is increasingly appearing that deal negotiations between the two countries may slip into 2024.

The discussions are anticipated to include topics such as investment, duty reductions on automobiles and whisky, and trade-in services. Out of 26 proposed chapters, 19 have been agreed upon, and a separate agreement on bilateral investment is also being discussed. Both sides are extensively discussing and resolving differences on issues like investment, treaties, intellectual property rights (IPRs) and Rules of Origin. Under the Rules of Origin, product-specific rules are being negotiated, which include value addition

norms for each product category, changes in chapter heading, and certification.

According to the UK source, it supports stronger IP rights for companies doing business with India, notably in the pharmaceutical industry, as Western businesses are concerned that Indian laboratories could produce their products at lower costs. India, for its part, seeks to limit the share of UK-produced items that can be manufactured outside the UK in order to prevent misuse of the India-UK trade deal.

India's side is agreeing to cut tariffs on British car and Scotch imports. Car tariffs in India may be reduced from 100% to 75%. However, this does not apply to small-capacity vehicles. There will also be restrictions on the quantity of British vehicles sold under the reduced tariff levy. Discussions are also continuing regarding Scotch whisky import duty reductions, which may be reduced to 100% above the minimum import price rather than the current 150%.

### **Banks/FIs funded 547 projects with a total project cost of Rs 2,66,547 crore in 2022-23: RBI**



*Compared to 401 projects during 2021-22 with a total cost of Rs 1,41,976 crore, during 2022-23, banks/FIs assisted 547 projects with a record-high total project cost of Rs 2,66,547 crore, reveals a RBI report on Private Corporate Investment.*

The investment outlook of private corporations, as represented in the total number of projects and total project cost sanctioned by banks/FIs, continued to increase throughout 2022-23. During 2022-23, banks/FIs assisted 547 projects with a record-high total project cost of Rs 2,66,547 crore, compared to 401 projects during 2021-22 with a total cost of Rs 1,41,976 crore.

In addition, the overall investment plans of 982 projects were made during 2022-23, with record capital outlay of Rs 3,52,624 crore – higher than the level seen since 2014-15, as against 791 projects in 2021-22 with investment intentions of Rs 1,96,445 crore.

The study stated that five states – Uttar Pradesh, Gujarat, Odisha, Maharashtra, and Karnataka – accounted for 57.2%

share (US\$24 billion in total project cost) of the total bank-assisted investment proposals made during the year 2022-23. This exceeds the state's 43.2% share during 2021-22. This indicates that the country's industrialisation patterns are unbalanced.

In 2022-23, Uttar Pradesh accounted for the highest share of 16.2 %, or Rs 43,180 crore, in the total cost of projects sanctioned by banks and financial institutions, followed by Gujarat (14%, or Rs 37,317 crore), Odisha (11.8 %), Maharashtra (7.9 %) and Karnataka (7.3%). The share of Uttar Pradesh and Odisha in the total cost of projects improved significantly from the previous year, as well as the average share recorded from 2013-14 to 2020-21.

According to the RBI study, roads & bridges held a significant share in the total project cost, supported by the government's push towards infrastructure projects through the "Bharatmala" initiative. Besides the infrastructure sector, major industries such as metal & metal products, construction, textile, and food products accounted for a sizable share of the total cost of projects planned for 2022-23, with metal & metal products accounting for a significant increase in its share over the previous year.

According to the RBI study, "a sustained increase in bank credit in recent times, rising capacity utilisation, improved business outlook and demand conditions, as well as various government policy initiatives to support investment activities, provided a conducive environment for the private corporates to undertake fresh capital investment."

### European Commission Approves Circular Economy for the Battery Sector



The European Council has adopted a new regulation that strengthens sustainability rules for batteries and waste batteries. The rule will govern the entire life cycle of batteries, from manufacturing through reuse and recycling, ensuring that they are safe, sustainable, and competitive.

The proposed initiative is critical, especially given the rapid development of electric mobility. By 2030, demand for batteries is predicted to increase more than tenfold. The new rule will replace the present batteries directive from 2006 and complete the existing legislation, particularly waste management.

The regulation specifies end-of-life battery requirements, including collection targets and obligations, targets for the recovery of materials, and extended producer responsibility.

