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POLICY PULSE

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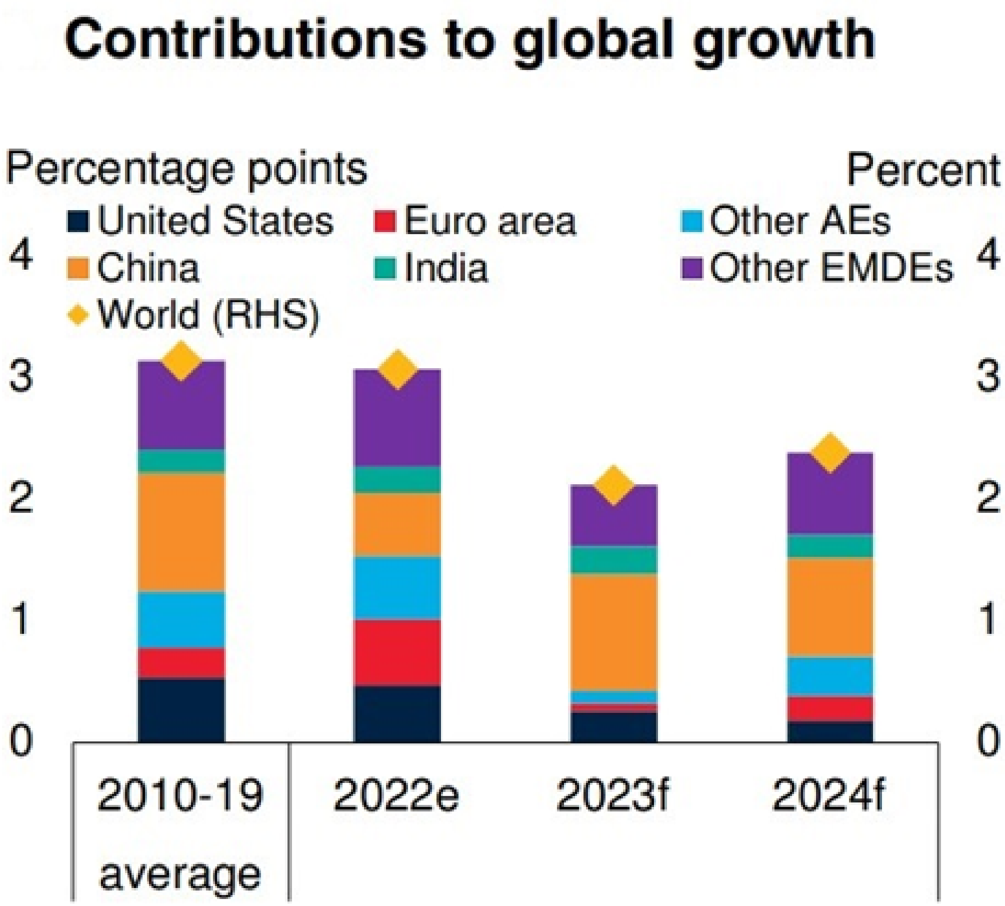
IN THIS ISSUE

ECONOMY

GLOBAL ECONOMY

Global growth is expected to slow to 2.1 % in 2023 before rebounding to 2.4 % in 2024. The weakness in economic activity projected for this year is widespread across countries—especially in advanced economies. The primary driver of the short-term dynamics continues to be the combination of elevated inflation, alongside the global monetary policy tightening it has provoked. The drag from these factors is expected to peak this year before gradually dissipating. In the longer term, global output is expected to decelerate because of a broad-based slowdown in all the fundamental drivers of growth. (-World Bank)



Source: World Bank

Note: *AEs = advanced economies; EMDEs = emerging market and developing economies. Aggregate growth rates and GDP per capita calculated using real U.S. dollar GDP weights at average 2010-19 prices and market exchange rates. Data for 2023-24 are forecasts.*

Global growth is expected to slow to 2.1 % in 2023 before rebounding to 2.4 % in 2024. The weakness in economic activity projected for this year is widespread across countries—especially in advanced economies. The primary driver of the short-term dynamics continues to be the combination of elevated inflation, alongside the global monetary policy tightening it has provoked. The drag from these factors is expected to peak this year before gradually dissipating. In the longer term, global output is expected to decelerate because of a broad-based slowdown in all the fundamental drivers of growth. (-OCED)

GLOBAL ECONOMY

But like the World Bank, the OECD flagged the ongoing impact of monetary policy tightening. Monetary policy tightening refers to the deliberate actions taken by a central bank to reduce the availability of money and credit in the economy, typically through raising interest rates or reducing the money supply. The impact of monetary policy tightening on the economy can be significant and wide-ranging.

Firstly, higher interest rates make borrowing more expensive, leading to reduced consumer spending and investment. This slowdown in economic activity can result in decreased business profits, lower employment levels, and decreased consumer confidence. Reduced investment also hampers productivity and long-term economic growth.