Following are some of the regulatory targets that will come into effect:

- The regulation has set targets for producers to collect waste portable batteries at 63% by the end of 2027 and 73% by the end of 2030.
- It has introduced a dedicated collection objective for waste batteries for light means of transport, which is 51% by the end of 2028 and 61% by the end of 2031.
- The target for lithium recovery from waste batteries has been set to 50% by the end of 2027 and 80% by the end of 2031. This can be amended depending on market and technological developments and the availability of lithium.
- The regulation provides mandatory minimum levels of recycled content for industrial, SLI, and EV batteries. These are initially set at 16% for cobalt, 85% for lead, 6% for lithium and 6% for nickel. Batteries will have to hold recycled content documentation.
- The recycling efficiency target for nickel-cadmium batteries is set at 80% by the end of 2025 and 50% by the end of 2025 for other waste batteries.
- The regulation states that portable batteries included in appliances must be detachable and replaceable by the end user by 2027, giving operators enough time to create their products to meet this need. This is a critical provision for customers. An independent expert must change batteries for light modes of transportation.

Companies must identify, prevent, and mitigate social and environmental risks associated with sourcing, processing, and

trading raw materials such as lithium, cobalt, nickel, and natural graphite in their batteries under the new law's due diligence duties.

The new regulation intends to ensure that batteries have a low carbon footprint in the future, use minimal hazardous substances, reduce raw materials from non-EU nations, and are recovered, reused, and significantly recycled in Europe.

### **South Africa's Upcoming Freight Logistics Roadmap to Boost Economic Growth**

The South African government has promised to publish a roadmap for SA's freight logistics industry to open the way to faster reforms to address the crisis in rail and ports that has slashed exports and economic growth. The government and Transnet (South African rail, port and pipeline company) are developing the roadmap, and a final draft is expected to be concluded in the third quarter of 2023.

The National Logistics Crisis Committee (NLCC), established earlier this year by President Cyril Ramaphosa to address difficulties afflicting the sector, including an unprecedented deterioration in rail services and continued port inefficiencies, will monitor the implementation of the agenda.

The NLCC's goals include enhancing freight rail and port operating performance, restructuring Transnet to maintain its long-term viability, and adopting changes to modernise the freight transport system and restore its efficiency and competitiveness.

The NLCC includes eight workstreams focusing on the following matters:

- 1.Pursue improvements to the operational performance of the multimodal and bulk freight rail network and port system;
- 2.Focus on improving road transport operations and border transit;
- 3.Pursue plans to restore passenger rail services, with a devolution strategy targeted for finalisation by March 2024;
- 4.Assess the structural reform of the freight logistics system;
- 5.Focus on procurement;
- 6.Assessing financing;
- 7.Focus on security; and
- 8.Prioritize communications

According to the experts, South Africa continues to lose rail market share, with Transnet Freight Rail (TFR) volumes falling short of targeted volumes – where the rail system moves less than 40% of rail-friendly freight tonne-kilometres. This is marked as poor performance by international benchmarks. The roadmap actions to enhance efficiencies, encourage private engagement, and allow for higher competition and investment are essential to halt the sector's decline.

## Getting Inside Economics

Aditya Sinha

### **The Interconnectedness a catalyst for trade and economic integration**

The world today is characterized by a remarkable level of interconnectedness among different economies. The intricate web of interactions that binds nations together has a profound impact on how economies evolve, respond to changes, and navigate challenges. This global interdependence is driven by factors such as trade, finance, technology, and communication, creating a dynamic landscape where the actions of one nation can send ripples across the globe.



Trade, perhaps the most visible facet of international interconnectedness, acts as a bridge connecting economies. When one country produces goods or services that are in demand elsewhere, a trade relationship emerges. This exchange stimulates economic growth, creates jobs, and expands consumer choices. The fluctuation of trade policies, tariffs, and agreements can drastically affect the flow of goods and the economic well-being of participating countries. For instance, a tariff imposed by one country on a particular import can lead to reduced demand,

subsequently impacting the exporting nation's economic performance.

Modern economies also rely heavily on supply chains that span the globe. Components and raw materials often come from multiple countries to be assembled or processed elsewhere. This interconnected production process means that disruptions, whether caused by natural disasters, geopolitical tensions, or other factors, can reverberate throughout the entire chain. The COVID-19 pandemic laid bare the vulnerabilities inherent in global supply chains, as production halts in one region led to shortages in distant markets.

Currency exchange rates further illustrate the interconnected nature of economies. The value of one country's currency relative to another affects the cost of imported and exported goods. A stronger currency can make exports more expensive and imports cheaper, influencing trade balances and economic competitiveness. Currency fluctuations can be triggered by a range of factors, including changes in interest rates, economic performance, and geopolitical events.

The movement of capital across borders is another critical avenue of interconnectedness. Investors seek opportunities in countries with favourable economic conditions, policies, and growth potential. Economic conditions in one country can lead to shifts in global capital flows, impacting investment and growth in other countries. For instance, a financial crisis in a major economy can trigger a flight of capital from emerging markets, leading to economic instability elsewhere.