Secondly, monetary policy tightening can have an impact on inflation. By reducing the money supply, central banks aim to curb inflationary pressures. Higher interest rates make borrowing less attractive, which can dampen consumer spending and reduce demand-pull inflation. Additionally, tighter monetary policy can strengthen the currency, potentially reducing import prices and lowering cost-push inflation.

Thirdly, monetary policy tightening can affect financial markets. Higher interest rates can lead to a decline in stock prices, as the cost of borrowing increases, making stocks less attractive. Bonds become more appealing due to higher interest rates, leading to a decrease in bond prices. Moreover, tightening monetary policy can increase market volatility and uncertainty, affecting investor sentiment and capital flows.

Lastly, the impact of monetary policy tightening extends to international markets. Higher interest rates can attract foreign investors seeking higher returns, resulting in an appreciation of the domestic currency. This can make exports more expensive and imports cheaper, leading to a deterioration of the trade balance.

REGIONAL PROJECTIONS

- **U.S. Soft Landing Continues**

For the past year, Morgan Stanley economists have maintained that the U.S. economy is heading for a moderate economic slowdown rather than a full-blown recession. “We continue to look for a soft landing this year, but that depends on how much tighter credit conditions for households and businesses weigh on economic activity,” says Ellen Zentner, Chief U.S. Economist. She notes that job gains could slow, lifting U.S. unemployment to 4% by the end of 2023 and 4.4% by the end of 2024. Zentner expects the Fed to hold its policy rate at 5.1% before starting quarterly cuts of 0.25% in early 2024. Funding pressures in the banking system are a new development for 2023 and Morgan Stanley’s U.S. outlook now points to 1.2% GDP annual growth for 2023 and 0.8% in 2024.

ECONOMY
GLOBAL ECONOMY

- **European Consumption Should Pick Up**

Inflation in the euro area has been on its way down after peaking at an annualized rate of 10.6% in October 2022, with prices for energy, goods and food receding. “We expect headline inflation to be 5.4% for in 2023 and 2.3%in 2024,” says Chief Europe Economist Jens Eisenschmidt. “However, we think that it will take time to get back to the ECB’s target of 2% and we might not be there by the end of 2024.”

Another relative positive in Europe is that the employment should stay stable while wages, which haven’t kept pace with inflation, are accelerating and should continue to do so until mid-2023. The combination of declining inflation and rising wages means workers should start to see their purchasing power increase later this year and into 2024.

“This provides more positive backdrop for private consumption, which accounts for around 50% of GDP in the euro area,” Eisenschmidt notes. “That said, weakness in exports and investment may get in the way of more meaningful GDP growth as the impact of tighter monetary policy increasingly affects the euro area economy.” The upshot: 0.7% GDP growth in 2023 and 1% growth in 2023.

- **China, Reopening and Recovering**

The strength and significance of China’s recovery has been closely scrutinized and debated. Morgan Stanley’s economists expect a positive story for the world’s second-largest economy, with growth of 5.7% in 2023 and 4.9% in 2024.

“The initial reopening surge early this year came from a bounce in sectors hit by COVID, pent-up housing demand and a backlog of export orders,” says Chief China Economist Robin Xing. “We expect growth reacceleration in the second half of this year after a hiccup in the second quarter, thanks to renewed stimulus and new employment in services bolstering private consumption.”

- **Japan's Growth Revival:**

At first glance, 1.1% GDP growth for 2023 and 2024 may not seem noteworthy. Yet, for Japan, this outlook speaks to strong nominal growth. “This would be a momentous change for Japan, where nominal growth has been basically in a flat range for a long period,” says Chief Japan Economist Takeshi Yamaguchi. “It implies simultaneous growth for employee compensation and corporate earnings, a large increase in tax revenue and potentially positive effects on asset prices.” Yamaguchi expects continued strength in private consumption and corporate spending. “Exports are exposed to the overseas economic slowdown ahead, but we expect the yen to stay at relatively weak levels, which differs from past periods, to support the earnings of exporters,” he adds.

ECONOMY

INDIAN ECONOMY

According to OECD, Economic growth in India is expected to outpace that of China this year and next. In its latest global economic outlook report, the OECD predicted that India, China and Indonesia would top gross domestic product projections for 2023 and 2024. Overall, the organization expects global growth of 2.7% this year.

In June 2023, Fitch Ratings raised its forecast for India's economic growth to 6.3% for current fiscal year 2023-24 from 6% it had predicted previously. This is primarily because of a stronger out-turn in the first quarter and near-term momentum. The growth forecast compares with 7.2% GDP expansion in FY23. In the previous fiscal year (FY22), the economy had grown 9.1%. "India's economy has been showing broad-based strength — with GDP up by 6.1% year-on-year in 1Q-23 (January-March) and autosales, PMI surveys and credit growth remaining robust in recent months — and we have raised our forecast for the fiscal year ending in March 2024 (FY23-24) by 0.3 percentage points to 6.3%," the rating agency said.

Performance of Key Indicators

The Index of Eight Core Industries (ICI), which measures the combined and individual performance of key sectors in the Indian economy, showed a growth of 4.3% in May 2023 compared to May 2022. Several sectors recorded positive growth in May 2023 compared to the same period last year.

Coal production (weight: 10.33 %) increased by 7.2 % in May, 2023 over May, 2022. Its cumulative index increased by 8.2 % during April to May 2023-24 over corresponding period of the previous year.

Crude Oil production (weight: 8.98 %) declined by 1.9 % in May, 2023 over May, 2022. Its cumulative index declined by 2.7 % during April to May, 2023-24 over the corresponding period of previous year.

Natural Gas production (weight: 6.88 %) declined by 0.3 % in May, 2023 over May, 2022. Its cumulative index declined by 1.5 % during April to May, 2023-24 over the corresponding period of previous year.

Petroleum Refinery production (weight: 28.04 %) increased by 2.8 % in May, 2023 over May, 2022. Its cumulative index increased by 0.7 % during April to May, 2023-24 over the corresponding period of previous year.

Fertilizer's production (weight: 2.63 %) increased by 9.7 % in May, 2023 over May, 2022. Its cumulative index increased by 15.7 % during April to May, 2023-24 over the corresponding period of previous year.

Steel production (weight: 17.92 %) increased by 9.2 % in May, 2023 over May, 2022. Its cumulative index increased by 12.2 % during April to May, 2023-24 over the corresponding period of previous year.

Cement production (weight: 5.37 %) increased by 15.5 % in May, 2023 over May, 2022. Its cumulative index increased by 13.7 % during April to May, 2023-24 over the corresponding period of previous year.

Electricity generation (weight: 19.85 %) declined by 0.3 % in May, 2023 over May, 2022. Its cumulative index declined by 0.7 % during April to May, 2023-24 over the corresponding period of previous year.

INDIAN ECONOMY

Cement production, with a weightage of 5.37%, saw the highest growth rate of 15.5%. Steel production, accounting for 17.92%, increased by 9.2%, while coal production, with a weightage of 10.33%, witnessed a growth rate of 7.2%. Fertilizers and refinery products also showed growth rates of 9.7% and 2.8%, respectively.

As per data released by the Ministry of Statistics, India's industrial production index (IIP) rose 4.2 % annually in April from 1.1 % in March to 6.7 % in April 2022. India's IIP slipped to a five-month low of 1.1 % in March. That number has now been revised to 1.7 %. The previous lowest level of growth was recorded in October 2022 at a contraction of 4.1 %. Factory output measured in terms of the Index of Industrial Production (IIP) grew 6.7 % in April 2022. The manufacturing sector's output - which accounts for more than three-fourths of the IIP - grew 4.9 % in April 2023 as against 5.6 % a year ago. While, power generation declined by 1.1 % in April 2023 against a growth of 11.8 %. The mining output rose by 5.1 % during the month under review compared to a growth of 8.4 % in the year-ago period.

As per the Ministry of Finance, India's Goods and Services Tax (GST) collection crossed ₹1.60 lakh crore mark in June 2023. According to the finance ministry, it is for the fourth time since the inception of GST that the gross collection has crossed the ₹1.6 lakh crore mark. The collection has breached the ₹1.50 lakh crore for the seventh time since inception. The government said that out of gross GST revenue of ₹1,61,497 crore, ₹31,013 crore is Central Goods and Services Tax (CGST). On the other hand, state goods and services tax (SGST) are ₹38,292 crore, while the integrated goods and services tax (IGST) is ₹80,292 crore. The ministry said cess is ₹11,900 crore. “The total revenue of Centre and the States in the month of June 2023 after a regular settlement is ₹67,237 crore for CGST and ₹68,561 crore for the SGST”, the ministry stated.

WTO UPDATES

USA – India resolves key trade issues during Modi visit

PM Narendra Modi's visit to the US has underscored the bilateral relationship between the two countries. As per USTR Ambassador Katherine Tai's statement, the agreement represents the culmination of intensified bilateral engagement over the last two years, including through the U.S.-India Trade Policy Forum, to deepen our economic and trade ties.

The two countries have agreed to settle six outstanding World Trade Organisation (WTO) disputes. India also agreed to lift retaliatory tariffs on some US items, including chickpeas, lentils, almonds, walnuts, apples, boric acid, and diagnostic reagents, that it had imposed in response to the US Section 232 national security measures on steel and aluminium.

The six WTO disputes are –

- United States – Countervailing Measures on Certain Hot-Rolled Carbon Steel Flat Products from India (DS436);
- India – Certain Measures Relating to Solar Cells and Solar Modules (DS456);
- United States – Certain Measures Relating to the Renewable Energy Sector (DS510);
- India – Export Related Measures (DS541);
- United States – Certain Measures on Steel and Aluminium Products (DS547); and
- India – Additional Duties on Certain Products from the United States (DS585).