## OPINION COLUMN

The health of financial markets is intertwined with the health of economies. Events in one market can rapidly transmit to others, showcasing the global nature of finance. The 2008 financial crisis is a stark reminder of how vulnerabilities in one sector can quickly escalate into a global catastrophe, demonstrating that no economy operates in isolation.

Commodity prices hold significant sway over many economies, both as producers and consumers of commodities. Fluctuations in the prices of oil, metals, and agricultural products can have cascading effects on economies that rely on these resources. Changes in commodity prices can lead to shifts in trade balances, inflation rates, and fiscal policies.

Beyond economics, technology and innovation create bridges that span geographical boundaries. Technological advancements spread rapidly across the world, influencing industries and economic activities. A breakthrough in one country can inspire similar developments in others, leading to a collaborative approach to solving global challenges.

The global economy is also susceptible to the impacts of global events. Natural disasters, pandemics, geopolitical conflicts, and political changes can all disrupt economies on a global scale. The COVID-19 pandemic, for instance, exposed the vulnerability of economies to unforeseen shocks, illustrating how a health crisis can quickly translate into an economic crisis with worldwide repercussions.

The modern world is defined by the intricate interplay of diverse economies. This interconnectedness is driven by the exchange of goods, the flow of capital, the dynamics of financial markets, and the dissemination of technology. The actions of one nation, whether in trade policy, financial regulation, or technological innovation, can have far-reaching effects that touch nations thousands of miles away.

Acknowledging and understanding these interdependencies is essential for policymakers, businesses, and individuals alike, as it enables them to navigate the complex web of global interactions and make informed decisions that shape the collective trajectory of our interconnected economies.

(The writer is an Senior Research Analyst at VeKommunicate)

## Smart Manufacturing

Akriti Kumari

### Innovation in Plastics Value Chains Critical to Reduce its Environmental Impacts

*Innovation along the entire plastics value chain will be critical to reducing the environmental impacts of plastics. Studies reveal that about half of all environmentally relevant innovations patented in 2017 focused on plastics circularity, i.e., the prevention and recycling of plastic waste. One-third were related to biobased feedstock, and the remainder aimed at converting or disposing of waste and removing plastics leaked into the natural environment.*

The use of plastics in modern society is ubiquitous. Is it remarkably difficult to find anything used or interacted with on a daily basis that is not made of or contains one or more types of plastic.

The increased production and use of plastics reflects a greater fundamental understanding and knowledge about their

behaviour that has afforded better control of their properties and consequently driven the development of many new polymers. With increased knowledge has come a greater utilization and exploitation of these plastics.

Plastics are the source of innovations contributing to sustainability, safety, longer lives and better performance. In our everyday lives at home, in the office, and on the road, plastics are there, fulfilling some essential role efficiently, conveniently and cost-effectively.

Innovation along the entire plastics value chain will be critical to reducing the environmental impacts of plastics. About half of all environmentally relevant innovations patented in 2017 focused on plastics circularity, i.e., the prevention and recycling of plastic waste. One-third were related to biobased feedstock, and the remainder aimed at converting or disposing of waste and removing plastics leaked into the natural environment.

#### Classification of innovation in environmentally relevant plastics technologies

PREVENTION & RECYCLING TECHNOLOGIES	CONVERSION OR DISPOSAL OF WASTE & LEAKAGE REMOVAL	BIOBASED FEEDSTOCK
<p><b>Prevention</b></p> <ul style="list-style-type: none"><li>Design for longer lifespans, light weighting or recycling</li><li>Reuse and repair</li></ul> <p><b>Recycling</b></p> <ul style="list-style-type: none"><li>Sorting plastic waste</li><li>Mechanical recycling</li><li>Plastic-to-plastic chemical recycling</li><li>Enabling digital technologies</li></ul>	<p><b>Conversion or disposal of waste</b></p> <ul style="list-style-type: none"><li>Biodegradable plastics</li><li>Plastic-to-fuel conversion</li><li>Waste to energy</li><li>Sanitary landfill</li></ul> <p><b>Leakage removal</b></p> <ul style="list-style-type: none"><li>Mitigating release at the source</li><li>Removing from wastewater</li><li>Monitoring and removing from nature</li></ul>	<p><b>Feedstock</b></p> <ul style="list-style-type: none"><li>Crop-based feedstock</li><li>Algae-based feedstock</li><li>Fungi-based feedstock</li><li>Other biomass</li></ul>

## OPINION COLUMN

Strong, lightweight plastics and plastic composites allow the weight of a vehicle to be reduced. As a result, less power is required to get it moving, and less energy is needed to maintain a constant speed. Consequently, your fuel economy is improved, saving you money and reducing greenhouse gas emissions.