India will remove the additional duty from these tariff lines within 90 days of the letter exchange (from 21st June 2023). The tariff lines as mentioned below –

HS Code	Additional duty to be removed
0713.20.90 (Chickpeas, dried and shld)	10%
0713.40.00 (Lentils, dried and shld)	20%
0802.11.00 (Almonds, fresh or dried, in shell)	Rs. 7/kg
0802.12.00 (Almonds, shelled)	Rs. 20/kg
0802.31.00 (Walnuts, fresh or dried, in shell)	20%
0808.10.00 (Apples, fresh)	20%
2810.00.20 (Boric Acid)	20%
3822.00.90 (Other - Diagnostic Regents)	20%

From the US side, on steel and aluminium

Products	Approved Rate of Exclusion Request	Duty-Free Entry Eligible (1st January 2023)
Steel	70%	308,666 metric tonnes
Aluminium	80%	28,772 metric tonnes

WTO Report on Chinese Duties on Japanese steel products

In July 2019, the Chinese Authorities imposed Anti-Dumping (AD) duties of 18.1-29.0% on Japan's stainless-steel billet and stainless-steel hot-rolled plates/coils on the basis that Japan dumped stainless-steel products had damaged China's local industry.

In addition to Japan, China began imposing AD tariffs on stainless steel products imported from South Korea, Indonesia, and the EU.

On 19 June, the WTO circulated the panel report in the case brought by Japan in "China — AD Measures on Stainless Steel Products from Japan" (DS601). The panel report found that the AD measure is inconsistent with the WTO Anti-dumping Agreement and recommended that China brings its measure into conformity with the WTO Agreement.

TRIPS Council Regular Meeting

WTO members continued their discussion on extending the TRIPS Decision issued at the 12th Ministerial Conference to COVID-19 therapeutics and diagnostics at a TRIPS Council meeting on 14-15 June 2023. Members agreed to convene a one-day thematic session with outside stakeholders after the August break to take stock of COVID-19-related developments to facilitate a based-on-evidence discussion. The next formal meeting of the TRIPS Council is scheduled for 9-10 October 2023.

As per the formal statements by the chair, Ambassador Pimchanok Pitfield (Thailand), she is committed to doing everything possible to advance the discussion in the run-up to the WTO'13th Ministerial Conference (MC13), to be held in Abu Dhabi in February 2024. Before that, she indicated to develop a draft program along with the Secretariat, which will be circulated for comments. Members' preference for a balanced composition of participating stakeholders from diverse geographical and organizational backgrounds will be considered.

Views from different WTO members:

- **South Africa** highlighted how demand for diagnostics and therapeutics had been artificially suppressed for various reasons for least developed nations, including the un-affordability of many patented tools for low- and middle-income countries; budget constraints in many of these countries; opacity in supply agreements; competing health priorities and knowledge gaps regarding the available health technologies; and the value of testing and therapeutics.
- In an effort to break new ground, **India** is undertaking bilateral discussions with several delegations. However, it has expressed concern about members engaging in circular discussions that may prevent an outcome at MC13.

Many developing countries, including Djibouti, Bangladesh, Indonesia, Nepal, El Salvador, Peru, Tanzania, Thailand, and Cambodia, support India and South Africa. The two countries are supported for holding thematic sessions, emphasizing that it would feature a diverse representation, both geographically and in terms of the diversity of voices and opinions, with the presence of relevant organizations and representatives of civil society.

WTO UPDATES

- **China** stated that despite the WHO's declaration in May that the COVID-19 pandemic no longer constitutes a Public Health Emergency of International Concern (PHEIC). The announcement only signifies a shift in COVID-19 management from emergency mode to a level consistent with other infectious diseases of a similar nature. The country also supported the thematic session in October.

- **Brazil** emphasised that developing countries are still facing the pandemic's severe difficulties. The country further argued that pandemic-related problems could also be solved technologically and scientifically in developing nations.

- The **United States** supported the initiative of the thematic session and reported on the current status of the investigation launched by the US International Trade Commission (ITC) into COVID-19 diagnostics and therapeutics.

- The **European Union** also supported the initiative of the thematic session to advance discussion. In addition, mentioned multiple factors that affect the accessibility and affordability of these products, such as variable financing, licensing, procurement mechanisms, and regulatory procedures.

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

INDIA

India plans to revive agreement with SACU

The resource-rich Southern African Customs Union (SACU), a customs union comprised of five Southern African countries: Botswana, Eswatini (Swaziland), Lesotho, Namibia, and South Africa, is a significant provider of raw primary or semi-processed commodities. According to the Ministry of Commerce, five rounds of talks on a prospective India-SACU preferential trade deal have already taken place. The first round of talks took place in 2007, and they came to a halt in 2010.

According to the experts, "SACU is a developing country union; it may not include non-trade issues such as labour, gender, and the environment in the deal." Negotiations will be relatively easier to conclude. We can reach an agreement with them. There are numerous collaborations between India and South Africa. Coal, diamonds, gold, and iron ore are all imported into India. India is refocusing its efforts on negotiating a trade agreement with a Southern African union that might boost pharmaceutical and vehicle exports.