Despite all the recent changes in policies and implementation of circular economy plans by governments and companies, the practical situation is that waste and pollution deriving from plastics remain a very serious problem. Within many individual countries, specific commitments to address plastic waste and pollution problems have been established.

Bioplastics, by their very name, are often considered to be the panacea for all the world's plastic issues. If implemented sustainably, the exploitation of renewable feedstocks for plastics production is part of the circular economy concept by reducing reliance on non-renewable resources. While they will undoubtedly be part of the solution in the future, at present and for the medium term, they will probably only play a rather minor part.

The largest volumes of bioplastics that are synthesized, rather than extracted, are polyesters, including bio-PET, which is synthesized from ethylene glycol derived from natural sources, but also terephthalic acid (TPA) that is usually derived from petrochemical sources (purely for economic reasons).

The commercial production of bioplastics of all types is increasing, but at present the totals are tiny compared to those produced from petrochemical sources.

In order to accelerate bioplastics production to a level that they can completely replace or at least greatly supplement petrochemical plastics will require a massive change in resource allocations and production facilities.

Currently, plastics are perceived to have little value, and therefore, the expectation is that all plastics should cost as little as possible and, once used, can be discarded as they are cheap materials. This attitude has resulted in the current linear economy for plastics. This has, in part, come about because the production of fossil-fuel-derived polymers, such as PE and PP, have been optimized so much that their bulk costs are incredibly low. Consequently, any post-consumer processing means that recycled plastics cost more than virgin material. Unfortunately, many consumers are not prepared to pay for the extra cost of recycled plastics over that of virgin material. Indeed, anecdotally, many people seem to think that simply because the plastic has been recycled, it should be cheaper.

Behavioural change is also an important part of the solution. Our modern society has moved a long way from even a generation ago when more value was placed on commodity items we bought, and a much lower reliance on single-use items existed. While we shouldn't be trying to turn back the clock, society as a whole must collectively adopt lifestyles that have a net positive effect on the planet.

(The writer is an Senior Research Analyst at VeKommunicate)

## Environment Equity

Saloni Goyal

### Circular Economy to Promote Sustainable Growth and Reduce Environmental Impacts

*A circular economy is a new production and consumption model that ensures sustainable growth over time. With the circular economy, we can drive the optimization of resources, reduce the consumption of raw materials, and recover waste by recycling or giving it a second life as a new product.*

The circular economy aims to make the most of the material resources available to us by applying three basic principles: reduce, reuse and recycle. In this way, the life cycle of products is extended, waste is used, and a more efficient and sustainable production model is established over time. The idea arises from imitating nature, where everything has value, and everything is used, where waste becomes a new resource. In this way, the balance between progress and sustainability is maintained.

#### Circular Economy in India

Circular Economy aims to eliminate all forms of junk from the market, where “junk” refers to any inefficient utilization of resources or assets. It is a restorative approach to production and consumption that involves redesigning, recovering, and reusing products and materials to reduce environmental impacts. Circular models seek to eliminate four different kinds of waste that are as follows:

- Wasted Resources - Materials and energy that cannot be effectively recycled over time
- Wastage Capacities - Products and assets that are underutilized

- Wasted Lifecycles - Products that prematurely end due to planned obsolescence or a lack of second-life options
- Wasted Embedded Values - Components, materials, and energy not retrieved from waste streams



*Transitioning to a circular economy might increase global economic output by US\$4.5 trillion by 2030. Furthermore, in contrast to the existing growth environment, India's circular economy development path could create US\$ 218 billion (Rs 14 lakh crores) in annual value by 2030 and US\$ 624 billion (Rs 40 lakh crores) by 2050. In order to execute a circular economy in India, an enabling environment that supports the identification and adoption of new business models would be required. Currently, 377 million people live in metropolitan areas, which generate around 55 million tonnes of Municipal Solid Waste (MSW)*

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(organic waste, recyclables such as paper, plastic, wood, glass, etc.) every year, with this figure predicted to rise to 125 million MT by 2031. Moreover, only 75–80% of the MSW gets collected, of which only 22–28% is processed, and the rest is dumped in dump yards. MSW generation is projected to increase to 165 million tons by 2031 and further rise to 436 million tons by 2050.

India is anticipated to be the world's third-largest economy by 2030, accounting for roughly 8.5% of global GDP. The circular economy has the ability to drive India's growth while also bringing major environmental advantages, resulting in a long-term and resilient framework. According to the National Chemical Laboratory (NCL) and the PET Packaging Association for Clean Environment (PACE), the recycled Polyethylene Terephthalate (PET) plastic business in India is worth roughly US\$ 400–550 million. PET is recycled at a rate of 90% in India, which is greater than the rates in Japan (72%), Europe (48%), and the United States (31%). As a result, India has great prospects for a circular economy.

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