Indian exports dropped for the fourth consecutive. Goods exports declined 10.30% to US$34.98 billion in May 2023 compared to US$39 billion in May 2022, while imports declined 6.57% to US$57.1 billion in May 2023 compared to US$61.12 billion in the same month last year, causing the trade deficit to rise to US$22.12 billion, the highest in more than five months.

India Export to SACU Countries -

Countries	India's Export (US$ Million)		Top exported product
	2021-22	2022-23	
Botswana	278.87	171.27	Diamonds, Optical, photo, technical, medical apparatus, refined petroleum
Eswatini / Swaziland	26.82	14.98	pharmaceutical products, gold and precious metal jewellery
Lesotho	10.99	15.06	drugs and pharmaceuticals
Namibia	205.88	240.6	drugs and pharmaceuticals, chemicals, agricultural machinery, automobile and automobile parts
South Africa	6,085.29	8,474.42	mineral oils & products, bituminous substances, and mineral waxes; road vehicles and parts

India Import from SACU Countries -

Countries	India's Import (US$ Million)		Top imported products
	2021-22	2022-23	Diamonds, Metal Waste and scrap
Botswana	527.96	459.97	Industrial Machinery, Gold, Residual Chemical
Eswatini / Swaziland	234.98	4.92	-
Lesotho	0	0	Non-ferrous metals, Metal Waste & scrap, transport equipment
Namibia	45.99	37.54	Steam coal, diamond, copper, gold
South Africa	10,965.81	10,397.83	Diamonds, Metal Waste and scrap

FREE TRADE AGREEMENT/ BILATERAL DISCUSSIONS

WORLD

European Union and Kenya Conclude Economic Partnership Agreement

The EU is Kenya's first export destination and second-largest trading partner, totalling €3.3 billion of trade in 2022 - an increase of 27% compared to 2018.

The EU and Kenya have concluded the negotiations for an ambitious Economic Partnership Agreement (EPA), aiming to elevate trade in goods and create new economic opportunities. It includes provisions for climate and environmental protection and labour rights.

The new EPA is expected to expand opportunities for Kenyan businesses and exporters by fully opening the EU market for Kenyan products.

The agreement also encourages EU investment in Kenya, providing increased legal certainty and stability, the European Commission said in a media release. It features robust trade and sustainability commitments, including binding provisions on labour rights, gender equality, environmental protection, and combating climate change.

POLICY/ REGULATORY UPDATES
INDIA/ WORLD

Green Credit Programme Implementation Rules 2023

Green Credit Programme (GCP) is proposed to be launched at the national level to leverage a competitive market-based approach for Green Credits, thereby incentivising voluntary environmental actions of various stakeholders. This programme is an innovative market-based mechanism required to promote the Mission LiFE movement, which aims at encouraging sustainable lifestyles.

The GCP will encourage private sector industries, companies, and other entities to meet their obligations stemming from other legal frameworks by taking actions that can converge with activities relevant to generating or buying Green Credits. The implementation will be adopted in phase-manner, and to start with, two-three activities will be considered for designing and piloting. These activities can be selected from eight sectors: tree plantation, waste management, water conservation, sustainable agriculture, eco-mark label, etc. Further, more activities will be added from the sector in the subsequent phases.

Indian Council of Forestry Research and Education is assigned as the Administrator of the Programme. As the administrator, it will develop guidelines, processes and procedures, establish methodologies and processes, issue digital Green Credits, and constitute Technical or Sectoral committees for each activity.

As per reports, the green credits will be tradable, and those earning it will be able to put these credits up for sale on a proposed domestic market platform. The draft notification will be in the public domain for 60 days to invite objections and suggestions, after which the rules will be notified.

WORLD

UK's New Developing Country Trading Scheme

The Developing Countries Trading Scheme (DCTS) will replace the current Generalized Scheme of Preferences (GSP) from 19 June 2023. The government is introducing the DCTS to improve access to the UK market for developing countries. The DCTS aims to support sustainable growth in developing countries through a more generous unilateral offer.

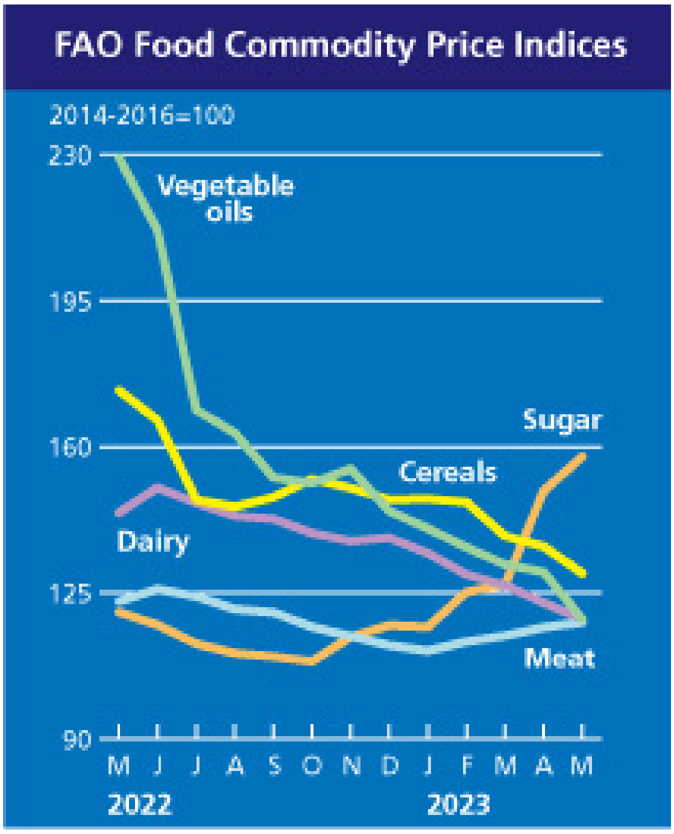
This has led to provisions in the DCTS, which are reducing tariffs, liberalization of rules of origin requirements, and simplifying the conditions attached to the scheme. The DCTS applies to countries that currently benefit under the UK's GSP, which includes - 47 countries in the GSP Least Developed Country (LDC) Framework and 18 additional countries or territories classified by the World Bank as low-income (LIC) and lower-middle-income (LMIC). It does not apply to LICs and LMICs that have a free trade agreement (FTA) with the UK or to nations that the World Bank has categorised as upper-middle income for three years consecutively.

The DCTS comprises three sub-schemes with varying degrees of preferential market access:

- **Standard preferences (SP)**: This sub-scheme replaces the GSP General Framework (GF) and grants partial or complete removal of tariffs on approximately 80% of tariff lines.
- **Enhanced preferences (EP):** This sub-scheme replaces the GSP Enhanced Framework (EF). It extends preferences to around 83% of tariff lines and provides zero duties on almost all.
- **Comprehensive preferences (CP):** This sub-scheme replaces the GSP Least Developed Countries Framework (LDCF) and offers zero duties on all tariff lines except for arms and ammunition. It is accessible to 47 least-developed countries (LDCs).

Under DCTS Scheme, India is provided as the Standards preference. According to experts, this shift from GSP to DCTS will significantly impact Indian exporters, particularly labour-intensive sectors like leather and textiles, along with certain textile items, leather goods, carpets, iron and steel goods, and chemicals, which could potentially face the impact of the withdrawal of GSP concessions.

Food Price Index shows a downward trend



According to a report by the Food and Agriculture Organisation of the United Nations (FAO), the world food import bill is expected to set a new record this year, though at a much slower rate than last year, as rising world prices, driven by higher quotations for fruits, vegetables, sugar, and dairy products, dampen demand, particularly in the most economically vulnerable countries.

POLICY/ REGULATORY UPDATES

WORLD

According to FAO's Food Outlook, the global food cost would grow to US$1.98 trillion in 2023, up 1.5% from 2022. It increased by 11% in 2022 and 18% in 2021.

According to FAO, the import bill for the group of Least Developed Countries (LDCs) is expected to decrease by 1.5% this year, and that for net food-importing developing countries (NFIDCs) to reduce by 4.9%, even while food imports by advanced economies continue to rise.

FAO Price Index for different products -

- The **FAO Cereal Price Index** fell 4.8% from the previous month, led by a 9.8% drop in world maize quotations due to a favourable supply outlook and weak import demand. World wheat prices fell 3.5% led by adequate supplies and the new extension of the Black Sea Grain Initiative. On the other hand, international rice prices continued to rise in May, supported by Asian purchases and tighter supply in several exporting nations such as Vietnam and Pakistan.
- The **FAO vegetable oil price index** fell 8.7% in May, an average of 48.2% year-on-year. International palm oil prices have plunged since April as global import purchases continue to slump while production in major producers rises. Global soybean oil prices fell for the sixth month in a row after a record soybean harvest in Brazil and higher-than-expected US inventories. Canola and sunflower oil prices continued to fall due to global supply.
- The **FAO Dairy Price Index** has fallen 3.2% since April, reflecting a plunge in international cheese prices, mainly due to the availability of plentiful exports amid seasonally high milk production in the northern hemisphere. However, global prices for milk powder and butter have recovered.
- The **FAO Sugar Price Index** recorded its fourth straight month of gains, up 5.5% from April and nearly 31% higher than the same month last year. The increase reflects lower global supplies, growing concerns about the impact of El Niño on next season's crop, and shipment delays due to intense competition from soybeans and corn in Brazil. A brighter outlook for Brazil's 2023 sugarcane harvest prevented a significant monthly price increase, as did the fall in international oil prices.
- The **FAO Meat Price Index** also rose 1.0% in May, mainly due to the continued high import demand for poultry meat in Asia and a continued shortage of bovine meat in the US.

OPINION COLUMN

Smart Manufacturing

Akriti Kumari

Healthcare Industry 4.0 – It's time to adapt and time to transform

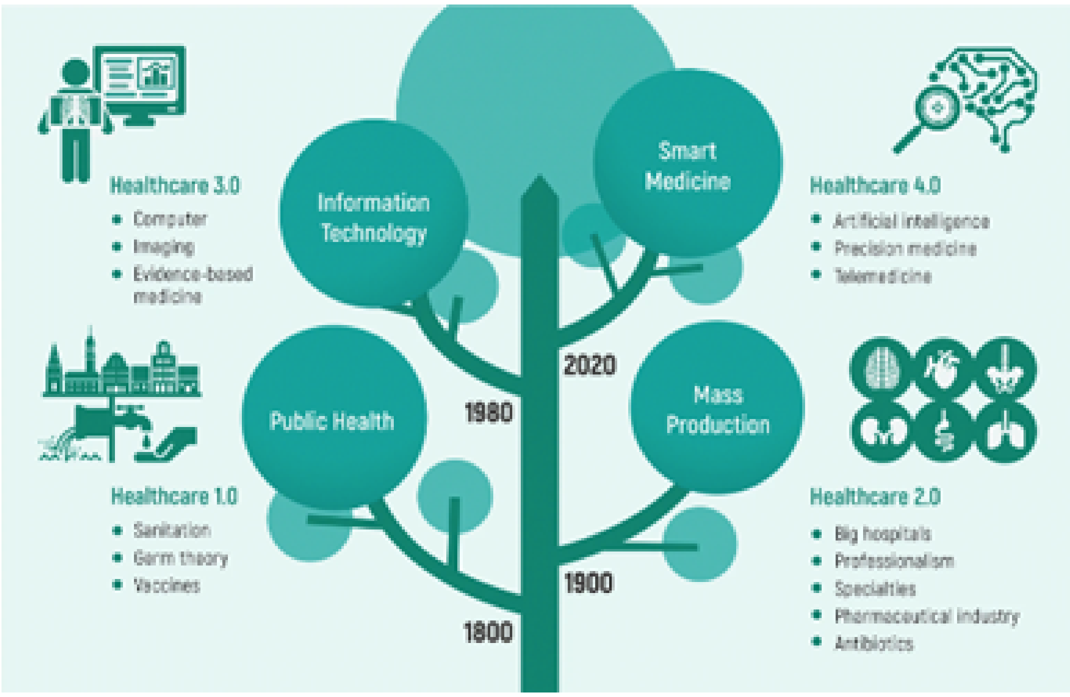
Industry 4.0 is expanded to include the Healthcare sector as well, leading to the emergence of Healthcare 4.0. This concept is not limited to manufacturing or automation but is applied in a wider scope which aims to improve the overall level of processes in manufacturing units, healthcare services provided, as well as operational matters of healthcare systems. Therefore, its focus is not solely on the processes but also on the beneficiaries. Adoption of Healthcare 4.0 solutions can have the following effects, amongst others:

- Increased surgical accuracy,
- Faster and more secure medical data storage,
- Improved hospital resources management,
- Less patient discomfort

Proper data management plays an important role towards Healthcare 4.0 solutions. As Healthcare is one of the sectors that produces the largest amount of data, in the form of, for example, biomedical data, Electronic Health Record (EHR) and physical records, scholars and practitioners recognise the significance of Healthcare Data Analytics to drive the realisation of organisation benefits.

Health 4.0 - a tech-driven concept that transforms the traditional healthcare industry as we know it.

When it comes to Health 4.0, it refers to a wide range of possibilities for using Industry 4.0 technologies to improve healthcare as it lays out a new and innovative vision for the health sector. The objective is to provide patients with better, more value-added, cost-effective healthcare services while improving the industry's efficacy and efficiency.



OPINION COLUMN

Healthcare is one of the most anticipated areas in the 4.0 revolution to achieve great results. Today's industry is more computerised than in previous decades, with x-rays and magnetic resonance imaging giving way to computed tomography, ultrasound scans, and electronic medical data.

Some cutting-edge innovations in healthcare:

- **Patient monitoring through the Internet**

Telehealth systems for remote patient monitoring (also known as "home telehealth" or "telemonitoring") allow doctors to check a patient's health from afar. Telehealth providers are beginning to provide software and solutions that connect patients and physicians and record patients' medical data, thanks to the advent of wearable technology and mobile medical devices.

- **Health-related mobile applications**

Healthcare, patient involvement, patient education, and public health services delivered via mobile devices such as smartphones, laptops, and tablets are referred to as mobile health or mHealth. Since the majority of people now own a smartphone, mHealth makes up a large component of telehealth software solutions.

- **Telemedicine in real-time**

Real-time telehealth (also known as "synchronous telehealth") entails two-way, live video conversations between a physician and a patient and partially allows to replace in-person doctor-patient visits.

Indian Scenario

India has the potential to move further up and support the domestic as well as the international need for advanced yet affordable drugs. The industrial transformation will play a key role in taking India to the top position, and this revolution will have a major effect on every aspect of our lives. In retrospect, there is a lot to be achieved on the healthcare and medicine frontiers, especially in the developing countries of the Asia Pacific region. In a business and social environment that is ruled by high volatility, uncertainty, complexity, and ambiguity (VUCA), manufacturers will especially need to embrace emerging digital technologies to transform their operations, control costs, reduce downtime, enhance the safety of operations, and improve profitability.

Indian pharma companies strive to meet domestic and global demand with strict adherence to National and International pharma requirements. At present, healthcare experts are trying to identify ways to predict, identify, and prepare for new challenges. Pharmaceutical companies are increasing their R&D activities with large investments and implementing advanced technologies that will help them reduce time to market and improve the quality of their products. This technology shift will allow them to boost efficiency and increase exports. The seamless integration of processes and digital technology will aid them in their establishment of goals for smart manufacturing.

OPINION COLUMN

The future prospects of health tech

Advances in digital healthcare technologies, such as artificial intelligence, virtual reality, 3D printing, robots, and nanotechnology are changing the future of healthcare right before our eyes. Companies are making efforts to keep up with new tech trends and working hand-in-hand with technology building the future of healthcare.

Digital technology has the potential to assist in the transformation of unsustainable healthcare systems into sustainable ones. It will serve to equalise the interaction between medical experts and patients, as well as deliver illness remedies that are less expensive, quicker, and more effective.

Technologies are already helping us to not only increase efficiency in the treatment process, but introduce life-changing advancements, such as improving breast cancer detection by applying ML to mammography, and predict the onset of acute kidney injury. Technological advancements may result in healthier individuals living in healthier societies.

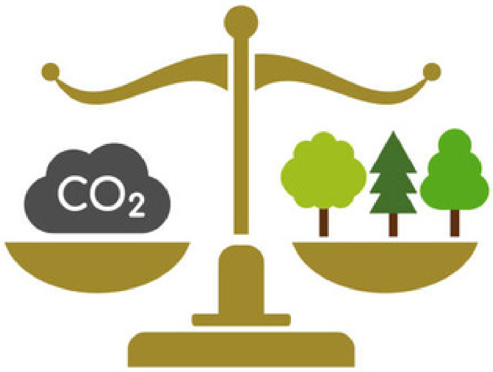
(The writer is an Senior Research Analyst at VeKommunicate)

OPINION COLUMN

Environment Equity

Saloni Goyal

Carbon Credits



A carbon credit is a reduction or removal of emissions of carbon dioxide or other greenhouse gases made in order to compensate for emissions produced elsewhere. A carbon credit is a transferrable instrument certified by governments or independent certification bodies to represent an emission reduction of one metric ton of CO2 or an equivalent amount of other greenhouse gases (GHGs). Carbon credits, along with carbon taxes and subsidies, are all forms of carbon pricing.

In simple words, Companies and individuals can account for their unavoidable emissions by buying carbon credits from certified activities that support community development, protect ecosystems or install efficient technology to reduce or remove emissions from the atmosphere.

Carbon Credit Price

According to the World Bank, carbon pricing value can be determined based on external factors, such as cost of fuel, emission trading scheme, tax levy, excise duty, project quality, international demand and supply of carbon, etc.

Evolution of carbon credits

As of 2022, there are 68 carbon pricing programs in place or planned to be introduced worldwide. While some of these are carbon taxes, many are emissions trading schemes or other types of market-based schemes that include carbon offsets and credits. International programs include the Clean Development Mechanism (CDM), Article 6 of the Paris Agreement and CORSIA. National programs include ETS schemes such as the European Union Emissions Trading Scheme (EU-ETS) and the California Cap and Trade Program.

It was recognized in the United Nations Kyoto Protocol in 1997 and 2005 to create a sustainable environment. Additionally, carbon was talked about in the 2015 Paris Climate Agreement. Under these agreements, a country is permitted to transfer and sell the excess capacity of the carbon credits it collects to other countries/institutions that do not have enough carbon credits to meet its climate targets. The Carbon Trade Certificate encourages companies and nations to spend money on environmentally friendly initiatives and activities.

Each country has a self-determined goal of achieving carbon credits to meet its commitment. From 2010 to June 2022, India spent 35.94 million carbon credits or nearly 17% of all voluntary carbon market credits issued globally. The Global carbon credit market grew by 164% in 2021. It is expected to reach US$100 billion in volume by 2030.

Types of Projects

A variety of projects have been used to generate carbon offsets and credits. These include renewable energy, methane abatement, energy efficiency, reforestation and fuel switching (i.e. carbon-neutral fuels and carbon-negative fuels). The CDM identifies over 200 types of projects suitable for generating carbon offsets and credits.

The certification and carbon trading programs vary in the extent to which they consider these specific projects eligible for offsets or credits. For example, under the European Union Emission Trading System, nuclear energy projects, afforestation or reforestation activities (LULUCF), and projects involving the destruction of industrial gases (HFC-23 and N2O) are considered ineligible.

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